

**Natural Resource Damage Assessments as Related to  
Department of Energy Site Clean up Concerns:  
A Preliminary Review**

**Christine Danis and Henry Mayer  
CRESP Center for Social and Economics Issues**

**Report 93 - REVISED**

**December 5, 2004**

## **Introduction**

The following is an initial review of the issues associated with linking current Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Natural Resource Damage Assessment (NRD/NRDA) regulation and Department of Energy (DOE) site clean up concerns. In particular, we examine elements that the Consortium for Risk Evaluation with Stakeholder Participation (CRESP) Center for Social and Economic Issues will be working on in Year Five.

This paper resulted from DOE's Environmental Management (EM) division request that CRESP, as an independent academic based advisor to the Department, evaluate the issues surrounding potential natural resource claims and damages at DOE sites. Of particular interest are sites that are being considered for near-term transfer from EM to Legacy Management (LM), the Office of Science & Technology (Science), the National Nuclear Security Agency (NNSA), and outside government agencies such as the Department of Interior (DOI) or local economic development organizations. Identifying and possibly quantifying the long-term NRD liability of each of these sites will likely be a key element of any property transfer process. This paper is intended to provide an overview of:

- DOE's role as both a NRD Federal Trustee and responsible party;
- NRD regulations and process, and how they pertain to DOE sites;
- Existing and potential linkages between EM's development of remedial site strategies, DOE's Environmental Health division (EH) and the DOE NRD Steering Committee;
- Suggested mechanisms for including NRD concerns in site Remedial Investigation/Feasibility Study (RI/FS) work;
- The potential costs associated with DOE natural resource damages;
- The potential application of NRD damage funds;
- Possible DOE property transfer mechanisms; and,
- Suggestions for further study.

## **DOE and Natural Resource Responsibility**

Under CERCLA sections 107(a) and 120(a), federal agencies, including DOE, are "liable for damages for injury to, destruction of, or loss of natural resources, including the cost of assessing such damage" (DOE 1993b, p1). However, CERCLA 113(g)(1) bars the filing of a claim for natural resource damages at any CERCLA NPL site or federal facility until after the selection of the remedial action (GAO 1996). The National Contingency Plan and Executive Order 12580 established DOE as the Federal Trustee for "natural resources located on, over or under land administered by DOE" (DOE 1993b, p2).

As of June 1996 there were 160 proposed and actual federal facilities on the National Priorities List (NPL). Although they represent less than 10% of the total sites on the NPL, some clearly are among the most expensive and complicated cleanup projects in the country. The Department of Defense (DOD) was identified as the owner of about 82% of the 160 sites and DOE as owner of approximately 11% of the sites. At that time there were over 450

ongoing RI/FS studies, over 100 Remedial Design's (RD) and over 100 ongoing Remedial Action's (RA) (OSWER 1996).

Thus, the DOD and DOE are often responsible for both responding to releases of hazardous materials, such as those related to the DOE's research, production and testing of nuclear weapons, as well as the restoration of natural resources that are lost or injured as a result of such releases. The Secretary of Energy has established a DOE Steering Committee, made up of EH-43, Program Offices, General Counsel, Field Counsel and Site Coordinators, to oversee the Department's role as a Federal Trustee as well as defendant in several NRDA lawsuits. The Steering Committee works with EPA and other agencies to identify and resolve natural resource concerns at DOE sites.

Under CERCLA, the DOE is required to assess the ecological threat posed by an actual or possible release of a hazardous substance. An ecological risk assessment is an integral part of the Remedial Investigation and Feasibility Study (RI/FS) process (EPA 1997), and one principal product is a conceptual model that identifies significant contaminant sources, modes of release and transport, and primary and secondary receptors, as well as secondary effects such as a loss of habitat (DOE 1993a). Used to plan mitigation measures for the remedial phase, it could also provide a constructive link to the NRD process of resource injury determination and quantification of resource service reductions. "When properly implemented, such measures can reduce or eliminate the potential for unplanned cost growth due to residual damages from the release or the response actions" (DOE 1993b, p2).

The concept of utilizing the framework of NRDA as a mechanism for addressing natural resource concerns at DOE sites has been under review and discussion at the Department since at least 1993. Martin Marietta Energy Systems, Inc. prepared a report entitled "Integrating Natural Resource Damage Assessment and Environmental Restoration Activities at DOE Facilities" (DOE 1993a) for DOE's Office of Environmental Guidance in that year. In 1997, Alvin Alm, Assistant Secretary for Environmental Management, established a policy on "Integration of Natural Resource Concerns into Response Actions." Its objective was to "to promote more complete consideration of the risks associated with cleanup alternatives, lower the total life-cycle costs of the program, and minimize potential claims against the Department" (DOE 1997, p1).

A search of the DOE Steering Committee web site indicated no further discussion of natural resource damage issues until June of this year, when John Bascietto (EH-43), a nationally recognized expert on NRDA policy and Chairman of the DOE's Natural Resource Trustee Coordinators Steering Committee, presented "Integrating Natural Resource Concerns with DOE Clean-Up" (DOE 2004a) at a *Cooperative Natural Resource Damage Assessment and Restoration Workshop* in San Diego. We recently spoke with Mr. Bascietto about his active involvement in NRDA issues at DOE and our inability to locate reports related to EM's progress since 1997 in integrating NRD with the choice of remedial strategies. He expressed an interest in improving the relationship between EH and EM regarding NRDA

issues, and indicated that EH is readily available to provide advice and assistance on the subject. He noted that most of the current interactions have been with the sites, not with EM headquarters personnel, and the process could be improved upon (Bascietto 2004b).

### **Natural Resource Damage Assessment Regulations and Protocols**

Department of Interior (DOI) regulations provide a framework and standards for the NRDA process in coastal and marine environments (Type A) and other environments (Type B). The Type A process uses a computer model to assess damages that result from chemical discharges in coastal and marine environments. It is a straight-forward and simplified approach for assessing readily identifiable discharges that have occurred in aquatic environments. However, it is not readily applicable to most land based facilities and is particularly limited for historic contamination. The Type B process is applied in situations that require more of an individualized approach. Both types require the following four sequential phases:

- Phase 1: Pre-assessment screen to determine if additional action is warranted and for Trustees to determine whether an injury has occurred and a pathway of exposure;
- Phase 2: Assessment plan to identify how potential damages will be evaluated;
- Phase 3: Gathering of data necessary to quantify the injuries and determine damages; and,
- Phase 4: Post assessment of a preferred alternative that has been developed based on multiple factors including technical feasibility, cost benefit analysis and consistency with response actions.

One of the primary responsibilities of Trustees under CERCLA is to assess the extent of injury to a natural resource and determine appropriate ways of restoring and compensating for that injury. A natural resource damage assessment is the process of collecting, compiling and analyzing information in order to make that determination. Trustees have the option of using the DOI's regulations or developing their own NRDA protocols, provided that they utilize the four phases noted above. If the Trustees utilize the DOI regulations, they are given the force of "rebuttable presumption" in a court of law. This means that the burden of persuasion in court shifts to the Responsible Party (RP). In these instances the RP must attempt to disprove the Trustee's NRD assessment.

The statute of limitations for NRD claims is found in CERCLA Section 113(g) (1), with respect to NPL sites, federal facilities and CERCLA facilities where a remedial action is scheduled: NRD actions must be commenced within three years after the completion of the remedial action. However, Tribal Nation Trustees may have an extended deadline for filing a NRD claim. It is either the expiration of the otherwise applicable period of limitations (the three years) or two years after the Federal Trustee has provided written notice to the Tribe governing body that it will not present a claim on behalf of the Tribe (EPA 1994).

### **Integration with Clean-Up Strategies**

As a means of overcoming the uncertainty associated with the need to develop a remedy or corrective action at DOE sites in the early 1990s, the DOE developed the

Streamlined Approach for Environmental Restoration (SAFER) (DOE 1993c). In 1994, the SAFER methodology was pilot-tested on actinide-contaminated sites at Oak Ridge National Laboratory, Hanford, Savannah River Site and Mound. The goal was to streamline the process and focus project planning and scoping as a means to overcome the high degree of uncertainty that exists with limited characterization data at environmental restoration sites. The SAFER model was designed to support RI/FS planning and it received high marks in an EPA review that noted that “explicit stakeholder participation” receives a greater emphasis in the DOE SAFER model as compared to EPA and ASTM Data Quality Objective models (EPA 2000). The current status and possible use of the DOE SAFER model is not known. However, it may serve as a model for involving other NRD Trustees and stakeholders in the environmental review process, while not jeopardizing the remedial action timeline or re-opening the decision making process.

The literature indicates that successful NRD settlements have been associated with sites where the responsible party acted early on in the process to address and incorporate NRD concerns. The level of communication amongst the Trustees is also very important. At sites where a responsible party has reached out and incorporated all applicable Trustees the length of the legal process and the time frame for reaching a consensus has been reduced. Although using these lessons learned would seem straightforward, the DOE is dealing with unique contaminant situations that occurred many years before NRD came into being, and where years of secrecy related to national security concerns has created a great deal of public mistrust of the DOE. It is also serving as the Federal Natural Resource Trustee and principal responsible party at all of its most contaminated sites. This duality of addressing natural resource concerns may require a new approach within DOE that crosses internal organizational lines, responsibilities, authorities and budgets (i.e., EM, EH, LM, Science and NNSA), as well as earlier and wider inclusion of other Trustees, and the U.S. Department of Justice where existing lawsuits need to be amicably resolved.

In accordance with CERCLA Section 120 (e) a federal facility must enter a negotiated Interagency Agreement (IAG) with the EPA within 180 day’s of EPA’s review of the RI/FS. Preparing the RI/FS thus seems to be an opportune time to address and ensure that natural resource concerns are investigated, and to consider how they might be addressed in the site clean up and closure process. If DOE took the further step of coupling this investigative opportunity with entering into a cooperative NRD assessment agreement with other Trustees, it might greatly reduce the potential for being sued and held liable for natural resource concerns in the future.

The Office of Environmental Guidance suggested how to address NRD at DOE sites in its 1993 report, “Integrating Natural Resource Damage Assessment and Environmental Restoration Activities at DOE Facilities.”

“Few natural resource damages cases have, in fact, actually been tried, with most being settled out of court. The primary reason to acquaint DOE facility managers with the DOI procedures is not necessarily to prepare them to conduct the NRDA

process. Rather, it is to make them aware of what the process is designed to do and how its technical and cost analysis concepts can be borrowed at strategic points in the CERCLA process to improve environmental restoration decision making and minimize potential natural resource damages liabilities in the future.”(DOE 1993a, p11).

However, it also raised concerns about the feasibility of integrating the two.

“Since EPA is not a natural resource trustee, it may be reluctant to allow natural resource damages considerations to influence the selection of remedial actions. And since the steps in the NRDA process are not part of the RI/FS process, it may be difficult for DOE facilities to get funding for NRDA activities when budgets are based solely on RI/FS activities. A proactive NRDA approach may also increase the likelihood that other trustees will bring an NRDA claim if lines of communication between DOE and other trustees break down. This kind of result should, however, be avoidable by bringing co-trustees into the decision making process early and working to build consensus from the start. Overall, however, the potential advantages of integrating the RI/FS and NRDA processes substantially outweigh the potential disadvantages.”(DOE 1993a, p44).

It is also important to note that the Department of Interior’s (DOI) definition of restoration is not necessarily the same as DOE’s use of the term “environmental restoration,” which emphasizes cleaning up past releases and existing contamination. The DOI, in 43 CFR 11.62, defines restoration and /or rehabilitation, as “actions undertaken to return an injured resource to its baseline, or with-out release condition as measured in terms of the injured resource’s physical, chemical or biological properties or the services it would have provided” (DOE 1993a, p11).

### **Natural Resource Damage Costs**

There is little evidence that the DOE has actively pursued the assessment of possible natural resource damages or sought to integrate it into consideration of remedial solutions. One reason may be a reluctance to provide full disclosure of the nature and extent of possible damages to the other NRD trustees that share public responsibility for natural resources at the site. Natural resource liabilities are a great unknown, with some costs estimated to be in the billions of dollars. The General Accounting Office in 1996 was asked to: (1) estimate the range of potential liability for natural resource damages at DOE’s sites; 2) explain any differences between the GAO estimates and the estimates developed by an interagency group headed by the Council on Environmental Quality (CEQ); and (3) identify factors that could affect the reliability of these estimates, including legal issues (GAO 1996). The study estimated that DOE’s potential liability for natural resource damages could be from \$2.3 billion to as much \$20.5 billion, and that a more likely range could be from \$2.8 billion to \$13 billion.

GAO determined that two basic methods are available for estimating DOE's potential liability for natural resource damages: (1) estimating potential liability on an individual site, or -by- site basis; and (2) estimating liability for the entire environmental restoration program. They found that conclusive information about possible injuries to resources at the individual site level was often not readily available. Consequently, both GAO and CEQ estimated DOE's potential environmental restoration liability by using information about settlements for natural resource damages at private sites as a means to calculate a series of ratios of natural resource damages to the cleanup costs, and then applying these ratios to DOE's projections of its cleanup costs (GAO 1996). This method assumes that DOE's experience with natural resource damages will be similar to the settlement experience to date at private sites. Given the type and extent of contamination at major DOE sites, this is indeed a questionable assumption.

Although NRD lawsuit and settlement information is publicly available on only a small number of Superfund sites, a separate study found that that the size of the settlements are increasing and tend to double every three to four years. The total NRD payout rose rapidly over the 1990's from almost nothing in the 1980's to an average of approximately \$100 million per year between 1998 and 2001. The number of settlements also rose during this period, but has since stabilized at about 15-20 per year. The largest CERCLA related settlement was approximately \$130 million and was for a partial settlement for mining/smelting injuries at Clark Fork River in Montana (Smith 2003).

To date, there have only been partial settlements of a handful of NRD claims against the DOE. Hence, there is little information to use in determining a more accurate assessment of potential costs. In 1987, the State of Ohio filed a \$206 million NRD lawsuit related to damages at the Fernald site. Under a Natural Resources Restoration Plan, originally submitted in 1997, DOE began implementing ecological restoration projects at the site concurrently with remediation projects. However, the lawsuit has never been settled and many in the local community hope that it will reap additional financial benefits for the area (FCAB 2004). At Oak Ridge, the DOE has set aside 3,000 acres for conservation purposes as a partial settlement for natural resource damages. Information regarding the total damages claimed could not be found.

In 2002, the Yakima Nation, in its role as NRD Trustee, sued DOE and DOD and asked for monetary damages or the restoration and replacement of natural resources damaged as a result of federal activities at Hanford. Having been refused by the Department of Justice to participate in mediation efforts between the Yakima Nation and DOE, the Washington and Oregon Attorney Generals recently served notice that they intend to sue the DOE and ask a court to order it to prepare required assessments of environmental harm at Hanford. "While cleanup efforts have been under way at Hanford for a number of years, the federal government never has performed a thorough analysis of the harm that Hanford nuclear production caused to groundwater, wildlife and other natural resources" (Washington 2004).

DOE as a Federal Trustee and an RP cannot be sued by another federal agency, and therefore the lead Trustee in an NRD suit would have to be a tribal nation or the state. As such they would need adequate funding to pursue an assessment and court suit against the DOE. They are permitted under CERCLA to seek the use of the federal Superfund Trust Fund for such needs, assuming monies are available (EPA 2004).

The question of how DOE would pay a natural resource damage award and whether it would have to be specifically appropriated by Congress, as part of the DOE's annual budget, is a great unknown. Interestingly, DOE's NRD award could be paid from the same Superfund Trust Fund, but it would require authorization from the President (EPA 2004). But regardless of whether there is or is not any money available in the Superfund Trust at this point in time, a Presidential decision to fund DOE damages through such a mechanism would probably not fair well with environmental groups because it would reduce the money available for other cleanups.

### **Flexibility in Use of Damages**

No legally filed NRD settlements between DOE and any other trustees were located in our review of NRD literature available on the Internet or through a WestLaw legal document search. The federal statute clearly indicates that a NRDA must address the loss of natural resources identified as attributable to the responsible party and be in agreement with all applicable trustees. It also requires that damages collected as compensation for resource injury by the trustees can only be used for the restoration, rehabilitation, replacement, or acquisition of the equivalent of the injured resource. The replacement or acquisition of the equivalent means the substitution of another resource that provides the same or substantially similar services for a resource that was injured. Restoration projects are required to identify a demonstrable link to injuries caused by specific releases.

However, private NRD settlements that were reviewed as part of our research indicate some greater flexibility is being incorporated into the structure of the settlement agreements as they pertain to the details of restoration of natural resources, especially in states that have a state level office dedicated to the protection and restoration of natural resources. New Jersey is an excellent example of the flexibility and variety of NRD settlements negotiated, including creative ways to link the implementation of the restoration of resources to educational, transportation and public use activities. In the past 10 years NJ's Office of Natural Resource Restoration (ONRR) has settled oil spill and hazardous waste cases that have totaled over \$42 million in damages. These settlements have included funding research in support of habitat restoration and endangered species management, hiking trails, erosion control, streamside clean ups and the construction of ferry transport facilities and harbor booms (see NJ Settlements attachment).

Other states such as Texas, California, Massachusetts, Indiana and Ohio have NRD settlements that have involved long term cooperative assessment process between Responsible Party's (RP's) and Trustees. Across the nation RP's are operating under the belief that litigating an NRD case presents a significant barrier to the trustees, given the

expense and time of litigation. For the most part, RP's are under the impression that if they are asked to remove a barrier by joining in a cooperative assessment process, then they should receive some consideration in return. They recognize their liability for costs of assessment under the regulations, but more often take the view that if they have to be on the defensive and prove a negative (i.e., no natural resource injuries), they will do so in a court of law. As a result, many states have begun using Memorandums of Understanding or Agreements to serve as the mechanism for documenting a cooperative assessment between the RP and the trustees (see National Settlements attachment).

### **DOE Property Transfer Mechanisms**

The EPA's "Early Transfer Guidance" (EPA 1998a and b) provides the DOE with guidance regarding the transfer of federal property that is undergoing a CERCLA remedial action. In the past, prior to transfer, contaminated federal property had to undergo complete cleanup if hazardous waste was released from, disposed of, or stored on-site for more than one year. Now, property can be transferred prior to cleanup, as long as certain conditions are met. A key step in the early transfer process is filing of a Covenant Deferral Request (CDR) with the EPA Regional Office, which includes a description of the property, nature of the contaminants, proposed land use, and an analysis of risks to human health and the environment. In addition, it must include a projected date of when the cleanup remedy will be selected and completed, and/or a demonstration that a current cleanup action is "operating properly and successfully." The Deed or Transfer Agreement must include:

- "A written warranty that the federal government will conduct any cleanup found to be necessary after the transfer;
- A clause providing the federal government with access to the property in the future; and,
- Response action assurances, which are written provisions that cover property land use restrictions, cleanup schedules, and funding requirements" (DOE 1998).

The property transfers can include ownership changes as well as situations where ownership does not change such as, land returned to public domain, easements, leases and permits. The CDR requires approval by the EPA and the respective State government must concur on the land transfer.

The DOE Office of Legacy Management (LM) that was established in December 2003 to manage post-closure activities at EM sites that do not have a continuing mission, and to potentially sell or transfer these properties to others in the future for productive reuse. LM will thus inherit the regulatory and legal responsibilities associated with sites (DOE 2004). Its Strategic Plan identifies four required goals in order for property transfer to be successful:

- Protect Human health and the environment through effective and efficient long-term surveillance and maintenance;
- Preserve, protect, and make accessible legacy records and information;
- Support effective and efficient workforce structured to accomplish Departmental missions, and assure contractor worker pension and medical benefits; and

- Manage legacy land and assets, emphasizing protective real and personal property reuse and disposition.

It is apparent from the goals identified above, as well as preliminary internal site transfer policies under discussion, that regardless of whether or not a NRD lawsuit may occur at a DOE site, the nature of potential damage to natural resources must be addressed as part of the site's transfer to LM. This is one more reason to ensure that as RI/FS work plans are being developed that natural resource concerns are addressed and quantified. It might also be reasonable to involve the DOE NRD Steering Committee, or newly formed working groups to help facilitate a smooth future transfer of sites and communication among Trustees.

### **Suggestions for Further Research**

The use of NRDA at DOE facilities is not a new or revolutionary concept. The case law and nature of settlements continues to increase each year and may provide an opportunity to serve as an example for a NRD pilot study at a DOE facility. However, bringing EH into the CRESP project at an early stage may be a critical element to understanding the history and current status of NRD within DOE, gaining from the research that has taken place regarding the possible integration of NRD and EM clean-up decisions, and helping develop and improve upon the internal DOE framework for addressing and resolving NRD issues in future years.

There are a number of possible areas of research and collaboration that could/should be pursued by CRESP in the coming year.

- Sponsor one or more workshops that bring together active participants in the NRD arena, such as DOE-EM, EH and LM, USEPA, DOI, and Department of Defense, as well as State and Tribal Nation Trustees. The objective would be to explore how NRD issues and concerns could be better integrated into remedial and long-term stewardship strategies at EM sites, and to possibly choose one or more sites to be used as pilots. CRESP could also prepare one or more white papers as background for such discussions.
- Examine a wider range of NRD settlements to better understand how more flexible arrangements in the use of damage awards can be utilized. The objective would be to determine how and where this flexibility might be used to negotiate an integrated NRD settlement and site remediation strategy that is acceptable to all parties.
- Look at the issues surrounding the preparation of ecological risk assessments that are often needed to provide the linkage between NRD settlement and acceptable remediation strategy.
- Conduct an empirical investigation of the potential damage costs at a single DOE site using state-of-the art economic methods.
- Examine the process and protocols of the DOE SAFER model for streamlining the remediation of environmental resources in the RI/FS process. Investigate the pilot study results with the objective of possibly identifying useful process components.
- Develop an up to date DOE site list that indicates the following site information and status: ecological risk data and analysis: remedial action items that have been

planned and performed; mission status, regulating law, and end state plans. This list may serve as an overall DOE site status resource for selecting potential sites for pilot studies or further study.

## References

- Bascietto 2004a. "Integrating Natural Resource Concerns with DOE Cleanup," a Power Point presentation by John J. Bascietto, Office of Pollution Prevention and Resource Conservation (EH-43), at the Cooperative Natural Resource Damage Assessment and Restoration Workshop, San Diego, CA, June 9, 2004.  
<http://www.darp.noaa.gov/partner/cap/pdf/CAPcleanup.pdf>
- Bascietto 2004b. Telephone discussion with John Bascietto, November 23, 2004.
- DOE 1993a. "Integrating Natural Resource Damage Assessment and Environmental Restoration Activities at DOE Facilities." Martin Marietta Energy Systems, Inc. under contract DE-AC05-90OR21851 for U.S. Department of Energy, Office of Environmental Guidance, October 1993. <http://www.eh.doe.gov/oepa/guidance/cercla/nrda3.pdf>
- DOE 1993b. "Natural Resource Damages Under CERCLA," CERCLA Information Brief. U.S. Department of Energy, Office of Environmental Guidance, EH-231-017/0693, June 1993. <http://www.eh.doe.gov/oepa/guidance/cercla/nrda.pdf>
- DOE 1993c. "Remedial Investigation/Feasibility Study (RI/FS) Process, Elements, and Techniques," Module 7 Streamlines Approach for Environmental Restoration (SAFER), DOE EH-94007658, December 1993.
- DOE 1997. "Policy on Integration of Natural Resource Concerns into Response Actions," a memorandum from Alvin Alm, U.S. Department of Energy, Office of Environmental Management, September 8, 1997.
- DOE 1999. Memorandum entitled "EPA Guidance on Transfer of Federal Property Undergoing CERCLA Remedial Action," DOE, Office of Environmental Policy and Assistance (EH-41):Bascietto:6-7917, October 18, 1999.
- DOE 2004. "Managing Today's Change, Protecting Tomorrow's Future," Strategic Plan, US Department of Energy, Office of Legacy Management, July 2004.
- EPA 1994. Memorandum entitled "Guidance on Accelerating CERCLA Environmental Restoration at Federal Facilities," US Environmental Protection Agency, Office of Enforcement and Compliance Assurance, August 22, 1994.
- EPA 1997. "Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments." Interim Final, EPA 540-R-97-006, U.S. Environmental Protection Agency, Solid Waste Emergency Response, June 1997.
- EPA 1998a. "EPA Guidance on the Transfer of Federal Property by Deed Before All Necessary Remedial Action Has Been Taken Pursuant to CERCLA Section 120 (h)(3)," U.S.

Environmental Protection Agency, June 1998.  
<http://www.epa.gov/swerffrr/documents/earlytrans.htm>

EPA 1998b. "Transmittal of "EPA Guidance on the Transfer of Federal Property by Deed Before All Necessary Remedial Action Has Been Taken Pursuant to CERCLA Section 120(h)(3)," Memorandum from Timothy Fields, Jr., Acting Assistant Administrator, to Superfund National Program Managers, Regions I-X, Office of Regional Counsel, Regions I-X, June 16, 1998. <http://www.epa.gov/swerffrr/documents/hkcover.htm>

EPA 2000. "Data Quality Objectives Process for Hazardous Waste Site Investigations," Final, EPA/600/R-00/007, U.S. Environmental Protection Agency, Office of Environmental Information, January 2000.

EPA 2004. "Natural Resource Damage Assessment", US Environmental Protection Agency, accessed November 30, 2004 via website at  
<http://www.epa.gov/superfund/programs/nrd/nrda2.htm>

FCAB 2004. "Current Issues: Natural Resource Damages Settlement." Fernald Citizens Advisory Board, Cincinnati, OH, 2004. <http://www.fernaldcab.org/index.htm>

GAO 1996. Letter report to Hon. Frank H. Murkowski, Chairman, Committee on Energy and Natural Resources, U.S. Senate; Hon. John H. Chaffee, Chairman, Committee on Environment and Public Works, U.S. Senate; and Hon. Robert C. Smith, Chairman, Subcommittee on Superfund, Waste Control, and Risk Assessment, Committee on Environment and Public Works, U.S. Senate, from U.S. General Accounting Office, Resources, Community, and Economic Development Division, B-272411, August 16, 1996. <http://archive.gao.gov/paprpdf1/157492.pdf>

OSWER 1996. Memorandum entitled "Federal Facilities Streamlined Oversight Directive," Jim Woolford, Director Federal Facilities Restoration and Re use Office, OSWER and Craig Hooks, Acting Director Federal Facilities Enforcement Office, OECA, OSWER Directive No. 9230.0-75, November 29, 1996.

Smith, D.W., 2003. "Status and Trends of CERCLA Related Natural Resource Damage Assessments." Superfund and Hazardous Waste Committee Newsletter, American Bar Association, Vol. 4, No. 3, May 2003. <http://www.abanet.org/>

Washington 2004. "Gregoire to Sue DOE Over Natural Resource Damages at Hanford." Press Release, Office of the Attorney General, State of Washington, July 8, 2004. [http://www.atg.wa.gov/releases/rel\\_doe\\_070804.html](http://www.atg.wa.gov/releases/rel_doe_070804.html)