



The Role of Local Governments in Long-Term Stewardship at DOE Facilities





Cover Photographs:

*All photographs are of the Oak Ridge
Reservation, Oak Ridge, TN.*

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Executive Summary

Principal Findings and Policy Recommendations

At sites throughout the country the Department of Energy (DOE) is cleaning up the radioactive and chemical contamination legacy of nuclear weapons production. DOE expects to rely on local governments to implement essential elements of its plans for protecting the public from hazards that will remain after it completes cleanup activities at its facilities. DOE uses the term long-term stewardship to encompass the activities and mechanisms that will be used to protect the public from the remaining hazards at such sites. Local governments have the legal authority, responsibility, and experience in the types of functions that will need to be provided at these sites, such as land-use planning and control, protecting public health and safety, maintaining official records of land ownership, and providing information on health and safety to their citizens. This apparent congruence of need and capability is, for the most part, however, merely superficial. In this report the Environmental Law Institute (ELI) and the Energy Communities Alliance (ECA) examine how local governments are only beginning to develop the capacity to apply their experience to the highly specialized types of environmental hazards that DOE will leave behind.

Local governments are interested in long-term stewardship because the sites are located in and affect their communities, and they have a fundamental duty to provide for the health, safety, environment, quality of life, and economic future of their citizens. At more than 100 DOE sites a significant amount of environmental contamination will remain in place when the Acleanup@ is complete. Some of the sites will be cleaned up to a level based on the risk to humans assuming the site is used in specific ways that limit human exposure to the hazards left in place. Other sites may become storage sites for environmental contamination, either because of the complexity of the contamination or the need to store materials whose toxicity cannot be reduced. The goal of long-term stewardship is to ensure that these sites will not pose a threat to human health and the environment in the future.

Long-term stewardship depends on appropriate and effective legal mechanisms, physical controls, and other devices needed to protect people and the environment at sites where DOE has completed or plans to complete cleanup. In general terms, the tools of long-term stewardship include land-use controls, monitoring, maintenance, and information management. Because local governments are the primary implementers of land-use controls and information management with respect to land use and real property ownership, the long-term effectiveness of the remedies DOE is using at many sites will depend on local governments participating in and fulfilling a number of functions. Despite the acknowledged need to rely on local governments and their interest in working with DOE on cleanup and long-term stewardship, local governments have not been directly involved in the decisions that determine the roles and responsibilities they will be expected to fulfill.

This report presents the results of in-depth studies of the existing and planned roles and capabilities of local governments with respect to long-term stewardship at three DOE facilities. Two of the facilities, Los Alamos National Laboratory in New Mexico and Oak Ridge Reservation in Tennessee, will have continuing DOE operations for the foreseeable future. The report examines the effects these continuing missions may have on the role of local governments in long-term

stewardship. The third, Rocky Flats Environmental Technology Site, is slated to be cleaned up and closed by 2006, and the report examines the differences in the roles of local governments in long-term stewardship at a closing site. These case studies, with their individual findings, are discussed in Chapter IV.

The case studies and two national workshops convened by ELI and ECA to consider appropriate long-term stewardship roles for local governments at DOE sites generated a number of widely applicable findings and recommendations. The findings for the project as a whole are presented in Chapter II while the recommendations are set out in Chapter III. Some of the significant recommendations, and the findings associated with them, are highlighted below.

DOE should work directly with local governments on long-term stewardship issues that affect them. Long-term stewardship is essential to DOE's current plans for cleaning up the nuclear weapons complex. Many of the mechanisms for implementing long-term stewardship, including zoning, property records, deed notification, building permits, and information management, depend on local governments. Despite this dependence on local governments, DOE has not worked directly with local governments at the case study sites in developing long-term stewardship plans.

Local governments must be included in the decision-making process whenever they will be expected to carry out a role or responsibility in long-term stewardship. Long-term stewardship and the roles expected of local governments will vary depending on whether the site will remain in federal ownership or be transferred to a non-federal owner and on the type, level, and location of residual contamination, which often will be affected by the future use that DOE and the state and federal environmental regulators plan for the site. Despite the crucial role that future use of the site has in determining cleanup levels and long-term stewardship, the government with jurisdiction over that future use, the local government where the property is located, is not a party to those decisions.

DOE should continue to develop its national policy on long-term stewardship and should develop specific guidance for DOE field offices on how to implement this policy. DOE does not have effective national policies on long-term stewardship that are implemented in the field. DOE field offices need specific guidance on how to implement long-term stewardship in order to assure that national policies are carried out effectively and consistently at all sites.

DOE, EPA, and the state regulators should integrate long-term stewardship into the cleanup decision-making process at all DOE sites, including investigating and analyzing the mechanisms for implementing long-term stewardship at the same time and to the same degree as engineering solutions to risk management. At the case study sites, DOE has no trained staff responsible for ensuring that long-term stewardship and its implications are considered in the decision-making process. At most sites, little is known about the activities that will be involved in long-term stewardship, or about their costs.

DOE, EPA, and the state regulators should improve their knowledge and understanding of the local laws and other tools that will be used for long-term stewardship. Many of the mechanisms that DOE expects to rely on for long-term stewardship are based on local laws, practices, and institutions. In addition to land use planning and zoning,

these include property records offices, building codes, local real estate practices, and local health departments. It is axiomatic that these local functions vary substantially from state to state, and even within a state. DOE, EPA, and state regulators are making decisions about long-term stewardship without adequate knowledge and understanding of the local laws, practices, and institutions that will be crucial to effective long-term stewardship.

Before deciding to remediate a site to a level that would not allow unrestricted use, DOE should analyze the opportunity cost to the community of the restricted use compared to an unrestricted use. Local governments at the case study sites prefer that DOE facilities be remediated to a level that allows unrestricted use and avoids long-term stewardship. Restrictions on the use of land may have long-term detrimental effects on the economic development potential of the specific parcel and for the community, generally.

DOE Operations or field offices should determine the specific information needs of their affected local governments and meet those needs with information in the form of maps, databases, or other formats most useful to the local government. The case studies revealed a common need of the local governments affected by DOE facilities for reliable information about the extent and nature of residual contamination in forms that they can use for various purposes. Local governments need such information in order to fulfill their duty to inform their citizens about health and safety risks in their community. They also have specific needs for detailed and accurate information about residual contamination in order to effectively carry out their mission of protecting public health and safety through controlling land use.

DOE should provide funding to local governments to pay for activities associated with long-term stewardship at DOE sites. Local governments often lack the staff or financial resources to accept additional responsibilities, but they are interested in undertaking some long-term stewardship activities if funding exists to pay for their costs. Local governments are, for example, willing to manage information for long-term stewardship as long as DOE provides training and funding for the additional activities.

DOE should work with local governments to develop training in how to adapt their expertise to the new situations of contaminated property. Local governments have little experience in applying their expertise in land-use control, protection of public health and safety, and information management to property that is contaminated with long-lived hazardous substances.

Chapter I

BACKGROUND

A. INTRODUCTION

At more than one hundred U.S. Department of Energy (DOE) sites, environmental contamination will remain in place after environmental remediation, the “cleanup,” is complete. When individuals began discussing this fact the obvious questions were raised:

- What happens to contamination at the site after the “cleanup” is complete?
- How do we ensure that the contamination remaining does not pose a threat to human health and the environment at these sites?

From these important questions the idea of long-term stewardship was born. Long-term stewardship is intended to be a means of protecting people from environmental contamination remaining in an area that has not been remediated to a level that will allow unrestricted use of the property. One definition of long-term stewardship used by DOE and some stakeholders is:

the physical controls, institutions, information, and other mechanisms needed to ensure protection of people and the environment at sites where DOE has completed or plans to complete “cleanup” (e.g., landfill closures, remedial actions, removal actions, and facility stabilization). This concept of long-term stewardship includes, *inter alia*, land-use controls, monitoring, maintenance, and information management.¹

The Environmental Law Institute (ELI) and the Energy Communities Alliance (ECA), with the cooperation and support of DOE, have worked together to review and analyze the current and future role of local governments in long-term stewardship. Local governments are concerned that remediation levels at DOE facilities following “cleanup” will still leave residual contamination in place. Further, local governments, as the land use regulators in their communities, want to understand what the local government role is, will be, and should be, if any, in implementing a long-term stewardship process.

ELI and ECA, in cooperation with the director and staff of the DOE Environmental Management Office of Long-Term Stewardship, developed this report in order to obtain a better understanding of local government capability and interest in working on and implementing institutional controls and long-term stewardship activities in, and adjacent to, their communities. DOE and local governments realize that long-term stewardship is an important issue for communities surrounding DOE facilities where environmental cleanup activities are proceeding. This report analyzes both land that will continue to be owned by the federal government and land that will be conveyed out of federal ownership.

¹ DOE *Draft Long-Term Stewardship Study (Draft LTS Study)* at 1; *Natural Resources Defense Council, et al. v. Richardson, et al.*, Civ. No. 97-936 (SS) (D.D.C. Dec. 12, 1998). The Draft Long-Term Stewardship Study also provides the following simpler definition in its Glossary: “All activities required to protect human health and the environment from hazards remaining after cleanup is complete.” *Draft LTS Study* at 118.

To achieve these goals, ECA and ELI interviewed local, state, and tribal governments, DOE and U.S. Environmental Protection Agency (EPA) officials, Community Reuse Organization (CRO) representatives, Site Specific Advisory Board (SSAB) members, local community groups, and citizen representatives around the Rocky Flats Environmental Technology Site (Rocky Flats), Los Alamos National Laboratory (LANL), and the Oak Ridge Reservation (ORR). Furthermore, ELI and ECA facilitated two interactive roundtables with a diverse group of participants to develop ideas and options for local governments surrounding DOE facilities on long-term stewardship (See Appendices A & B).

The short and long-term issues associated with long-term stewardship are complex. ECA and ELI developed this report to assist local, state and tribal governments, citizens, DOE contractors, EPA, DOE and others to develop a better understanding of the potential role of local governments at DOE sites that may require long-term stewardship, as well as to educate local communities on the issues associated with implementing long-term stewardship processes.

ORGANIZATION OF THIS REPORT

This report is divided into this introductory chapter, a chapter on the findings from the case studies, a chapter on policy recommendations based on the findings, and a chapter containing the three case studies. Chapter I provides background information about long-term stewardship in the context of DOE's cleanup program, the statutes governing cleanup of DOE facilities, the relationship between cleanup and future land use, the role of local governments in land use, and implementing long-term stewardship. Chapter II examines the findings from the case studies, which are broken down into six categories: general findings about long-term stewardship; funding/capacity issues in the implementation of long-term stewardship; information management; public communication between DOE and various stakeholder groups; enforcement of institutional controls; and monitoring of contamination. Chapter III contains the policy recommendations, which includes sections on: a national policy on long-term stewardship; improvement of the decision-making process for long-term stewardship; DOE working directly with local governments on stewardship issues that affect the community; information dissemination as a fundamental element of long-term stewardship; and integration of long-term stewardship activities into the duties of relevant organizations. Chapter IV contains the three case studies, Rocky Flats Environmental Technology Site, Los Alamos National Laboratory, and Oak Ridge Reservation respectively. Each case study presents background information for the Site; the history of local/state government and citizen activities relating to environmental remediation and reuse; information on current responsibilities and future roles of the groups involved in long-term stewardship activities; and an assessment of needs for the Sites. Appendices A and B are summaries of the two roundtables that were held with local and state governments, other stakeholder groups, and DOE in 1999 and 2000. Appendix C contains the questionnaires used for each of the groups interviewed for the case studies (local government officials, DOE officials, state government officials, tribal government officials, and citizens). Appendix D is the list of people who participated in each of the three case studies. Appendix E contains the resources used in this report. Appendix F presents relevant federal long-term stewardship orders and policies at the time the report was published. Appendix G and H are a glossary of terms used in this report and acronyms used in this report.

B. DEFINITIONS

ECA and ELI have prepared the following definitions of some of the most common terms used in this report. Additionally, a glossary of terms is located in Appendix G.

Cleanup – Active remediation and waste management to stabilize, contain and/or dispose of radioactive and hazardous waste and contamination. “Cleanup” does not necessarily mean a site will be returned to levels acceptable for unrestricted use of the property. It refers to the remedy selected by a Comprehensive Environmental Response, Compensation, and Liability Act² (CERCLA or Superfund) Record of Decision (ROD) or other agreement between DOE and federal and state regulators.

Long-Term Stewardship – Encompasses all activities required to maintain an adequate level of protection to human health and the environment from the hazards posed by nuclear and/or chemical materials, waste, residual contamination or infrastructure remaining after the remedy selected in the ROD is implemented. These activities include implementation, monitoring and enforcement of institutional controls, and engineering processes.³

Active Stewardship – Direct human performance of scheduled or periodic custodial activities such as: controlling access to a site by means other than passive institutional controls; controlling or cleaning up releases from a site; performing maintenance operations on remediated areas at a site; and monitoring performance parameters at a disposal or release site.

Passive Stewardship – Includes ongoing custodial controls such as: land or resource use restrictions; permanent markers, signs, or restrictions at a site; and public records, deed restrictions, and archived information.

Institutional Controls – Non-engineering mechanisms, particularly legal measures, designed to limit or identify activities at a particular property in order to minimize human exposure to hazards. Examples of governmental institutional controls include zoning limitations on land-use and permit programs. Examples of property law based institutional controls include deed restrictions and easements.

C. DOE’S REMEDIATION PLANS RELY ON LONG-TERM STEWARDSHIP

DOE, in its 1995 and 1996 Baseline Environmental Management Reports,⁴ indicated that regardless of cost, DOE will have an enduring stewardship obligation at its facilities. DOE’s Environmental Management (EM) program defines cleanup as:

² 42 U.S.C. §§ 9601-9675 (2000).

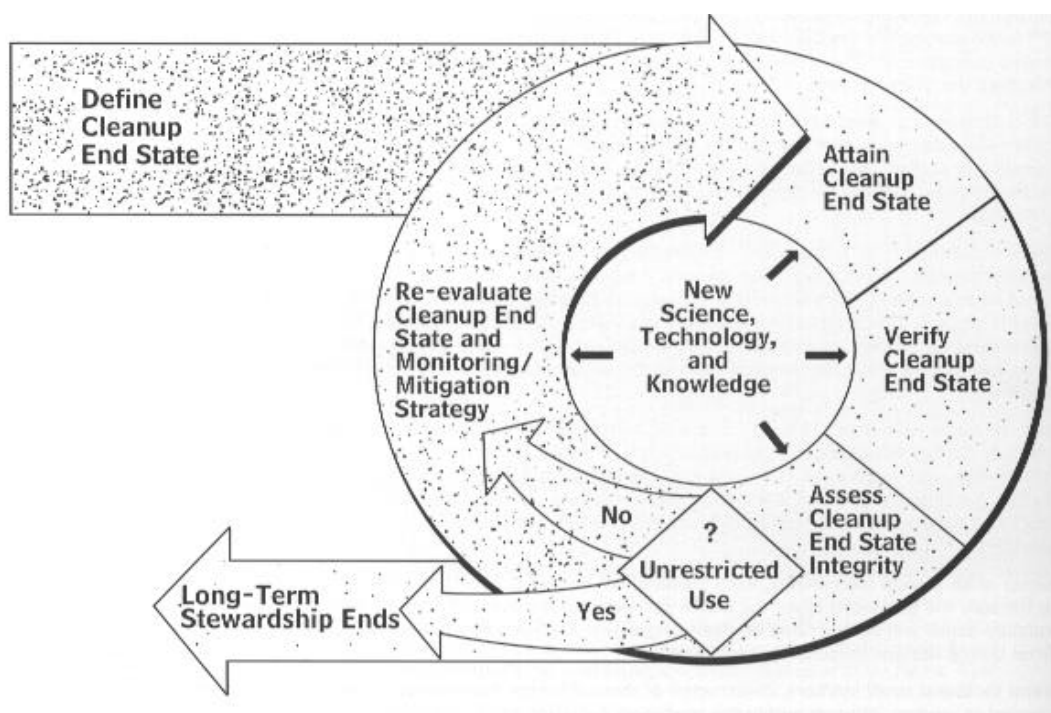
³ U.S. DOE, *Report to Congress on Long-Term Stewardship*, Release No. R-01-025 (January 19, 2001).

⁴ U.S. DOE, Office of Environmental Management, *Estimating the Cold War Mortgage: The 1995 Baseline Environmental Management Report*, March 1995, DOE/EM-0232, at ix (1995 BEMR); U.S. DOE, Office of Environmental Management, *The 1996 Baseline Environmental Management Report*, June 1996, DOE/EM-0290.

[t]he process of addressing contaminated land, facilities, and materials in accordance with applicable requirements. Cleanup does not imply that all hazards will be removed from the site.⁵

DOE's stated goals are to reduce the risk associated with the hazards at the sites and to significantly reduce maintenance and operation at the facilities. Long-term stewardship mechanisms (including institutional controls and engineering processes) are implemented to ensure continued protection of human health and the environment from hazards remaining after cleanup is complete.⁶ Long-term stewardship thus becomes a continuing responsibility until the appropriate authority can determine that the site can be released for unrestricted use (see Figure 1.1). The degree, or intensity, of stewardship necessarily increases as the risk from residual contamination rises (see Figure 1.2). Presently, at both federal and privately owned sites, many states and localities are implementing institutional controls on environmentally contaminated properties. Also, DOE relies upon the use of long-term stewardship mechanisms in its remedy decision-making process. In some cases DOE asserts that it is not feasible to achieve unrestricted land use using existing technologies, making long-term stewardship the only option.⁷

Figure 1.1 Dynamic Nature of Long-Term Stewardship



From Cleanup to Stewardship, Exhibit 13, at 50.

⁵ U.S. DOE, Office of Environmental Management. *From Cleanup to Stewardship, A Companion Report to Accelerating Cleanup: Paths to Closure*, October 1999, DOE/EM-0466, at 9. (From Cleanup to Stewardship).

⁶ *Id.*

⁷ 1995 BEMR at vii, 3.1-3.7, From Cleanup to Stewardship at 12-14.

Many groups believe that in the environmental and public health arenas, long-term stewardship may, as part of the remediation process, be a useful tool for making real property available for reuse in a safe and timely manner provided that:

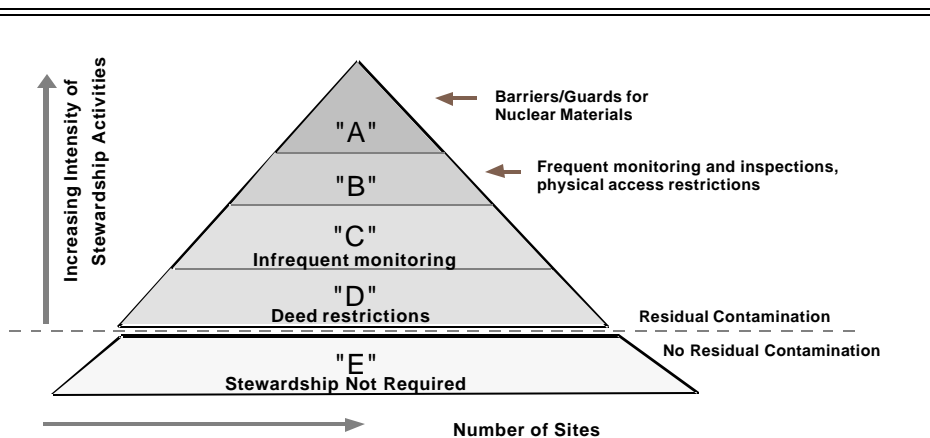
- 1) the local community participates in the selection and accepts that the property will be remediated to future-use levels;
- 2) adequate implementation, inspection, and enforcement mechanisms are in place to ensure the effectiveness of long-term stewardship; and
- 3) funding for long-term implementation and enforcement is available and guaranteed.

Relying upon long-term stewardship as a remediation tool raises concerns regarding its failure. Long-term stewardship mechanisms may be forgotten; enforcement agencies may not effectively review properties or land users' actions; or land users may simply take their chances and violate the controls. These are all valid concerns, and it must be recognized from the start that institutional controls and other long-term stewardship tools are not perfect.

D. DOE'S LEGAL OBLIGATIONS FOR CLEANUP AND LONG-TERM STEWARDSHIP

DOE's interest in remediating environmentally contaminated property to protect human health and the environment stems from federal laws requiring federal agencies to remediate the

Figure 1.2 Stewardship Activities Will Vary in Intensity



environmental contamination caused by their activities. The primary laws that govern DOE's cleanup decisions and remediation processes are discussed below.⁸

Most of DOE's cleanup activities are conducted under the Atomic Energy Act (AEA),⁹ which directs DOE to manage radioactive materials in a manner consistent with the protection of

⁸ Appendix F also contains descriptions of the DOE orders, guidance, and other documents that apply to long-term stewardship, as well as EPA and NRC laws, regulations, and guidance. A more extensive list can be found at DOE's Long-Term Stewardship Information Center, <http://lts.aps.em.doe.gov/center/reports/overview.html> (02/01).

⁹ 42 U.S.C. §§ 2011-2259 (2000).

health and safety of the public. The AEA authorizes DOE to establish standards to protect human health and the environment from activities under DOE jurisdiction. The cleanup of hazardous substances on DOE property proceeds under CERCLA,¹⁰ state hazardous waste laws, and/or the Resource Conservation and Recovery Act (RCRA).¹¹ These laws explicitly require the entity that causes the contamination to pay for the remediation of the contaminated property. The federal environmental laws apply to DOE because the federal government's sovereign immunity is waived under these laws.¹²

CERCLA allocates liability and responsibility for the cost of remediating a release or threatened release of hazardous substances that pose a threat to human health and the environment. Liability under CERCLA falls under the following categories: strict, joint, several, and retroactive.¹³ A responsible party is liable for the costs of remediation if that person owned or operated the site or facility at the time of the disposal of hazardous substances,¹⁴ or if the person generated or transported material to the property.¹⁵ The strict, joint, and several liability scheme holds every potentially responsible party (PRP) at the site potentially liable for all of the costs of cleanup, even if that person only contributed to a small portion of the contamination and regardless of fault.¹⁶ Current owners or operators of a contaminated facility are also liable for the costs of remediation, even if the current owner/operator did not cause or contribute to the contamination. Finally, where the federal government is transferring land to a non-federal entity, CERCLA requires the federal agency to provide a warranty that all remediation necessary to protect public health has been taken and that the federal government will take any further action determined to be necessary.¹⁷ Therefore, DOE, as an owner, and possibly an operator, could retain legal liability for contamination remaining on the property, even when DOE conveys the property to a third party.¹⁸

Similarly, many DOE facilities are remediated under state RCRA laws. RCRA governs the generation, transportation, storage, disposal, and treatment of hazardous wastes to minimize present and future threats to human health and the environment.¹⁹ RCRA prohibits any person from treating, storing, or disposing of hazardous waste or constructing any hazardous waste facility for

¹⁰ 42 U.S.C. §§ 9601-9675 (2000).

¹¹ 42 U.S.C. §§ 6901-6992k (2000).

¹² For an in-depth analysis of the issue of sovereign immunity and DOE, see K.C. Schefski, Shelby Perkins, and James D. Werner, *Sovereign Immunity and the National Nuclear Security Administration: A King That Can Do No Wrong?*, 31 ELR 10111-10124 (Jan. 2001).

¹³ Strict, joint, several and retroactive liability are not mentioned in CERCLA; however, they have all been interpreted as part of the law by the courts. 42 U.S.C. §§ 9606-9607; See, *United States v. Alcan Aluminum Corporation*, 3 F.2d 889 (5th Cir. 1993).

¹⁴ 42 U.S.C. § 9607(a)(2).

¹⁵ 42 U.S.C. § 9607(3).

¹⁶ *United States v. Monsanto Co.*, 858 F.2d 160, 167 (4th Cir. 1988) *cert. denied*, 490 U.S. 1106 (1989) (“[T]he overwhelming body of precedent has interpreted [CERCLA] as establishing a strict liability scheme.”). This strict liability is subject only to the statute's narrow defenses for damages caused solely by acts of God, war, or third parties. 42 U.S.C. § 9607(a) and (b).

¹⁷ 42 U.S.C. § 9620(h)(3)(A)(ii). This covenant may be deferred and the property transferred before all necessary remedial actions have been taken if the regulators determine that the property is suitable for the intended use and the intended use is consistent with the protection of human health and the environment. 42 U.S.C. § 9620(h)(3)(C).

¹⁸ DOE must follow specific procedures and meet a number of requirements before transferring property to a third party. These rules are summarized in Appendix G of DOE's Draft LTS Study.

¹⁹ 42 U.S.C. § 6924(a). *United Technologies Corp. v. EPA*, 821 F.2d 714, 716 (D.C. Cir. 1987).

such treatment, storage, or disposal without (1) a permit or (2) designation of "interim status," obtained by notifying the regulatory body of the person's hazardous waste activities and submitting an application for a permit.²⁰ Disposal is defined as the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid or hazardous waste on the land or water in such a way that the waste enters the environment.²¹ RCRA imposes two types of liabilities: 1) civil penalties and 2) a requirement to perform or finance the cleanup of the property.²²

Title I of the Uranium Mill Tailings Radiation Control Act (UMTRCA)²³ authorizes DOE to clean up 24 closed uranium mill sites and their associated tailings. Title II of UMTRCA requires DOE to take title to certain privately owned uranium sites after cleanup for the purpose of conducting long-term stewardship.²⁴ State regulations, site-specific agreements, and in some cases Nuclear Regulatory Commission (NRC) regulations, also govern some of DOE's cleanup activities.

Existing Regulatory Requirements for Site Monitoring After Cleanup at DOE Facilities ²⁵	
Waste Type	Requirements
Hazardous Waste	RCRA requires 30-year post-closure monitoring for hazardous waste disposal units
Uranium Mill Tailings	EPA mandates tailings control requirements for 1,000 years (40 CFR 192)
Low-Level Waste	EPA radiological waste disposal regulation prohibits the reliance upon institutional controls for more than 100 years
Transuranic Waste	EPA must certify that waste in WIPP will remain isolated for 10,000 years
High-Level Waste	EPA must certify that waste in WIPP will remain isolated for 10,000 years

Figure 1.3

In general, sites are remediated to levels selected and agreed upon by DOE, EPA (at Superfund sites), and state regulators. Remedies are generally selected based upon risk-based levels of contamination acceptable for a predetermined future use. The practical presumption is that a site should be cleaned up to appropriate future-use, risk-based levels.²⁶ The future use of the site is, therefore, critical to risk management as risk-based standards rely on the use to limit human exposure to the hazards left in place. An additional assumption is that the predetermined future use can and will be maintained for as long as the levels of contamination make other uses unsafe.

²⁰ 42 U.S.C. § 6925(a) & (e).

²¹ 42 U.S.C. § 6903(3).

²² 42 U.S.C. §§ 6924(u) and 6928.

²³ 42 U.S.C. §§ 7901-7942 (Pub. L. 95-604). Cleanup standards and long-term stewardship requirements for UMTRCA sites are established directly by UMTRCA, NRC regulations (10 C.F.R. § 40.27), and EPA regulations (40 C.F.R. Part 192). According to NRC regulations, there is no termination of the general license issued by the NRC for custody and long-term care of residual radioactive material disposal sites. 10 C.F.R. § 40.27(b)(2000).

²⁴ 42 U.S.C. § 2113(b) (2000).

²⁵ *Draft LTS Study*. See also <http://lts.aps.em.doe.gov/center/reports/overview.html> (02/01).

²⁶ See, *Land Use in the CERCLA Remedy Selection Process*, OSWER Directive No. 9355.7-04 (1995).

Many sites can accommodate a variety of future land uses, despite residual contamination.²⁷ These reuses can be residential, recreational, commercial, industrial, or restricted access. The intended future use is taken into account in setting cleanup standards and in selecting a remedy that will be compatible with the predetermined future use. The remediation level, or “how clean is clean,” can be tailored to each parcel’s use. The future land use of the contaminated property, according to EPA guidance on remedy selection, should be incorporated into the risk assessment at the site.²⁸ It is anticipated that adoption of less stringent cleanup standards, where appropriate and based on planned land uses and combined with other safeguards, may allow for faster and more cost-effective cleanups for DOE. Nevertheless, each remediation level must support the planned use of the property. Future use restrictions and other controls will vary depending on the site’s intended future land use and the extent to which contaminants are left on site. Controls might include, deed restrictions, fences, signs, or test wells to monitor for the migration of contaminated groundwater.

The relationship between selecting a future land use, selecting a remedy, and designing any required long-term stewardship process is complex and misunderstood by many. In simple terms each decision relies upon the other.²⁹ DOE and the state/federal regulators identify a specific future use (for example, industrial, commercial, residential, open space) for the site, establish cleanup levels, consistent with that use, and select a remedy that will achieve these cleanup levels.

For example, when “open space” land use is selected, the risk analysis selected by DOE may assume that a person can safely be on the property for one hour per week, one hour per day, or twenty-four hours per day – the possibilities are numerous. Each risk analysis has obvious implications for the community. If the community wants to use the property, it needs to ensure that the risk analysis will allow for the intended use. Therefore, in the case of open space that the community wants to use for a park, the remedy may not allow people to be on the property for an extended period, as outlined above. In some instances, because of technological and monetary constraints, the only viable remedy is open space that may not allow any use, or an extremely limited use.

The remedy will determine what, if any, long-term stewardship activities will be required for the site. Will the site require a fence around it to ensure that people do not enter the property? Will the site require a sign that states “Do not disturb the soil” or “Do not eat the fish”? Or, will the site have a deed restriction that requires the new owner of the property to get approval from the federal or state government before buildings are placed on the property? In the end, the engineering or legal controls that are required on site will be based on the remedy selected for the site, which is, in turn, based upon the original land use selected.

²⁷ ELI and ECA distinguish the term “future land uses” from “end state,” which generally is used by DOE to mean “the physical state of a site after cleanup activities have been completed.” *From Cleanup to Stewardship* at 9. ECA and ELI note that the term “future use” signifies that the use may change over time and is not the final use of the property.

²⁸ *Land Use in the CERCLA Remedy Selection Process*, OSWER Directive No. 93355.7-04 (1995).

²⁹ See e.g., *From Cleanup to Stewardship* at 19 (“Future land use, cleanup strategies, and long-term stewardship needs are interdependent.”) and Figure 1.1.

LEGAL REQUIREMENTS FOR SELECTING A REMEDY UNDER CERCLA

Under CERCLA, contaminated property is required to be remediated to a level that is protective of human health and the environment. A remedy is selected pursuant to National Contingency Plan (NCP) criteria.³⁰ The NCP requires the President to select the remedy and, under Executive Order 12580, DOE is delegated the authority to select the remedy, which is documented in an ROD (see Figure 1.4). The nine NCP remedy selection criteria are:

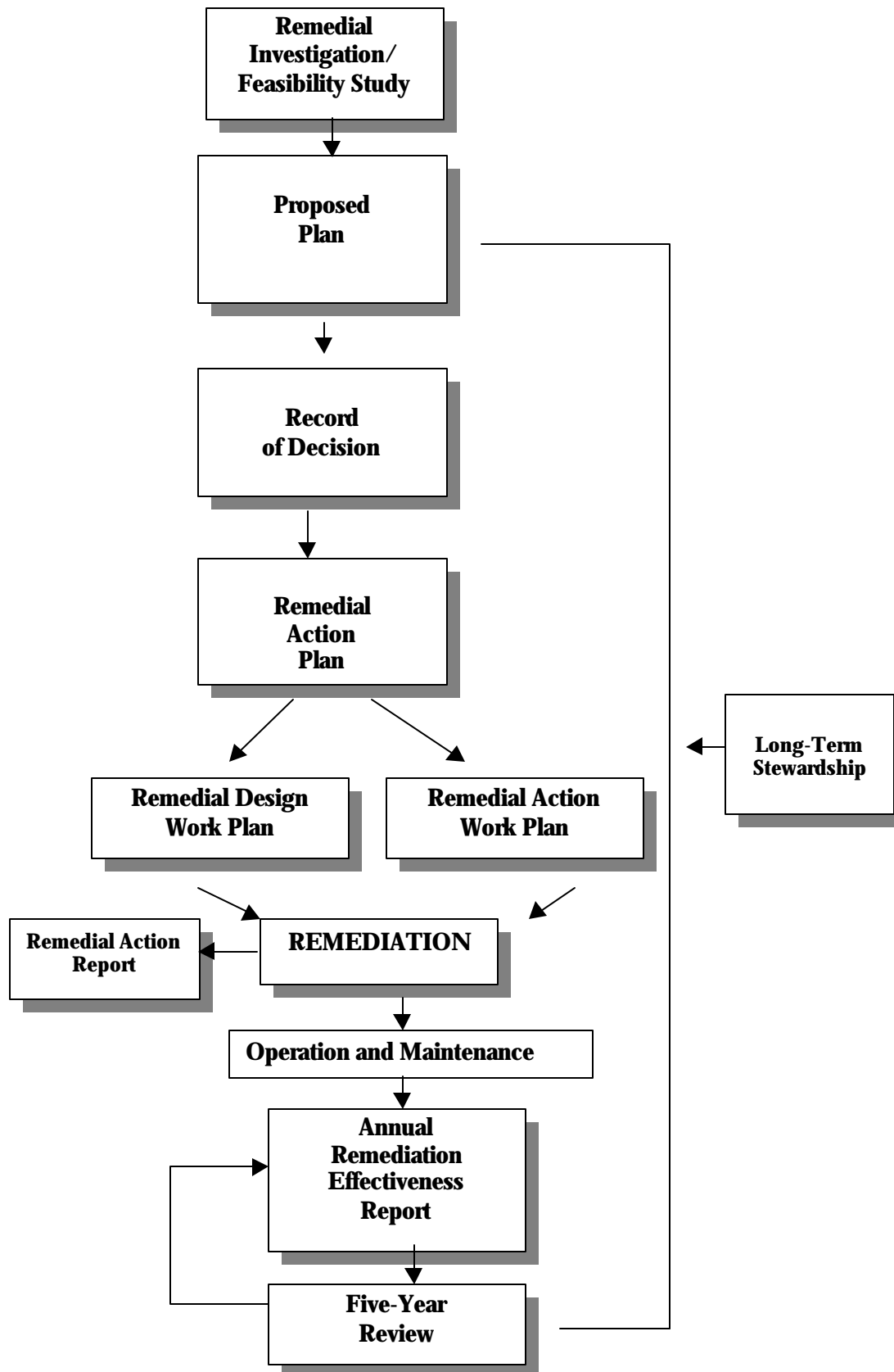
1. *Protection of human health and the environment:* The ability of each alternative to provide protection is assessed. The assessment draws on the baseline risk assessment and the evaluations of other criteria, especially the long and short-term effectiveness evaluations.
2. *Compliance with Applicable and Relevant and Appropriate Requirements (ARARs):* Each alternative must comply with chemical-specific, action-specific, and location-specific ARARs. ARARs can be established under federal or state law. If an alternative cannot achieve compliance, justification for a waiver of the ARAR must be developed.
3. *Long-term effectiveness and permanence:* This evaluation assesses the residual risk posed at the site following the remedial action. This assessment also considers the reliability and adequacy of the remedial action in providing a long-term solution to the contamination at the site and permanence of cleanup.
4. *Reduction of toxicity, mobility, or volume of contamination through treatment:* This involves assessment of the treatment process, the materials being treated, the effectiveness of the treatment, and the quantity of contaminated material remaining following the remedial action.
5. *Short-term effectiveness:* This addresses the risks posed by each remedial alternative during construction and implementation, up to the time the remedial action objectives are achieved.
6. *Implementability:* This assesses both the technical and administrative feasibility of implementing each remedial alternative.
7. *Cost:* This evaluation includes capital costs and operating and maintenance costs associated with the remedial action. This process should also consider the costs of any long-term liability associated with implementing the remedy.
8. *State acceptance:* The state as a legal regulator has direct input on the remedy.
9. *Community acceptance:* The remedy at a site is supposed to be selected with the input of the community.

If remediation leaves hazardous substances, pollutants or contaminants in place, CERCLA requires DOE to review the remedial action at least every five years to ensure that the controls protect human health and the environment.³¹

³⁰ 40 C.F.R. § 300.430(e)(9)(iii); the NCP is the regulation that implements CERCLA.

³¹ 42 U.S.C. § 9621(c). See also 40 C.F.R. § 300.430(f)(4)(ii).

Figure 1.4 FLOWCHART OF THE CERCLA PROCESS



Institutional controls can be used during the remedial investigation and feasibility study (RI/FS), during implementation of the remedy, and as part of the final remedy for a site. However, the NCP is clear—institutional controls should not be used as a substitute for active response measures as the sole remedy unless active measures are not practicable, based upon the balancing of the nine NCP criteria.³²

The need for institutional controls is born out of the remedy selection process. Protection of human health and the environment is a threshold criterion, which each alternative must meet; however, other issues such as implementability and cost are also balanced in deciding among alternatives. Pursuant to CERCLA, DOE can include institutional controls to ensure protection of human health and the environment.³³ Although the regulations require a preference for permanence,³⁴ cost and feasibility also must be considered.

The final remediation decision lies with DOE, in cooperation with EPA at Superfund sites, and the state. Hence, the future use and the long-term stewardship requirements and decisions are made by DOE.

In its *Draft LTS Study*, DOE stated that:

The cleanup strategy implemented at a site and the resulting end state achieved are closely related to the potential future use of land and water resources and long-term stewardship requirements. In some cases, intended future uses will determine the end state conditions to be achieved during cleanup. In other cases, technical, economic, and worker safety considerations may limit the end state conditions that can be achieved, and thus may limit future uses. Specific long-term stewardship requirements will depend directly on the cleanup strategy implemented, end state achieved, and desired future uses.³⁵

POTENTIAL SCENARIOS FOR DOE LAND REQUIRING LONG-TERM STEWARDSHIP

There are several potential scenarios for property after it is remediated by DOE and when long-term stewardship is required. Below are four general scenarios:

1. DOE will retain the property for continuing missions with or without self-imposed restrictions.
2. DOE will retain the property for the purpose of providing perpetual long-term stewardship, without any other continuing mission.
3. DOE will transfer the property to another federal agency such as the Department of the Interior in trust for a tribe or to the U.S. Fish and Wildlife Service (USFWS) for open space.

³² 40 C.F.R. § 300.430(a)(l)(iii).

³³ 42 U.S.C. § 9621.

³⁴ 40 C.F.R. § 300.430(e)(9)(iii).

³⁵ *Draft LTS Study* at 11.

4. DOE will convey the property to a non-federal government owner. If land-use restrictions are required based upon the cleanup level, DOE will transfer the property and may restrict the use of the property with deed restrictions and contractual agreements. For example, DOE often conveys property with groundwater use restrictions in the deed at certain sites where groundwater contamination is an issue.

The transfer of environmentally contaminated property to other entities presents challenges to long-term stewardship implementation. The federal government has ultimate legal, and hence fiduciary, responsibility for the environmental contamination left at the site and thus has an interest in the long-term stewardship process. For example, when the federal government conveys property to a non-federal entity, it is required to provide deed covenants that state that all necessary remediation has taken place and that if additional remediation is required in the future, the federal government will undertake the remediation.³⁶ At these sites, DOE conveys the property, possibly with some restrictions. DOE has not fully determined how to oversee any restrictions or limits that are imposed, how to notify potential users of the property of the hazard, how to enforce any use restrictions, or how such activities will be funded.

E. ROLE OF LOCAL GOVERNMENTS IN LAND USE

THE ROLE OF LOCAL GOVERNMENT

Local governments have traditionally filled a broad set of responsibilities. In very general terms these include:

- Protecting public health and safety, primarily through such services as police and fire protection, water and wastewater treatment, and public health services.
- Improving the community's quality of life by providing park and recreation opportunities, traffic management, education, community comprehensive planning and land-use planning, and property protection through zoning ordinances and control.
- Securing a viable economic future through retail, housing, industrial, and commercial development and community marketing.

A key role local governments play in addressing these responsibilities is balancing competing interests; for example, the protection of public space such as parks versus the need for development. Local governments are responsible for mediating disputes between those whose concerns for protecting the environment are at odds with those seeking to ensure long-term economic stability or balancing individual interests against the interest of the greater community. To be credible in this balancing act, local government officials must demonstrate transparency in their decision-making.

³⁶ 42 U.S.C. § 9620(h) (2000). Under certain circumstances DOE may convey property to a non-federal entity before remediation is complete. 42 U.S.C. § 9620(h). Further, *see* DOE's indemnification provision at Section 3158 of the Defense Authorization Act for Fiscal Year 1998 (Pub. L. 105-85, 111 Stat. 1629).

Community interests do not always expect to get all they want, but they do expect to be heard, to be taken seriously, and to be informed of government decisions and processes.

The local government's authority to make the decisions among competing interests stems directly from the fact that county commissions and city councils must periodically seek the approval of a community through elections, and therefore are accountable to the people they serve.

LOCAL GOVERNMENT'S ROLE IN RELATION TO DOE FACILITIES

The case studies highlight that citizens in communities in which DOE facilities are situated often have mixed feelings toward these facilities. A DOE facility may be the dominant force that drives the local economy and provides a sound economic base. The enthusiasm of host communities for the economic stimulus can be tempered by their frustration with their lack of control over the "boom/bust" impacts resulting from federal decisions to expand or contract the mission of its facilities. A local government's concern may also stem from the potential for environmental contamination to affect health and safety or the community's attractiveness to outside investors.

Local governments typically organize the community's response to threats to its economic viability, health and safety, and its overall quality of life. Local governments are the formal voice and institutional authority elected to speak on the community's behalf and to pursue the community's interests with federal and state governments. Their planning and zoning capabilities and real property record keeping functions, coupled with community involvement mechanisms, appear particularly suited to assisting with the definition of future uses for DOE facilities. In addition, local government officials interact with DOE field office managers, DOE headquarters officials, and Congress. They also maintain capabilities important to ongoing federal operations, such as emergency response and utility services.

When addressing long-term stewardship, local governments have control over the key legal tools to restrict access to and development of property in ways that may be inconsistent with the remedy decision that leaves contamination in place. These tools include zoning, building permits, and deed notices.

F. LAND USE CONTROLS AND LONG-TERM STEWARDSHIP

Local governments have a strong role in the development of former federal property.³⁷ In fact, once the federal government conveys the property to a non-federal owner, the real property immediately becomes subject to all state and local laws and benefits. In other words, the property becomes part of a community. In most states, the local government will incorporate the land use control, including zoning, as a local government function.

When the federal government decides to convey property that contains land use restrictions for health and safety and environmental protection purposes, it often fails to completely analyze the local laws and the local practices for development. However, these laws and practices will be applied when the real property is conveyed to a non-federal owner for development. After a

³⁷ Federally owned property is not subject to state and local land use controls. U.S. Constitution, Art. IV, Sec. 3.

developer acquires a parcel of property from DOE, the developer must conform to local laws when developing the property. The local government laws may, for example, require that all utilities be placed on the north side of a road within ten feet of the paved portion of the road. Further, under local ordinance the developer may be required to dedicate that road and utility system to the local government through an easement. Several questions may arise in such situations:

- How do the local land use practices and local legal requirements mesh with the land use covenants imposed on the property?
- Does the covenant run with the land in this jurisdiction?
- For how long does the covenant run with the land?
- Who can enforce the covenant?
- How will the covenant affect the local government when it needs to expand the road, which is now owned by the local government, in ten years?

When selecting a remedy, DOE, the state regulator, and EPA must have an understanding of the local laws that govern the transaction. Further, they must understand the range of tools that they may have at their disposal – including local zoning ordinances – to ensure that the hazards left in place will not pose a threat to human health and the environment.

LOCAL GOVERNMENT ZONING LAW

This section outlines local government zoning law that affects development of real property and deed covenants and their enforceability. This section is a cursory analysis designed to explain the general concepts of each issue.³⁸

Originally, land use controls were developed to manage planning in cities and towns. Zoning developed out of conflicts in land uses in neighboring properties. It has grown to be used as a tool of local governments, in its simplest form, to promote certain land uses in a particular area and to restrict other uses in the same area.

The original method of solving conflicting land uses was for the aggrieved party to bring an action under common law nuisance theory. The theory is that property owners do not have absolute freedom in the use of their property, but are restrained by the co-existence of equal rights in their neighbors to use their own property. The nuisance theory, in law, attempts to ensure that a person cannot use his or her property to injure another person.

Local governments derive their authority to regulate land use from the U.S. Constitution. Government regulation of land use is effected through the exercise of police powers. Police powers include all inherent powers of sovereign governments. The Tenth Amendment of the U.S. Constitution divides police powers between states and the federal government. The framers of the U.S. Constitution specifically wanted to ensure that sovereign states had the right to regulate the

³⁸ Each concept has several well written legal treatises explaining the scope and depth of the issues. See *e.g.*, Daniel R. Mandelker, *Land Use Law* (4th ed. 1977) and Rutherford H. Platt, *Land Use and Society: Geography, Law and Public Policy* (1996). This section seeks only to generally introduce these important issues.

non-federal real property in their state.³⁹ The states generally have delegated the power to regulate real property to local governments.

All fifty states have zoning-enabling legislation for local governments. The states delegate the police power to local governments through state constitutions and state statutes, authorizing local governments to enact and enforce local zoning regulations. The regulations are usually embodied in a zoning ordinance. Zoning ordinances vary widely around the country and within individual states. Neighboring communities may have vastly different ordinances. For example, varying community ordinances may restrict a resident from building a water well; while a neighbor across the street may reside in a different local government jurisdiction and have no such restriction placed upon him or her.

Local land use zoning can be very political and can change from year to year. Many elected officials have lost re-election campaigns on specific land use issues and the new slate of elected officials can change the zoning ordinance immediately upon their ascension to the elected board (depending upon local and state law). However, many local land use laws have existed for more than fifty years.

Typically, zoning divides land uses into general categories. Zoning ordinances divide communities into zoning districts that separate incompatible uses (i.e., industrial, commercial, residential, open space). Subdivision controls divide land into lots and blocks.

Zoning is defined by local ordinance. Some zoning ordinances may restrict a specific use, while others may allow all uses. In one community, a residential zone may allow commercial uses. In another community, residential zones may be restricted to one-acre lots.

When reviewing zoning in the context of land use controls, the parties must be very careful. As explained in Section D above, the cleanup standard or remedy often is selected by defining the future use of the property, usually by identifying general land uses and using a risk-based model to understand the health risks of the remedy. For example, the community, DOE, and the regulators may agree that a property should be remediated to a specific use level and conveyed to a non-federal entity for reuse. The applicable local ordinance regarding land uses may define, for example, industrial land use as allowing industrial, residential, commercial, and other uses. In contrast, DOE, EPA, and state regulators may have intended industrial land use to exclude all other uses. It is important that the terms used to select the remedy are the same.

Specific zoning can be developed for land use planning or to restrict uses of property to protect human health and the environment. For example, many communities have zoning ordinances that do not allow the use of groundwater.

Local governments manage extensive amounts of information in the form of maps and land use categories, in order to support their zoning and land-use planning functions. Detailed maps and other information are also maintained for use in issuing building permits, for waste and sewer

³⁹ However, a state's right to exercise its police powers is limited by the Fourteenth Amendment (and Fifth Amendment), which provides that "No state shall deprive any person of life, liberty or property without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws." The police power is used to regulate human behavior – without it being a compensable "taking" of property – in order to protect public health, safety, morals, or general welfare.

service, and for emergency services. Thus, information management is an important and complex function carried out by local governments.

States also retain some powers to regulate land use. Most states and regions within states maintain some type of land use planning function. For example, many states have comprehensive planning requirements that do not allow growth into specified areas without approval. Other states have water control and utility boards that oversee particular functions.

Local and state land use law is complex. Most local governments around DOE facilities are authorized to enact local zoning ordinances that can create restrictions on the use of property in an area. Thus each local government may have a tool available to participate in the development and implementation of long-term stewardship. DOE needs to understand the tools that may be available to assist it in implementing long-term stewardship. However, all parties must also recognize that there may be several political and/or legal hurdles to implementing the controls.

Covenants and Restrictions on Use of Property⁴⁰

Most federal agencies conveying property to a non-federal entity attempt to control land use and development by inserting specific covenants (commonly referred to as deed restrictions⁴¹) in contractual agreements (e.g., no use of groundwater, prohibition to use property for residential purposes), usually in the deed. A deed covenant is a contract between two parties where the transferee promises to the transferor to do or to refrain from doing something. The covenant is enforceable by the party to the contract. For example, when DOE conveys property to a private developer with a covenant to restrict the use of groundwater, only the federal government can enforce the covenant – not the state or local government – because the contract is between the federal government and the private developer.

Further, a covenant will generally “run” with the land. This means that, when an entity conveys property to a new entity, the promise made by the first entity will be binding on the second entity, if the second entity has notice of the covenant. Notice can be written into a new contract (the deed) or it can be construed if the covenant is recorded in a public record in a local land recorder’s office (the county recorder’s office in most states). For example, when the private developer in the previous example conveys the former DOE property to a new buyer, the covenant will “run” with the land even if the deed between the developer and the new buyer does not contain the covenant, as long as the covenant was recorded properly. The parties that can enforce the covenant between the developer and the new buyer are DOE and the developer (the parties that have a contractual relationship through the deed covenant).⁴²

⁴⁰ See also John Pendergrass, *Sustainable Redevelopment of Brownfields: Using Institutional Controls to Protect Public Health*, 29 ELR 10243, 10248-10252 (May 1999).

⁴¹ “Deed restriction” is not a traditional property law term, but rather is a generic term used in the NCP and elsewhere as a shorthand way to refer to types of institutional controls. Institutional controls are among the tools allowable under CERCLA. *Institutional Controls: A Site Manager’s Guide to Identifying, Evaluating and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups*. EPA 540-F-00-005, OSWER 9355.0-74FS-P, September 2000.

⁴² A deed covenant placed upon federally owned property by the federal owner is not enforceable by another entity because there is no privity of contract – instead the deed covenant acts as a notice, not a restriction, to future buyers.

Some land use experts believe that the control of land use through covenants is superior to land use control through zoning. But others do not:

[T]he argument is sometimes made that since zoning has become so complicated, it would be better to use covenants instead. I do not recall hearing this argument made by someone who had taken a law school course covering the law of covenants.⁴³

Courts recognize the constitutional right to contract by enforcing the most restrictive land use provision when a conflict arises between a covenant and a zoning ordinance. However, enforcement can be the most serious problem in the use of covenants to control a specific land use. The legal aspects of this issue are complex. The most important issue to be addressed in the context of long-term stewardship is to ensure that the covenant actually will “run” with the land and be binding upon future owners of the property. The issue is addressed in each state’s law and local jurisdiction practice, and in the form and substance of the covenant.

A key point when considering deed covenants and zoning is that both tools may be needed, among others, where contamination is left in place and long-term stewardship will be relied upon in the remedy. As mentioned earlier, redundancy of controls will provide more certainty that the controls will remain protective of human health and the environment.

Further, once property is conveyed to a non-federal owner, the property becomes part of the community. If the property will be developed, the developer will need approvals from the local government before it can proceed. Many local governments will require exactions and dedications of property in order to allow the development. For example, where DOE conveys property to a developer to construct an office park, the developer may first need the approval of a zoning board to allow that type of use in the area, and then the developer likely will be required to get several building and other permits for breaking ground or improving existing structures. Before the project is approved for development, the developer may have to agree to dedicate an area of property for a road and utilities. All of the actions that the developer may be required to undertake could affect or be affected by the restrictions placed on the property. All of these issues should be taken into account before the remedy is selected to ensure that the property will remain safe for its intended use.

The local laws and practices of the jurisdiction within which the DOE property is located should be understood by the entities selecting the remedy to ensure that a remedy that relies upon long-term stewardship remains protective. As noted above, the issues relating to reliance upon zoning and deed covenants are complex.

G. IMPLEMENTING LONG-TERM STEWARDSHIP

A key question that needs to be addressed at each site is what entity has the authority to implement long-term stewardship on a site. The legal authority to place an institutional control or engineering control depends upon ownership of property, state law, and legal authority.

⁴³ 5 N. Williams, *American Land Planning Law* 253, n.21 (1974), reprinted in D. Mandelker and R. Cunningham, *Planning and Control of Land Development* 506 (3rd Edition 1990).

The owner of property has the right to put an engineering control, such as a cap or a fence, on its property. Further, the owner of the property can place a restriction in the deed at the time of transfer, or establish other types of proprietary controls on the property.

Federal government owner. DOE and other federal agencies are not required to follow state or local zoning and land use laws. Therefore, some institutional controls may not apply to DOE except through voluntary mechanisms, such as voluntarily filing a deed restriction in county records or implementing an internal process for checking the controls. Further, DOE would be able to develop engineering controls at the site. DOE is subject to federal and state environmental regulation, and hence as part of a remedy selection agreement, may agree to place land use restrictions on any property that requires long-term stewardship.

State regulator. The state environmental regulator's authority over the parcel of property will usually be based on RCRA, CERCLA, and the state's law regulating hazardous waste or the Federal Facilities Cleanup Agreement (FFCA) at the site. RCRA and/or the FFCA will permit the state to participate in the remedy selection process. The remedy, through negotiations with the owner of the property, will probably outline the long-term stewardship controls for a site and the potential long-term stewardship processes required.

Local government. All real property law is state and local-based because no federal real property law exists. A local government has no formal role in implementing a cleanup remedy at a site. However, based upon the state law at most DOE sites, a local government has land use authority over the DOE facility. While DOE, as a federal entity, is not required to follow local land use planning, DOE is required to look at future potential land use when selecting its remedy⁴⁴ and, if the property is ever conveyed, the local land use authority will apply to the property.

TYPES OF INSTITUTIONAL CONTROLS⁴⁵

Depending on local or state law, one or more of the following institutional control mechanisms may be appropriate. In general, mechanisms for creating institutional controls can be divided into two categories: (1) proprietary controls and (2) governmental controls. Institutional controls are often used in conjunction with engineering controls. Each locality must review the issues associated with long-term stewardship and institutional controls and determine its role, if any. If the local government has a role, it must determine its legal authority, capacity, and willingness to implement the necessary controls to protect human health and the environment.

Proprietary Controls

Proprietary controls are often placed in deeds. They involve restricting the use of property through an ownership interest in that property. Nonpossessory interests give their holders the right

⁴⁴ *Land Use in the CERCLA Remedy Selection Process*, OSWER Directive No. 9355.7-04 (1995).

⁴⁵ Environmental Protection Agency, *Institutional Controls: A Site Manager's Guide to Identifying, Evaluating and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups*, September 2000. EPA 540-F-00-005, pp. 1-6. For further discussion of institutional controls see John Pendergrass, *Sustainable Redevelopment of Brownfields: Using Institutional Controls to Protect Public Health*, 29 ELR 10243-10258 (May 1999) and, in the DOE context, see John S. Applegate and Stephen Dycus, *Institutional Controls or Emperor's Clothes? Long-Term Stewardship of the Nuclear Weapons Complex*, 28 ELR 10631-10652 (November 1998).

to use or restrict the use of a parcel of land, but not to possess a parcel of land. The rights of holders of such interests are to a great extent defined by the property law of the state in which the property is located and thus often vary from state to state.

Deeds are recorded in the local real property records, theoretically providing notice “in perpetuity” of deed restrictions, such as those listed below, to any potential purchaser of the property, providing information on the contamination and its location. Possible methods of implementing institutional controls by deed are:

Covenants: Recorded restrictions that prohibit specific types of development, use, or construction on the land.

Easements: Restrict the owner to uses that are compatible with the intended use. If the owner violates the terms of the easement, the holder of the easement may bring suit to restrain the owner's action. However, if the holder of the easement does not act, no third party has a basis to restrain the owner. Moreover, if the holder of the easement does not act to protect the easement, he or she may be deemed to have abandoned the easement.

Reversionary interests: Restrict the owner to uses that are compatible with the intended use. The land is under specific instructions with which each owner in the chain of title must comply. If an owner does not comply, the original owner may bring an action in court to recover the land.

Governmental Controls

Governmental controls involve restrictions that are generally within the traditional police powers of state and local governments to impose and enforce. Governmental controls are essentially regulatory in nature. Examples of governmental controls include:

Zoning Use restrictions can be imposed through the local zoning or land use planning authority that limit access and prohibit disturbance of the response action. However, zoning authority does not exist in every jurisdiction.

Groundwater restrictions: Specific classification systems used to protect well water quality. These are operated through the state well permitting system, and may establish criteria to be met before a use permit or construction is allowed.

Siting restrictions: Used to control land use in areas prone to natural hazards such as earthquakes, fires, or floods. They are created through statutory authority to require that states implement and enforce certain land use controls. Under some federal programs, federal funds are used to cost-share on a development project in return for authority to inspect and undertake legal action. Alternatively, federal funds are used for insurance that can be purchased once preventive measures are taken to regulate land use.

Permits and ordinances: Use restrictions passed in the form of laws by local planning districts or similar legislative bodies. Examples include building-permit processes and master-planning activities.

In addition to a government's deed-based rights to restrict uses that are incompatible with the institutional controls, there may be governmental regulatory authorities that can be used in court to prevent interference with the remedial action or avert threats to public health, public safety, or the environment.

Engineering Controls

Engineering controls are physical controls usually meant to limit access or exposure to a site that contains environmental contamination. Examples of engineering controls include fences, landfill caps, and signs.

H. DECISION-MAKING PROCESS FOR LONG-TERM STEWARDSHIP

If any remedial alternative developed during the feasibility study (FS) (see Flowchart of the CERCLA Process) will require a restricted land use, it must include components that will ensure that it remains protective of human health and the environment. In such cases, institutional controls will probably play a key role in ensuring long-term protectiveness and should be evaluated and implemented with the same degree of care as is given to other elements of the remedy.⁴⁶ In developing remedial alternatives that include long-term stewardship, the following types of decisions will need to be made:

- type of institutional control or long-term stewardship process to be used;
- existence of the authority to implement and oversee the institutional control or long-term stewardship process;
- appropriate entity's resolve and ability to implement the institutional control or long-term stewardship process; and
- funding for implementation and long-term enforcement of the institutional control or long-term stewardship process.

While the remedy decision document need not always specify the precise type of long-term stewardship to be imposed, sufficient analysis should be shown in the FS and decision document to support a conclusion that effective implementation of long-term stewardship can be accomplished.

WHO PAYS?

The presumption is that, as the party responsible for the remediation of the contamination, DOE or the federal government is liable for the costs of long-term stewardship. Nevertheless, the question of who pays for the long-term monitoring of sites where long-term stewardship activities will be implemented is still unclear. The possible consortium of governmental agencies is extensive. The first question that needs to be addressed concerns the parties responsible for implementing and enforcing long-term stewardship activities and institutional controls. In order to determine accountability, the entities that currently have the authority to implement and enforce institutional controls and long-term stewardship activities should be identified for each site.

⁴⁶ Environmental Protection Agency, *Institutional Controls: A Site Manager's Guide to Identifying, Evaluating and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups*, September 2000. EPA 540-F-00-005, pp. 1-6.

Once the primary implementer(s) and enforcer(s) are chosen, DOE, the locality, or state must determine where the long-term funding will come from to pay for these activities. Under CERCLA, DOE is responsible for fully remediating environmental contamination at DOE facilities. However, when DOE decides to employ institutional controls as part of the final remedy at a site, it may effectively shift some of the remediation costs from the federal government. This can affect the state and local government, when they agree to participate in the long-term stewardship and institutional control process directly, via the staff time and expertise needed to monitor the site.

The policy issues of who will pay the long-term costs associated with long-term stewardship are unresolved. However, the long-term costs and obligations, and the entity who will pay for the long-term implementation and enforcement of institutional controls, should be determined before the ROD is finalized and the remedy is selected.

DOE RECOGNIZES THE NEED TO ADDRESS LONG-TERM STEWARDSHIP

DOE recognizes the need to address long-term stewardship and a need to involve local governments in planning along with state regulators and EPA. One of the seminal challenges is building a bridge between the federal government's fundamental responsibility for pending long-term stewardship after remediation and the local governments' traditional role in land use planning in communities potentially affected by DOE sites.

In DOE's Draft Long-Term Stewardship Study, Dr. Carolyn Huntoon, Assistant Secretary for Environmental Management, identified several areas where DOE is incorporating long-term stewardship into decision-making:

- Incorporating long-term stewardship consideration of cleanup decisions.
- Ensuring the continued effectiveness of long-term stewardship if property ownership changes.
- Ensuring public access to information about residual hazards.
- Ensuring reliable and sufficient funding.
- Maintaining continued partnerships with state, local, and Tribal governments.
- Developing mechanisms to promote the sustainability of long-term stewardship.
- Building the concept of "pollution prevention" into the planning processes for new missions and facilities.

Chapter II

STUDY FINDINGS

ECA and ELI have developed report findings from the case studies and the two ECA and ELI Long-Term Stewardship Roundtables (the “Study Findings”). The Study Findings integrate both general and specific long-term stewardship issues affecting local governments.

The Study Findings are the observations made by ECA and ELI on the general long-term stewardship process and specific issues that may affect the role and activities of local governments in long-term stewardship.

ECA and ELI have grouped the Study Findings by six categories: General Findings, Funding/Capacity, Information Management, Public Communication, Enforcement, and Monitoring.

A. GENERAL FINDINGS

1. **Local governments have the legal authority to control the development of real property.** Depending on the jurisdiction, local governments have several tools to restrict development and to provide notice about environmental contamination, including zoning, building and other permits, ordinances, exactions, and deed notices.
2. **Long-term stewardship is not integrated into the CERCLA remedy selection or RCRA process at all DOE sites.** The remedy selection process has been ongoing at DOE facilities for many years. At the case study sites, DOE has no trained staff responsible for ensuring that long-term stewardship and its implications are considered in the decision-making process. These remedy selection discussions and plans do not currently include detailed long-term stewardship processes. However, some DOE offices and states are currently discussing the issues of long-term stewardship implementation. For example, in Oak Ridge, where the State declared that it would not sign RODs without addressing long-term stewardship issues, DOE and the State implemented a long-term stewardship process for at least one area of the site and are discussing potential remedies for other areas.
3. **DOE has not identified the parties that will be responsible for implementing long-term stewardship programs at the sites.** Long-term stewardship of contaminated land is still a new idea for DOE, EPA, states, tribes, local governments, and citizens. DOE has not implemented site specific or national plans for dealing with a site after DOE’s environmental remediation is complete. Hence, the parties who may be responsible for implementing long-term stewardship have not been identified. Because remedies are being selected and finalized at several DOE sites, the issue must be addressed promptly.

4. **DOE has not worked with non-regulators at any of the case study sites to develop a long-term stewardship implementation plan as part of a remedy, even when DOE is likely to rely upon non-regulators to implement portions of the long-term stewardship implementation plan.** The DOE sites reviewed have not included local governments and other non-regulators in developing long-term stewardship plans, except as outside commentators on the process. Even where DOE, EPA, and the State know that long-term stewardship will rely on local governments, they have not been included in plan development.
5. **Currently, local governments have no direct role and are not included in the decision-making group for the formal CERCLA remedy selection process, RCRA process, or the FFA at each site.** Local governments are treated by DOE and the regulators as “stakeholders,” not as government entities and, therefore, for purposes of the national contingency plan, their contributions are considered as community input and have no direct role in remedy selection. In fact, at some sites, the Site Specific Advisory Board (SSAB) is informed about environmental contamination issues before local governments
6. **DOE and the entities regulating DOE’s cleanup activities (i.e., EPA and state regulators) often do not understand the state and local laws that will permit long-term stewardship implementation and enforcement.** Real estate law is state-based and all governmental controls are state and local government-based. The remedy selection process may include a requirement for a control before the laws of the local area are fully understood.
7. **When property is conveyed, the only institutional controls in place in many cases are property use restrictions in the deed or lease.** DOE has conveyed several properties with land use restrictions based upon environmental concerns. Where title to the property has been transferred, the only land use controls are deed covenants restricting the use of the property. At DOE property that is leased to a non-federal entity, several other restrictions often apply where environmental remediation is taking place in conjunction with the lease.
8. **DOE, state, local government, and citizens are concerned that environmentally contaminated sites on DOE property are not fully known or characterized.** However, there is an expectation that DOE will adequately characterize and document the sites and provide the information to the local communities when funding is available.
9. **Many of the local individuals and entities focusing on long-term stewardship are relying upon the State or EPA (as regulators) to oversee long-term stewardship activities at the Sites.** Many of the Project participants expect DOE or another federal agency, as the party that owns the property and caused the contamination, to oversee the long-term stewardship process indefinitely. Further, most individuals believe that EPA and state regulators, who currently are responsible for regulating and overseeing DOE remediation activities, will also have a permanent role overseeing long-term stewardship.

10. **DOE does not have effective, recognized national policies that are implemented in the field.** The interviewees cited a need for guidance from DOE headquarters to the DOE field offices that incorporates input from EPA, state regulators, local governments, and citizens.
11. **Local governments expressed interest in working with the DOE and regulators on long-term stewardship issues.** Each local government interviewed expressed an interest in working with DOE to ensure that environmental remediation at the sites protects human health and the environment. However, the specific roles of local governments at each site are unknown. The local government officials expressed a need for DOE to meet with them and discuss local government roles and responsibilities at each site. Key concerns raised included funding, liability for taking on a role, future remediation, inclusion in remedy selection decision-making, and long-term support from the federal and state governments.
12. **DOE has not asked a local government to participate in actual long-term stewardship activities at any of the case study sites.** None of the case study local governments have been asked by DOE to participate in long-term stewardship activities. However, at a few of the properties conveyed to the City of Oak Ridge, proprietary land use controls were added to the deed and the local government, as the owner, was required to follow the restrictions on the use of the property.
13. **Local government preference is for a level of remediation that will not require long-term stewardship where practical.** Local governments at the sites reviewed prefer that DOE facilities be remediated to a level that allows unrestricted use and avoids long-term stewardship. However, when remediation to such a level is not practical due to current technical or budgetary constraints, the local governments expressed an interest in ensuring that covenants are inserted into final remedy decision documents, that detail the long-term stewardship plan, activities, and funding.
14. **Local governments are relying on states to have a role in implementing and enforcing long-term stewardship on DOE sites.** Most local governments discussed the state role in regulating and overseeing environmental remediation when discussing long-term stewardship. When property is conveyed to a non-federal entity, local governments said that states should have a role in enforcing institutional controls when contamination is left in place. The implication for state governments is that local governments expect the state to continue to be involved in long-term stewardship oversight when the state agrees to long-term stewardship as part of the remedy.
15. **Local governments are concerned about whether they would have increased financial liability if they undertook a formal long-term stewardship role.** A key concern raised by local governments is their potential legal and financial liability for undertaking a role that they are not legally required to undertake.

16. **Citizens, local governments, and state regulators, rather than DOE field offices, are advocating long-term stewardship discussions at the case study sites.** The citizens, local governments, and state regulators are very involved in educating citizens and developing methods to implement long-term stewardship. At some of the sites, DOE field office staff are engaged with the citizens and governmental entities in these discussions. At others, DOE is just beginning to enter the dialogue. Conversely, the DOE Environmental Management Office of Long-Term Stewardship is taking the lead on the development of national policies and solutions to long-term stewardship.
17. **Long-term stewardship will depend upon numerous laws and institutions that vary from state to state and may change over time.** The various governmental bodies that may have regulatory authority over the DOE sites vary at each site. Some sites are incorporated in one local jurisdiction, while other sites are located within several local jurisdictions. Further, at least at one site, there is talk of potential annexation of a portion of a site into in a new jurisdiction, which raises the reality of land use control borders changing over time.

B. FUNDING/CAPACITY

1. **Long-term stewardship costs are not known at most sites.** As long-term stewardship ideas and policies are being implemented, the costs will need to be defined. In order to accurately forecast costs, the activities and the entities that will have a role in long-term stewardship need to be known.
2. **At several sites DOE has developed estimates for the cost of long-term stewardship activities, however, it has not identified its long-term stewardship requirements.** Several interviewees expressed concern about developing a budget without knowing all of the inputs. This will need to be resolved in the future.
3. **Funding for long-term stewardship is a major determinant of the capacity of all government agencies, as well as DOE, to implement long-term stewardship activities.** Annual funding from the federal government is not perceived to be reliable. Although the actual costs for long-term stewardship are not known for each site, the uniqueness of the federal government's annual funding process does not provide certainty as to whether a long-term stewardship process can be funded over a long period of time without decreases in the funding stream. Various options are being debated at the sites including federal, state, and private trust funds, the current federal budget process, and one-time payments to capitalize an account to oversee the process.
4. **Some state environmental regulators perceive that the current regulatory scheme of the states overseeing DOE activities works well.** Other state environmental regulators, however, believe changes are needed in their state laws in order to successfully implement long-term stewardship activities. The current process of DOE and the state working together on solutions to the remediation issues seems to be working at CERCLA-lead sites. At Los Alamos, where the State is regulating DOE's activities under RCRA, the State is not confident of its ability to

implement a long-term stewardship process. In two of the states reviewed, Colorado and New Mexico, the state regulators are investigating the development of state statutory authority to develop long-term stewardship processes and funding mechanisms. Tennessee already has a state statute to develop a “trust fund”-like mechanism for funding long-term stewardship of a waste disposal cell.

5. **Many states are willing to play a role in long-term stewardship as long as there is funding for their activities.** The state regulators currently believe that the present system under which DOE pays the state for environmental oversight activities at the DOE facilities works well. However, the state representatives were concerned that if the funding no longer existed, states may need to seek other means to oversee DOE environmental remediation activities.
6. **The capacity of local governments to implement long-term stewardship varies, but often is limited by lack of experience with contaminated property and funding.** Local governments generally have extensive experience with land use planning, zoning, and providing information about public health and safety risks to citizens, all of which are activities that will be a part of long-term stewardship. Local governments, in most cases, have limited experience in applying these to contaminated land, particularly where the contaminants are long-lived chemicals or radioactive materials. Local governments also often lack the staff or financial resources to accept additional responsibilities.
7. **Local governments are interested in participating in long-term stewardship activities if funding exists to pay their costs.** A key to parties participating and undertaking a role in long-term stewardship is funding. Some local governments expressed a concern that the DOE, the entity that caused the contamination and that has a legal obligation to remediate the property, would be passing the costs to the local government.
8. **Tribes would like more funding in order to educate themselves on environmental issues, including long-term stewardship.** Many tribes advocate remediating all environmentally contaminated sites to a level that will allow unrestricted use and will not require institutional controls. Tribal uses and beliefs are consistent with unrestricted use. Tribal entities also want to ensure that DOE assists in educating tribes on long-term stewardship issues and they perceive that very little funding is currently being spent on this task.

C. INFORMATION MANAGEMENT

1. **Local governments, in general, are willing to perform information management activities, as long as there is coordination, training, and funding for the additional costs of the record-keeping activities.** Local governments expressed an interest in working with DOE to develop a long-term record management system, if funding is available for the system. Local governments discussed the possibility of storing records in libraries or museums. The keys to the local government ideas are accessibility to citizens, proximity to the DOE site, and redundancy with a federal record-keeping program. Further, there is a realization

that if local governments undertake this role, they may need to develop new information management systems in order to handle DOE site records.

2. **DOE is developing systems to track environmental contamination information. Site-specific environmental contamination information is available on the Internet** DOE has indicated its commitment to ensuring that current environmental contamination information is released to the public.
3. **All information regarding environmentally contaminated sites is not readily available in a community on an updated basis.** For example, some reports on the Internet about environmental contamination are several years old.
4. **Individuals are concerned about their inability to access environmental and past unrestricted operational records, which are not always maintained at sites.** One of the key concerns of individuals interviewed is the location and ease of searching DOE environmental and operational documentation (that are not restricted for security reasons) for a site. Although most current environmental remediation information is available at a site, many environmental and past operational site records are scattered across several federal storage areas, if they exist at all, and are not readily available to a local community. A further concern about the final location(s) of the records existed at closure sites (Rocky Flats).
5. **Environmental, building maintenance, and building activity records are often misplaced over time.** Searching records at DOE facilities can be difficult because of the number of years over which the sites have operated, contamination of the records, and the various record-keeping methods used to store information. These variations in data type, volume, and, as mentioned above, lack of a central repository, all lead to difficulty in locating records that could provide input into types and quantities of potential environmental contamination at sites.
6. **Most parties are concerned about DOE's ability to maintain records of a site – especially closure sites.** Interviewees discussed at length the need for DOE to develop a system to permit records to be searched easily and to be maintained close to the sites. At DOE sites that are slated to close in the near future, the concern about access to critical records over a long period of time is more immediate. The DOE facilities with continuing missions believe that DOE will continue to maintain and keep track of the records for the site.

D. PUBLIC COMMUNICATION

1. **Although education about long-term stewardship has begun in and around the DOE facilities, many DOE staff and community members do not fully understand the concept of long-term stewardship.** While citizens were interested in environmental cleanup, they did not necessarily understand long-term stewardship issues.

2. **Long-term stewardship education is beginning at DOE.** The DOE EM Office of Long-Term Stewardship and Office of Intergovernmental and Public Accountability and several national non-governmental organizations are focused on long-term stewardship national policy and developing long-term stewardship solutions that will work at the site level. At the site level the process is led by citizen and local government groups and state regulators, not DOE. At the time of the interviews, most of the DOE sites supported the work of the citizens and local governments and participated in the discussions, but did not always lead or develop their own solutions (the Grand Junction Office being a notable exception).
3. **Documenting contamination and providing access to site records on long-term stewardship activities is made more difficult because of national security concerns at DOE sites.** Most people interviewed understood the need for security at the sites, however, they do not believe that environmental contamination information should be kept secret from a community. While noting the importance of the issue, the interviewees did not provide solutions for balancing national security with environmental disclosure.
4. **DOE field offices have a difficult time retaining continuity in their newly created long-term stewardship positions.** At some sites the people in these positions are leaders in the area of long-term stewardship. At other sites; however, the turnover in the position does not permit the personnel to become familiar with the subject area.
5. **DOE does not always communicate issues directly to local governments relating to long-term stewardship.** Although local governments support DOE working with SSABs, a key concern cited by local governments is DOE using SSABs as a primary means of communicating with a community on long-term stewardship issues, while not communicating issues to the local governments.

E. ENFORCEMENT

1. **Restrictive covenants, reversionary clauses, and other land-use restrictions imposed by deed are not necessarily a complete long-term solution to notifying future property users of environmental contamination.** Deed restrictions generally “run with the land,” but there are exceptions that may not be known or understood by parties relying on them as part of a remedy. Further, the deed is a contract between past and present owners of the land and, therefore, does not provide notice to lessees, lessees or other users, local governments that approve development in the area, or others. Finally, deed provisions normally cannot be enforced by local or state government, or anyone not a party to the deed.
2. **Local governments around the case study sites have no significant experience enforcing environmental institutional controls.** The local governments, although interested in working with DOE, cited resources and capacity as barriers to implementing or enforcing long-term stewardship.

3. **DOE field office staff frequently assume that state or local governments will enforce proprietary and governmental controls.** Most state and local governments do not have the authority to enforce propriety controls. The authority to enforce governmental controls varies with each state and local government. The key DOE decision makers did not seem to understand all of the laws affecting proprietary and governmental controls at their site.
4. **There are no enforceable real property law-based institutional controls on DOE sites – beyond federal ownership.** However, many DOE sites self impose property restriction-like procedures and create information sources on environmental issues at DOE facilities. As a federal entity, DOE is not subject to state and local-based zoning or land use restrictions. Further, DOE does not impose specific legally based land use restrictions on its own property. However, at least two of the case study sites created self-imposed non-legal requirements to investigate property before activities take place that can or may pose a threat to site workers.
5. **At active sites, DOE Field Office staff do not expect that there will be any role for local governments in long-term stewardship of on-site contamination.** At the active sites there is a clear distinction between on and off-site activities in the minds of the DOE staff and the local community. Both DOE and individuals in the community believe that DOE is responsible for all on-site long-term stewardship activities and that there is little role for local governments because they have no legal jurisdiction over the site.
6. **Off-site, local governments may be willing to undertake a role, where requested by DOE, to enforce institutional controls (if the local government has the capacity).** Local governments articulated an interest in exploring using land use authority, building permits, or other regulatory authority to enforce institutional controls.
7. **DOE has not instituted a formal review process to enforce institutional controls on property that it transferred with deed restrictions.** Where DOE has conveyed real property by deed with proprietary controls, such as deed covenants restricting use of the property, DOE has no process for reviewing and monitoring the property to ensure that the deed covenants are not breached.

F. MONITORING

1. **On-site, local governments rely on DOE, EPA, and the State to monitor environmental contamination.** Local governments cited resources and expertise, not lack of interest, as reasons for relying on DOE, EPA, and the State.
2. **Off-site, local governments rely on the State to monitor environmental contamination.** Local governments currently do not have the capacity to monitor environmental contamination caused by DOE. In some instances, however, the local governments are hiring experts to oversee the sites or are undertaking a specific role in monitoring potential contamination migrating or located off-site.

3. **Many local governments are skeptical of the accuracy of monitoring data being supplied by DOE.** Historically, DOE operated its sites under a veil of secrecy and, as a result, information was not released to the community. The historical skepticism is exacerbated when DOE informs newspapers and SSABs without notifying local governments.
4. **When citizens are aware that contamination exists in a certain location, they express interest and want to take a role in monitoring.** The interviewees expressed their interest in ensuring that all information is public in order to assist citizens to monitor the sites.

Chapter III

POLICY RECOMMENDATIONS

A. **DOE SHOULD WORK DIRECTLY WITH LOCAL GOVERNMENTS ON LONG-TERM STEWARDSHIP ISSUES THAT AFFECT THEM**

1. **DOE and the regulators should begin to work with local governments on long-term stewardship.** Local governments have direct control over many of the mechanisms that will be used to protect human health at sites where hazardous substances will remain in place. These include zoning, building and other permits, deed notification, and ordinances. DOE and the regulators need to improve their understanding of these and other tools for implementing long-term stewardship.
2. **DOE and the applicable regulators should ensure that they understand the environmental, land use, and real property laws and regulations of the state and local jurisdictions when relying on long-term stewardship.** Long-term stewardship may include land use controls, property law-based controls, and environmental regulatory controls, which are based, in whole or in part, on state and local law. Therefore, DOE should analyze all state and local land use, real estate, and environmental and other regulatory laws to understand the tools available, and the constraints on them, to implement long-term stewardship.
3. **Whenever local governments, or other entities, will be expected to carry out a role or responsibility in long-term stewardship, the local government or other entity must be included in the decision-making process.** If local governments are not involved in the decision-making process, DOE officials may lack an understanding of the limits on the authority, capacity, or desire of local governments, or other non-DOE entities, to implement all or some of the functions or activities that DOE decision makers would prefer them to undertake. A local government or other entity should have a substantive role in decisions that may result in that entity bearing responsibility for future actions.
4. **DOE should develop site-specific agreements with the affected local governments before relying on them to enforce land use controls.** If local governments will have a role in implementing and enforcing long-term stewardship activities, then DOE and the applicable regulators must consult with the local government that has land-use jurisdiction over the site and develop a long-term stewardship agreement. Land-use planning and regulation is an important element of long-term stewardship that is a function of local government and that is handled in widely varying ways.
5. **Local governments should be consulted early in the decision-making process for any off-site cleanup and any on-site cleanup on land that may be transferred out of federal ownership or that affects non-federal property.** Local governments have an interest in the potential land use and public health and welfare effects of any cleanup on land that is, or may in the future be, in their jurisdictions.

6. **DOE should meet with, seek input from, and discuss long-term stewardship directly with local governments, rather than relying on SSABs for its outreach to local governments.** Local governments seek a relationship with DOE that is based on their role as the level of government closest, and most directly responsive, to residents of communities affected by DOE facilities.
7. **DOE should provide funding for local government activities associated with implementing, monitoring, and enforcing long-term stewardship at DOE sites.** Such funding should be provided in a manner that allows local governments to make long-term commitments, such as multi-year contracts. Such funding methods could include one-time payments of the entire estimated life cycle costs or payments to cover specified multiple-year periods.
8. **DOE should begin working with local governments to link environmental contamination information into the local GIS and record-keeping systems.** Linked systems will ensure that city and county offices have access to the information when they make permitting and other land use decisions.

B. ESTABLISH AND IMPLEMENT A NATIONAL POLICY ON LONG-TERM STEWARDSHIP

1. **DOE should develop and implement a comprehensive national policy on long-term stewardship.** The national policy should, at a minimum, cover how long-term stewardship will be integrated into the duties and responsibilities of all potentially affected elements of DOE, including planning for the phase-out of Environmental Management as a principal actor.
2. **DOE should develop specific guidance for DOE field offices on how to implement its policy on long-term stewardship.** DOE's existing national policy on long-term stewardship needs to be uniformly implemented in its field offices.

C. IMPROVE THE DECISION-MAKING PROCESS FOR LONG-TERM STEWARDSHIP

1. **DOE and the appropriate regulators should integrate long-term stewardship into the cleanup decision-making processes under CERCLA, RCRA, and other authorities.** Long-term stewardship is a fundamental and critical element of many DOE cleanups, which needs to receive the same degree of analysis and consideration as other elements in the decision-making process.
2. **Long-term stewardship should be considered at the same time and with the same level of investigation and analysis as engineering solutions to risk management.** DOE's investigation and analysis of remediation alternatives should include feasibility, cost, and effectiveness of potential methods of implementing long-term stewardship. Remediation alternatives should be analyzed as an integrated system with interdependent elements of engineered systems and long-term stewardship.

3. **Specific mechanisms for implementing long-term stewardship, the parties responsible for implementing them, and the methods and sources of funding those mechanisms should be identified as part of any decision to rely on long-term stewardship.** Long-term stewardship may fail because specific mechanisms, parties, or sources of funds do not exist or operate as anticipated.
4. **DOE and the appropriate regulators should ensure that they understand the cultural, social, economic, and political environments of the neighboring communities and how they might affect long-term stewardship before making cleanup decisions that necessitate long-term stewardship.** Successful implementation of long-term stewardship depends on influencing human behavior, which is affected by cultural, social, economic, and political factors. Considering these factors in the local context will improve the likelihood of the long-term success of achieving the stewardship goals.
5. **DOE should adequately characterize all potential release sites at its facilities.** Some local governments and members of the public are concerned that DOE has not yet fully characterized its potential release sites and that this may lead to cleanup decisions that are based on inadequate information.
6. **Before making a decision to remediate a site to a level that would not allow unrestricted use, DOE should analyze the opportunity cost to the community of the restricted use compared to an unrestricted use.** Restrictions on the use of land may have long-term detrimental effects on the economic development potential of the specific parcel and for the community generally. A comparison of the relative benefits of the different uses that would be allowable under different remediation alternatives would help communities and DOE make more informed decisions about future land uses and remedial alternatives.

D. DOE SHOULD PROVIDE INFORMATION TO THE PUBLIC AS A FUNDAMENTAL ELEMENT OF LONG-TERM STEWARDSHIP

1. **Information about risks at sites, residual levels of contaminants, engineering controls, and institutional controls should be made available to affected governments and the public in a variety of formats and levels of detail so that individuals are able to use the information to inform themselves at whatever level of specificity or technical sophistication they desire.** Information should be available in the form of maps, fact sheets, and graphic representations, but also in the complete technical reports. Information designed to meet these varying desires will improve the effectiveness of stewardship by assisting the public to inform and protect itself.
2. **DOE should conduct a thorough survey of, or require that each local Operations/Field office ascertain, the information management needs of local governments.** The information management needs of local governments will vary with each site and local government. This determination of needs should be accomplished early in the process of planning for long-term stewardship to allow

sufficient time to prepare maps or other formats of information that are compatible with local governments' systems and meet their needs.

3. **Records relating to site characterization, risk assessments, cleanup standards, completion reports, and long-term stewardship, at a minimum, should be kept on-site or in close proximity to the site, and be made available to the public.** Those who live, work, and play near DOE facilities are most likely to be affected by the facilities and thus should have easy access to information so they can inform themselves.
4. **DOE should investigate the viability of using museums as long-term site record repositories that are accessible to the local community.** Museums have a well-established record of providing information to the public in understandable forms and over long periods of time and local museums could preserve such information in the community.
5. **DOE should also keep site-specific records in a national archive in a manner that facilitates access to and use of the information contained in the records.** Information about the risks at sites is of national importance and should be maintained in a manner that facilitates analysis in the aggregate at the national level, as well as the local level.
6. **DOE should keep and make available to the public permanent records of the residual levels of contaminants.** Future users will need to know the actual levels if standards change or there is a need to reevaluate the risks of those contaminants. Knowledge about risk is likely to improve and may lead future risk managers to determine that contaminant levels now considered safe are not safe. They will be unable, however, to identify sites where residual contaminant levels were below current standards considered acceptable for any use unless the actual levels of residual contamination are recorded.
7. **DOE should work with states and local governments to educate citizens and perform outreach about long-term stewardship.** Outreach and education should include information about the potential risks posed by residual contamination and about methods of avoiding those risks, including compliance with institutional controls. Institutional controls and long-term stewardship depend to a certain extent on individuals knowing about land-use restrictions, warnings, and risks. The better educated the affected public is about these restrictions and the need for them, the more likely they are to avoid the risk.

E. LONG-TERM STEWARDSHIP ACTIVITIES NEED TO BE INTEGRATED INTO THE DUTIES OF RELEVANT ORGANIZATIONS

1. **DOE should work with local governments to develop training for local governments if long-term stewardship will be implemented by the local government.** Local governments have substantial experience and expertise in activities similar to those needed for long-term stewardship, but may need additional

training or capacity building to adapt to the specific circumstances of long-term stewardship of contaminated land.

2. **Monitoring and enforcement of long-term stewardship activities should be integrated into the duties and responsibilities of federal, state, and local regulators.** Monitoring and enforcement are essential to assure that essential activities continue to be accomplished over the long term.
3. **Implementation, monitoring, and enforcement of long-term stewardship should follow fail-safe principles, including redundancy of functions.** The level of redundancy needed should rise with the level of risk at a site.
4. **Redundancy of monitoring and enforcement of long-term stewardship responsibilities may be particularly important where DOE has the responsibility of monitoring its own activities.** Because an entity is not an effective monitor of itself, state, local, and public monitoring may be particularly important where DOE is a self-regulator.
5. **DOE and the regulators need to understand and assign roles and responsibilities of each party that will enforce long-term stewardship activities.** The activities associated with each role need to be identified so that they can be appropriately assigned to entities able to undertake these roles.
6. **Potential liabilities need to be reviewed and considered by local governments before taking on a long-term stewardship role.** Local governments need to inform themselves about the consequences of undertaking specific responsibilities.
7. **DOE, EPA, and state regulators must ascertain a local government's capacity, interest, and authority in implementing long-term stewardship processes, if the local government will be relied upon for a role in long-term stewardship at a site.** Failure to investigate the capacity, interest, and authority of a local government to carry out specific duties could result in substantial lapses in stewardship activities, or in failure.
8. **Citizens and non-governmental organizations should be encouraged and funded to monitor and enforce long-term stewardship commitments.** Members of the public and non-governmental organizations can be effective supplements to governments' monitoring and enforcement programs.

Chapter IV CASE STUDIES

ELI/ECA Role of Local Government in Long-Term
Stewardship at DOE Facilities
Case Study Sites

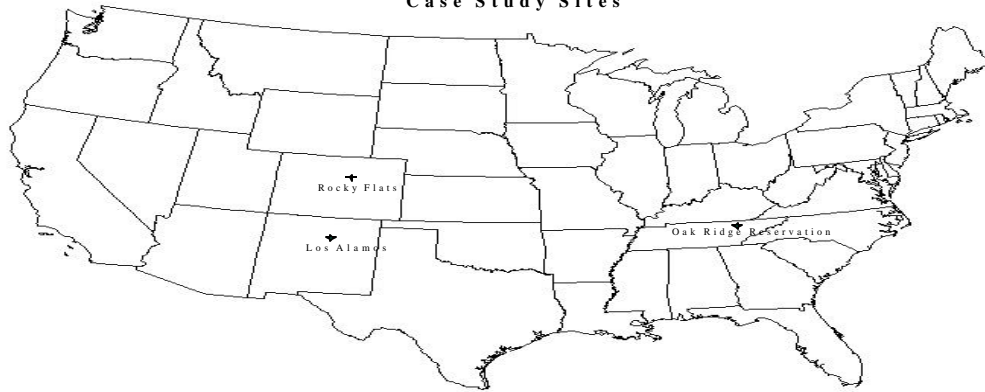


Figure 4.1

A. ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

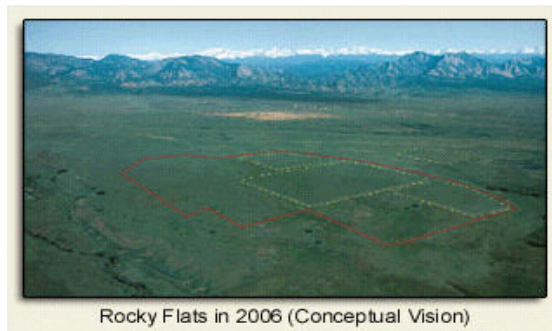
1. Introduction

This case study of the Rocky Flats Environmental Technology Site (Rocky Flats or Site) examines the roles taken by federal, state, and local governments, as well as members of the community, in understanding and implementing long-term stewardship activities at Rocky Flats.

Specifically, this case study characterizes the level of potential involvement for local governments in the long-term stewardship activities of Rocky Flats and identifies the tools required for local governments to participate in the implementation of long-term stewardship.



Rocky Flats Environmental Technology Site (1998)



Rocky Flats in 2006 (Conceptual Vision)

Figure 4.2. Current Site View of Rocky Flats compared to Conceptual Site View after closure.⁴⁷

How do we ensure portions of the Site that will remain contaminated are protective of human health and the environment in the future?

⁴⁷ Photos from EDDIE, the Environmental Data Dynamic Information Exchange, Rocky Flats Environmental Technology Site Website, <http://www.rfets.gov/>.

2. Summary of Findings

With the closure of Rocky Flats planned for 2006, long-term stewardship is beginning to play an important role in discussions among the local governments surrounding the Site, as well as local stakeholders, the State of Colorado (State) and the Department of Energy (DOE). The current remediation plans for the Site will require the implementation of long-term stewardship in order for the remedy to remain protective. However, although DOE realizes it may need long-term stewardship controls, it has yet to commit to developing a long-term stewardship plan for the Site. Further, the final remediation decisions for this site are not expected to be made for several years – adding to the uncertainty about the requirements for long-term stewardship.

There are several local governments in close proximity to Rocky Flats that are affected by the ongoing remediation and closure efforts at the Site. Many of these local governments are interested in understanding the long-term stewardship implications for Rocky Flats and what type of role, if any, they could play in effectively implementing long-term stewardship activities. The large number of communities near the Site has increased the dialogue and debate at Rocky Flats over future uses for the Site. Most local governments recognize that if property is conveyed to them in the future, they may have the responsibility for controlling the zoning and land-use planning, as well as for enforcing any deed restrictions on the property.

The Stewardship Working Group (SWG), composed of DOE, State, and local representatives, is currently studying the various elements of stewardship, including engineering and institutional controls, and the activities that each entails. With an understanding of these various elements, the SWG plans to analyze site-specific stewardship issues, and thus allow the community to effectively inform remedy selection and decision-making at Rocky Flats.

Also, a bill has been introduced in Congress by the Colorado delegation (H.R. 5464 and S.3090 in the 106th Congress) which would ensure that the federally owned lands at Rocky Flats will remain in federal ownership post-closure and that Site management would be transferred from DOE to the USFWS. The legislation would establish a National Wildlife Refuge on the Site, while requiring DOE to remain liable for any long-term environmental remediation obligations.

3. Background

a. Site Context

Rocky Flats is located approximately fifteen miles northwest of Denver, Colorado, fully within an unincorporated portion of Jefferson County. There are at least sixteen local government jurisdictions affected by remediation and stewardship activities at Rocky Flats. In addition to Jefferson County, they include: Adams and Boulder Counties; the cities of Arvada, Broomfield, Denver, Westminster, Boulder, Lafayette, Golden, Lakewood, Louisville, Wheat Ridge, Northglenn, and Thornton; and the town of Superior. While all of these local governments are concerned about the health and safety effects of the plutonium storage at the Site, they have varying degrees of involvement in the remediation and long-term stewardship issues.

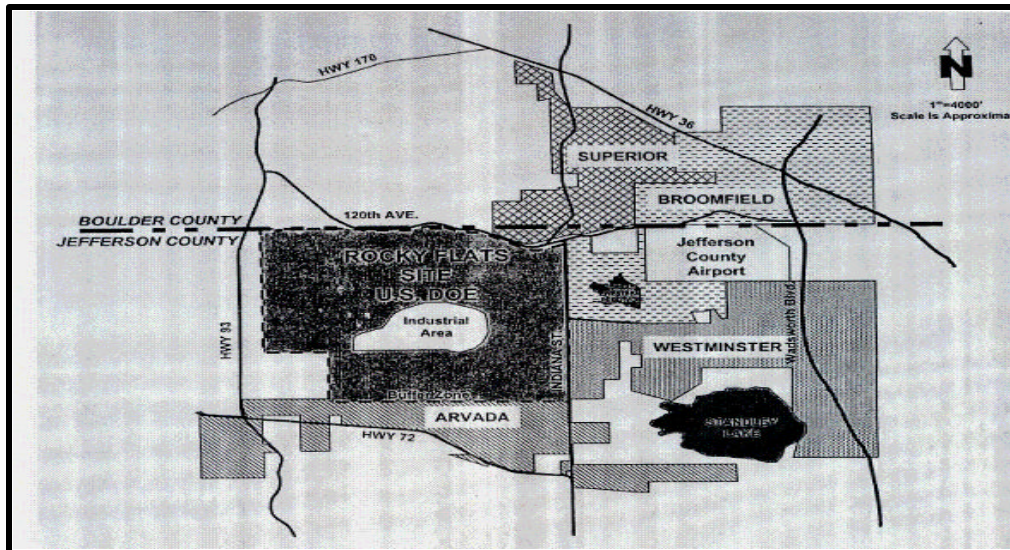


Figure 4.3 Map of Rocky Flats and Surrounding Jurisdictions

In 1951, the Atomic Energy Commission (AEC), the predecessor to DOE, built Rocky Flats to manufacture and assemble nuclear and nonnuclear weapons components, with the use of plutonium, uranium, beryllium, stainless steel, and other metals. During 1953-1964, Rocky Flats produced plutonium triggers (pits) for most of the U.S. nuclear weapons manufactured, and the site produced all of the plutonium triggers used in weapons manufacturing from 1964-1989.⁴⁸

Rocky Flats comprises an industrial zone of approximately 384 acres, and a buffer zone (prairie terrain) of about 6,000 acres. Originally, Rocky Flats consisted primarily of the industrial zone, a complex that has grown to more than 700 facilities for manufacturing, chemical processing, research and development, and administration. In 1972, 4,000 acres were added to the Site to serve as the buffer zone, minimizing the effects of the industrial area to the growing residential community. In the early 1950s, when the site was established, the population of the Denver metropolitan area was approximately 500,000. A mixture of agricultural, mining, and residential land uses around Denver has accelerated population growth, now estimated at 2.3 million, and brought development pressures to lands adjacent to the Site.⁴⁹

In 1989, the Federal Bureau of Investigation (FBI) and the EPA raided Rocky Flats and cited it for environmental violations. EPA then placed Rocky Flats on the Comprehensive Environmental Response, Compensation, and Liability Act's (CERCLA)⁵⁰ National Priorities List (NPL), the list of the country's most environmentally contaminated sites. In 1992, weapons manufacturing at Rocky Flats was terminated and the Site's mission shifted to waste management and environmental restoration.

During the Cold War, DOE overlooked environmental contamination and waste management concerns as weapons production and testing took priority. When DOE ended non-nuclear production at Rocky Flats in 1994, the plant was renamed the Rocky Flats Environmental Technology Site.

⁴⁸ *Rocky Flats History and Photos*, Rocky Flats Environmental Technology Site Website, <http://www.rfets.gov/>.

⁴⁹ *Id.*

⁵⁰ 42 USC §§ 9601-9675 (2000).

Nuclear weapons production activities at the Site generated chemical and radioactive substances that left the buildings and surrounding environment contaminated. Over the years, radiological materials and hazardous waste have been released into the environment at Rocky Flats and neighboring lands, traveling through wind and water. Transuranic and other radioactive wastes remain in storage at the Site, along with a large quantity of plutonium residue.

A majority of the contamination is in or adjacent to the industrial area, while some also exists in Walnut Creek, Woman Creek, and the 903 pad plume along the buffer zone. Walnut Creek and Woman Creek are two streams that drain water from the Industrial Area. Before closure, many buildings at the Site must be demolished in order to contain the soil contamination.

The Site is being cleaned up under the Rocky Flats Closure Plan (Closure Plan).⁵¹ The Closure Plan is based on completing the cleanup activities regulated by the Rocky Flats Cleanup Agreement (RFCA), the guiding regulatory document signed in 1996 by DOE, the Colorado Department of Public Health and the Environment (CDPHE), and EPA. The RFCA combined the regulatory requirements of CERCLA, the Resource Conservation and Recovery Act (RCRA), and the Colorado Hazardous Waste Act (CHWA)⁵² into one document. While the RFCA includes a vision for site closure, the end-state and the final site environmental remediation levels have not yet been determined.

The current DOE plan assumes that all buildings will be demolished, all wastes will be shipped to off-site locations, and the entire Site will be cleaned to a level that allows for restricted open space. The RFCA mandates that waters on-site and leaving the Site will be available for all uses, but does not provide how the standard will be met or how it will be calculated. In contrast, the contract between DOE and Site contractor Kaiser-Hill and, in turn, the Closure Plan, provide that waters on-site will meet an open space standard. Resolution of this issue will impact long-term stewardship needs.

Likewise, within this broad regulatory and planning framework, there are a number of outstanding issues, the resolution of which will affect other long-term stewardship needs. For instance, the current soil remediation level is being reviewed. Depending on the final remediation levels and options for achieving the given standard (e.g., utilizing a RCRA cap, extent of soil removal, use of engineered barriers), there are a number of varied stewardship needs post-closure. The remediation level and its relationship to long-term stewardship thus becomes both a question of which contaminants are left in place and which are removed from the Site as well as a question as to how to manage the remaining contaminants left on-site.

4. Experience with Long-Term Stewardship

DOE, the State, and local governments surrounding Rocky Flats do not have extensive experience in dealing with long-term stewardship and the implementation of institutional controls.

The city of Broomfield has owned the Great Western Reservoir since 1961. As a result of a lawsuit brought in 1985 by the citizens of Jefferson County against DOE because of contamination found on their land, Broomfield was able to purchase 354 acres of land surrounding the Great

⁵¹ The U.S. Department of Energy Rocky Flats Closure Project Management Plan, June 2000. <http://www.rfets.gov/SiteClosure/RockyFlatsManagementPlan.pdf> (Jan. 2001).

⁵² 25-15-301 through 316, C.R.S.

Western Reservoir at less than market value. DOE subsidized the purchase price and the market value. In return for this subsidy, Broomfield agreed to several deed restrictions on the 354 acres. The deed to the property includes restrictive covenants that the property shall be used for purposes of expanding the Reservoir open space, for development of parks and recreational needs or agricultural uses, or any use that Broomfield, DOE and the Site contractor agree upon. All restrictions were placed on the property in perpetuity.⁵³

The State and local governments surrounding Rocky Flats have also dealt with the Shattuck site (Shattuck) near downtown Denver. Shattuck was at one time a radium plant, which stopped activity in the 1920s. After contamination was discovered at Shattuck, the site was placed on the NPL in 1983. About 100,000 yards of contaminated soils were treated and in 1998 caps were put on the contaminated area.⁵⁴ In 1999, several local government officials and citizens questioned whether the caps were working correctly, and as a result, the Record of Decision (ROD) for Shattuck was reopened. This incident contributed to many local government officials' concern that physical controls such as caps or fencing may not always be the proper ways to ensure protection of health and safety. However, officials from the State viewed the decision to reopen the ROD for Shattuck to be politically motivated, rather than due to a failure of the current physical control.

5. Local and State Government and Citizen Experience Relating to Environmental Remediation and Reuse at Rocky Flats

ROCKY FLATS LOCAL IMPACTS INITIATIVE

In 1991, many of the local governments surrounding the Site signed an intergovernmental agreement to form the Rocky Flats Local Impacts Initiative (RFLII). RFLII was formed to help the local community determine the effects that a change of mission at Rocky Flats would bring. The agreement also allowed chambers of commerce, Site workers, environmental organizations, and business and public interest groups to join. In 1994, RFLII was named the Community Reuse Organization (CRO) for Rocky Flats. RFLII was funded by DOE, and used funding from program grants under Section 3161 of the fiscal year 1993 Defense Authorization Act. In 1999, RFLII ceased to exist and the Rocky Flats Coalition of Local Governments (RFCLOG) became the Site's recognized CRO.

CITIZENS ADVISORY BOARD

The Federal Facilities Environmental Restoration Dialogue Committee (FFERDC) recommended in 1993 that public participation in the cleanup of federal facilities could be enhanced if site-specific advisory boards (SSABs) were developed. Then Colorado Governor Roy Romer and Congressman David Skaggs proposed that the CDPHE and the EPA Region 8 join together to form the Rocky Flats Citizen Advisory Board (CAB).

The CAB is an independent advisory body that provides information to DOE on Rocky Flats issues. The information is in the form of recommendations and advice on issues related to remediation and waste management at the Site. Other members of CAB include representatives

⁵³ Quitclaim Deed dated 8 July 1985, between the Department of Energy and the Great Western Venture, consisting of the State of Colorado, the City of Denver and the City of Broomfield.

⁵⁴ U.S. Environmental Protection Agency Website, Region 8, *The Denver Radium Site*, <http://www.epa.gov/region08/superfund/sites/co/denrad.html> (01/01).

from the business and health communities, local government, Site employees, and local interest groups.⁵⁵

FUTURE SITE USE WORKING GROUP

RFLII and the CAB assisted in the creation of the Future Site Use Working Group (FSUWG), which brought together local government officials and other stakeholders from the area to discuss the future use of Rocky Flats. In July of 1995, after public input, the Working Group reached consensus and released a report that supported using the buffer zone as protected open space after closure, and recommended that the federal government clean up Rocky Flats to original background levels.

One local government official who was involved in the FSUWG process thought the group reached consensus and carried a good dialogue about most of the issues. However, he thought that the CAB may not have given any weight to the conclusions reached by FSUWG, and came up with its own determinations.

ROCKY FLATS INDUSTRIAL AREA TRANSITION TASK FORCE

The Rocky Flats Industrial Area Transition Task Force (Task Force) was formed as a public-private committee in 1997, jointly convened by RFLII and the Site Field Office. The Task Force was asked by DOE to “develop and communicate a plan and implementation strategy to convert the Rocky Flats Industrial Area after cleanup into an employment center or other use which contributes to the economic vitality of the region.”⁵⁶

The Task Force recommended that all facilities and infrastructure be decontaminated and demolished and removed as part of the Rocky Flats Closure Project, and that caps on contaminated areas should be utilized only in situations where sufficient technology does not exist to remediate.⁵⁷

ROCKY FLATS STEWARDSHIP DIALOGUE PLANNING GROUP

RFLII convened the Stewardship Dialogue Planning Group (DPG) in January of 1998 to create a public dialogue on long-term stewardship and to develop a common understanding of the stewardship issues at Rocky Flats. The DPG includes representatives from DOE, Kaiser-Hill, state and federal regulatory agencies, and local governments, among others.

In April of 1999, the DPG released "Beyond Closure: Stewardship at Rocky Flats" (White Paper). The White Paper was intended to provide the community surrounding Rocky Flats with a definition of stewardship and the issues involved in deciding the future of the Site. The White Paper takes a step toward defining a long-term stewardship program for Rocky Flats, looking at the technical, legal, logistical, community involvement, administrative, fiscal, ethical, and political components of developing long-term stewardship plans.⁵⁸

⁵⁵ <http://www.rfcab.org/index.html> (01/01).

⁵⁶ Rocky Flats Industrial Area Transition Task Force Final Report, “A Plan for the Reuse of the Industrial Area of the Rocky Flats Environmental Technology Site.” 1998.

⁵⁷ *Id.*

⁵⁸ “Beyond Closure, Stewardship at Rocky Flats”. Rocky Flats Stewardship Dialogue Planning Group. April, 1999.

ROCKY FLATS COALITION OF LOCAL GOVERNMENTS

RFCLOG was formed in 1999 and replaced RFLII as the Rocky Flats CRO. RFCLOG is a unit of local government created under the Colorado State constitution and includes Boulder and Jefferson Counties and the cities of Westminster, Arvada, Broomfield, Boulder, and the town of Superior. The Coalition receives funding from its member governments, DOE, Kaiser-Hill, and CDPHE.

The purpose of RFCLOG is to provide an effective vehicle for local governments in the vicinity of Rocky Flats and their citizens to work together on issues of mutual concern relating to the safe, prompt, and effective cleanup and closure of Rocky Flats. RFCLOG also works on future use and long-term protection issues, worker protection and health issues, and facilitates communication between State and federal agencies and elected officials. While RFLII focused much of its activities on economic transition (transitioning workers and job creation), RFCLOG works on transitioning the Site to an asset for the local community.

ROCKY FLATS STEWARDSHIP WORKING GROUP

In June of 1999, shortly after RFCLOG was formed, the DPG evolved into what is now known as the Rocky Flats Stewardship Working Group (SWG). In a continuation of the work done by the DPG, the goal of the SWG is to develop the necessary information regarding long-term stewardship to allow the community to effectively inform remedy selection and decision-making at Rocky Flats. This effort largely entails evaluating Site cleanup assumptions and investigating the stewardship implications of various potential future use scenarios so that local communities are in a position to assess long-term implications of cleanup remedies.

The SWG is applying the long-term stewardship concepts outlined in the White Paper to Rocky Flats, and engaging public involvement to establish a timeline for stewardship. Toward this end, the SWG has begun developing the Rocky Flats stewardship “toolbox.” The toolbox is an analytical matrix that combines all aspects of stewardship into one coherent structure that can be used for planning purposes and for evaluating the thoroughness of a Site stewardship analysis. The preliminary draft toolbox comprises various tables and supporting information about different stewardship elements (physical controls and institutional controls) and activities that they entail (i.e., records management, operational monitoring, performance monitoring).⁵⁹

6. Site Stewardship

a. Current Responsibilities

The main focus of DOE and its contractors is decontamination and decommissioning of buildings on-site to remove existing quantities of plutonium. DOE officials pointed out that there are no final remediation level standards for the Site, and stewardship will be dictated by what is remaining after closure.

⁵⁹ To obtain additional information regarding the Working Group, please contact David Abelson, Executive Director, Rocky Flats Coalition of Local Governments, at (303) 412-1200.

Effective February 1, 2000, Rocky Flats contractor Kaiser-Hill and DOE reached an agreement for a new Management and Operations Contract (the Contract), which contains provisions aimed at Site “closure” in 2006.

Local officials expressed concern that the contract states a remediation completion date but it does not state a remediation level nor the requirements of long-term stewardship. This concern relates to a perception by local officials that DOE values a political completion date over the long-term reality of the need to ensure the final remediation is protective of human health and the environment.

b. Monitoring, Oversight, Surveillance

Under the requirements of RFCA, DOE established an Integrated Monitoring Plan (IMP) in 1997 to analyze and report results from surface water, groundwater, air, ecological, and soil testing. DOE must carry out the monitoring in coordination with the EPA, CDPHE, as well as the cities of Broomfield and Westminster.

The IMP is created each year and is developed by a working group of DOE, EPA, the State, and the cities of Westminster, Thornton, Arvada, and Broomfield. Through the IMP, DOE issues quarterly monitoring reports, which are available to the public. One local government official was critical of the reports, however, claiming that they are not made available until three months after the results are gathered.

The City of Westminster, according to one local government official, has spent millions of dollars over the years conducting its own water and soil monitoring. The City monitors water at Standley Lake, which is a source of drinking water for the city. Although DOE does not monitor Standley Lake, the City tests both the finished water and water from the lake itself. Westminster issues quarterly reports on the monitoring results and the reports are shared with the IMP working group.

Standley Lake is a large reservoir located approximately 2.5 miles east of the Rocky Flats eastern boundary (see Figure 4.3). An earthen dam on Big Dry Creek forms this lake, which was constructed about 1910 to supply irrigation water. Standley Lake is classified as a potable water source for the cities of Westminster, Northglenn, and Thornton and is suitable for recreational and agricultural uses.

Standley Lake previously received discharge from Woman Creek, which flows through Rocky Flats. The Lake may have received both waterborne and airborne contaminants from Rocky Flats. Sediment studies to evaluate the amount of plutonium in the lake indicated about 70 percent of the plutonium detected in the lake sediment came from the 903 Pad area. The remaining plutonium was identified as radioactive fallout from the nuclear weapons testing conducted from 1950 through 1960. The plutonium is located in the center of the lake and is now covered by several feet of sediment.

Woman Creek Reservoir was constructed in 1995 to break the hydrologic connection between Rocky Flats and Standley Lake. The Reservoir is an 890 acre-foot impoundment located due east of the southeastern corner of the Rocky Flats Buffer Zone. The quality of water flowing into the reservoir is monitored at a site monitoring station located on Woman Creek inside the Rocky Flats Buffer Zone. The Reservoir operations are controlled by an Authority. Agreements

reached by the Authority with DOE require DOE to remediate the Reservoir if contamination reaches it. Standley Lake as well as the Great Western Reservoir in Broomfield are listed as CERCLA Sites. The ROD for operable unit three, which considered whether these areas should be remediated, concluded that no active remediation would be undertaken. This decision was based on the determination that the levels of contamination pose little risk to public health and the environment. The ROD stipulates that the decision will be reviewed as part of the CERCLA five year review to determine if new contaminant levels or improved calculation or modeling methods would change the accepted levels of radioactive materials in operable unit three. It is important to note that since these lands are not located on Rocky Flats property, the institutional controls in place are unrelated to the ROD and are instead the responsibility of the cities of Broomfield and Westminster.

DOE announced in May of 2000 that it is forming a Technical Focus Group (Focus Group), which will bring the public together with DOE, EPA, and CDPHE to meet twice monthly and discuss technical monitoring issues such as soil action levels. The first task of the Focus Group will be to review a soil action level study generated by the Radionuclide Soil Action Levels Oversight Panel, which is funded by DOE and managed by the RFCAB.

c. Recordkeeping

DOE currently maintains records on-site, and maintains several public reading rooms that house the Site's Administrative Record, in Westminster and in Denver. However, some local government officials believe that DOE is planning to ship Site records to the Albuquerque Operations Office in New Mexico. DOE officials allowed for the possibility of records being shipped to Albuquerque; however, they also discussed storing records at the DOE Grand Junction Office and the Weosh, Missouri Veterans Affairs Records Depository. CDPHE officials assumed that the Grand Junction Office would house all the Site records.

While DOE officials recognize that Site records must be maintained for regulatory requirements, they face a problem when a portion of the records remaining on-site are still contaminated with beryllium.

One local official said that she has begun recording all her own information since she started in her position. The information is filed by topic and consists of all formal letters she has written regarding the Site, and Site background information. There has also been an attempt to retain the knowledge of the citizens in the community who are familiar with the history of the Site.

Jefferson County recently acquired Geographic Information System (GIS) software, which it can use to obtain scientific data, manage the County's resources, plan emergency response activities, and determine the effects on the environment from various actions. The County's website is currently a source for some records and mapping information. Also, the County is working with DOE to transfer mapping information of Rocky Flats (see 7. Future Roles, c. Recordkeeping *infra*).

d. Enforcement

Rocky Flats currently restricts access to the Site through high-security fencing and armed guards due to the plutonium stored on-site. Further, visitors and on-site personnel are required to wear security badges at Rocky Flats. These restrictions act as a barrier to public access to the Site. The environmentally contaminated area is marked by physical barriers such as signs and fences. The

restrictions are enforced by on-site security guards. No current long-term enforcement plans are in place for the Site once the “closure” vision, of no buildings on-site, is achieved. Further, no plans exist because DOE has not begun an external dialogue as to the required long-term controls that will be required on the Site.

Recently, a bill was introduced in the Colorado State Senate (Senate Bill 00-168, the Bill) to create a Hazardous Substance Easement (Easement) for the State. The Easement was defined as “a right held by the Department [CDPHE] to prohibit one or more uses or activities, including the use of groundwater, or require the owner of real property to perform certain acts for the purpose of protecting human health or the environment.”⁶⁰ Under this Bill, CDPHE would provide local governments with notification of every new easement within their jurisdictions and any changes to, or the termination of, the easement. The Bill also proposed that local governments have the responsibility to notify the CDPHE of any intent by the owners of the property to change the stated land use. The Bill failed to pass, but may be reintroduced.

e. Funding

Perhaps the most common theme stressed among local governments, the State, and federal government officials regarding stewardship roles and responsibilities was the lack of planning and future funding for long-term stewardship activities. While Rocky Flats currently receives a larger amount of funding for environmental remediation activities than other DOE sites, the State and DOE fear that funding for remediation and long-term stewardship activities will diminish after the planned date for “closure.”

7. Future Roles

a. Cleanup and Future Use

Although there is general agreement that most, if not all, of the Site should be used as open space, local governments, the State, and DOE still have different perceptions of the definition of “open space.” Many local government officials agreed that open space indicates use of the majority of the Rocky Flats property in perpetuity. According to one local official, open space should be defined as unrestricted access to the Site after closure.

In September 2000, after several months of negotiations, Senator Wayne Allard (R-CO) and Congressman Mark Udall (D-CO) introduced a bill in the 106th Congress entitled the Rocky Flats National Wildlife Refuge Act (the Bill) of 2000 (S 3090, HR 5464).⁶¹ Senator Allard and Congressman Udall provided the draft Bill to the RFCLOG, the State, federal agencies, and interested members of the public and considered their comments on it.

The Bill provides that the federally owned lands at Rocky Flats will remain in federal ownership, and that no part of the Site can be annexed by a local government. The Bill also provides that the Site will be established as a National Wildlife Refuge and that DOE and USFWS enter into a Memorandum of Understanding to make preparations for transferring the Site to USFWS management.

⁶⁰ Colorado Senate Bill No. 00-168. Introduced in the Second Regular Session, Sixty-second General Assembly, 2000.

⁶¹ The Bills are planned to be reintroduced in the 107th Congress.

The Bill, however, requires DOE to clean up to the levels established in the RFCA, and to remain liable for any long-term cleanup obligations. The USFWS is directed under the Bill to convene a public process to develop management plans for the refuge, in consultation with the local communities. Finally, the Bill authorizes the establishment of a Rocky Flats Museum to commemorate the history of the Site.

At the time of the interview, DOE did not believe it would retain long-term management of Rocky Flats, regardless of the fate of the Bill. Other federal agencies that have been mentioned for management authority are the Department of the Interior (which includes the USFWS, the National Park Service, and the Bureau of Land Management) and the General Services Administration.

The other proposed uses for open space vary distinctly among communities surrounding the Site. One of the local governments would like to see the space used to expand the biking and hiking trail systems in the area, while another stated that part of the Site should be used to create a transportation corridor. There also has been talk by representatives of individual local governments of annexation of the property, parcelization, and land swaps that would shift land-use control and jurisdiction over the Site.⁶²

Many firms in the technology and information industry are choosing to relocate to areas surrounding Rocky Flats. Also, as the population continues to grow in the Denver urban area, many communities are promoting commercial development near the Site. One official stated a desire to have unrestricted access in the form of industrial reuse in order to generate economic development at or near the Site.

The primary downstream recipients of the two water drainages that run through Rocky Flats are the cities of Broomfield, Westminster, Thornton, and Northglenn. Broomfield has jurisdiction over the Great Western Reservoir and some property surrounding it as a result of the Church lawsuit, and Broomfield would like to use the Reservoir as a recreational area.

Also, one interviewee who owns mineral rights on the Site questioned whether use of the Site for mineral rights would be available in the future, citing potential current problems accessing permits for mining on certain areas of the Site.

b. Monitoring, Oversight, and Surveillance

Currently, DOE manages the land and resources at Rocky Flats; however, it is undetermined who will handle those management functions after closure. Under the terms of RFCA, if federal ownership continues, DOE or another federal agency is responsible, and has liability, for monitoring, controls, operation, and maintenance. If DOE transfers the property to a new owner, RFCA states that DOE is responsible for ensuring that monitoring systems are continued. As pointed out in the DPG White Paper, RFCA binds the parties involved in the agreement, but not necessarily the new owners if the property is transferred. The new owner would also have to adhere to CERCLA and RCRA. This issue of future ownership and responsibility is critical at the Site; however, no party is able to identify who will own the property in the long-term.

⁶² Support for these types of alternatives varies among the communities, and the discussion of a land swap ended in early 2000.

The CERCLA requirements contained in RFCA mandate that any deed transferring federal property for which cleanup has been completed contain an agreement that the U.S. perform any additional response action found necessary in order to protect human health and the environment. Also, the State and the CDPHE are required to play a small role in administering post-closure permits for continued investigations under the CHWA. CDPHE recognizes two components of long-term activity: 1) contamination management through post-closure care; and 2) land resource management.

“The process must be made ‘idiot proof,’ so that potential land owners and users are aware of the history of the Site.”

Other long-term stewardship responsibilities are less defined, and subject to the interpretations of local governments, the State, and the federal government. Local governments see a role for DOE or another federal agency in providing financial and technical support. However, many local officials expressed unease with DOE as the primary entity for oversight. There is a general consensus among the communities that DOE should only focus on continued research and development needed for plutonium remediation.

One local official explained that EPA and CDPHE should perform oversight duties at the Site because they have the necessary legal authorities and can deal with contamination events. Other local officials would also like EPA to play a role in long-term stewardship, but are disappointed in EPA’s lack of involvement in the current stewardship dialogue. The USFWS may also have some responsibility for oversight after closure, though local government officials are wary of the USFWS’s financial and technical ability to monitor any residual contamination at the Site.

Some local officials also expressed a lack of trust in DOE and CDPHE’s oversight in the maintenance and monitoring of physical and institutional controls. Most of the communities do not trust the federal government to maintain in the future the oversight necessary with deed restrictions. As one citizen stated, the process must be made “idiot proof,” so that potential land owners and users are aware of the history of the Site.

c. Recordkeeping

Most local jurisdictions surrounding Rocky Flats believe that activities such as recordkeeping should be in local government control, or at least remain in the local area. Many of the interviewees were opposed to DOE shipping records to out-of-state, and even out-of-the-area, repositories for storage. Some local officials spoke of creating a museum to house Site records and memorabilia. Further, the local governments that discussed the need for local recordkeeping suggested that it could be a redundant system to a federally controlled system.

Jefferson County has an agreement with DOE at Rocky Flats whereby DOE will transfer mapping information to the County. With their GIS software, Jefferson County feels it could potentially combine the mapping information from DOE and its current records in order to have Site information and records available via the Internet.

A representative from the State suggested that it may be necessary for DOE to create a recordkeeping position, as is done at other DOE facilities. This person would be responsible for

data management and maintenance of the historic and ongoing records at Rocky Flats during and after closure.

d. Enforcement

With the Rocky Flats National Wildlife Act of 2000 still in Congress, the ownership and management of Rocky Flats' land after closure is still undecided. Most local government officials recognized that if property were conveyed to them post-closure, they would have the responsibility for enforcing any zoning and land use planning restrictions.

CDPHE feels that local governments are not currently capable of handling the enforcement of institutional controls on Rocky Flats. If decisions are made by environmental regulators, then CDPHE feels that it should be the entity that enforces the institutional controls and receives the funding for the enforcement. However, due to the failure of the Hazardous Waste Easement in the State Senate last year, there is no mechanism for the kind of enforcement the CDPHE would prefer.

All parties agreed that DOE or another federal agency would be responsible for enforcing any engineering or land use restrictions placed on-site in perpetuity.

e. Funding

The Rocky Flats Field Office has developed Stewardship Cost Estimates, projecting the costs for activities such as operations, implementing physical controls, monitoring, maintenance, and recordkeeping. According to DOE officials at the time of the interview, the DOE budget estimates for long-term stewardship in 2011 totaled \$11 million per year. Adjusted for inflation, the total in 100 years would be \$80 million per year. The interviewees pointed out that these assumptions were developed without knowing the exact controls needed because the remediation level is still undefined and the parties responsible for implementing the controls are unknown.

CDPHE recognizes the community's desire for unrestricted access to the open space after closure; however, without adequate funding, remediation to the desired levels is not a reality for the State or DOE. More than one local official referred to this funding conundrum as "Pay Now or Pay Later," meaning that stewardship costs must be considered in the remedy selection decision-making process to fully understand which is the least expensive option that will protect human health and the environment. CDPHE and DOE are also concerned about post-closure maintenance funding. One local government official said that DOE should have the responsibility for long-term stewardship, with local oversight, at no cost to the local governments.

If Jefferson County can combine its GIS with the mapping information from DOE, it must then decide whether to charge for record requests, as it currently does for non-site requests, or to have the recordkeeping activities be funded through DOE. Most local and State government officials, when asked who should fund recordkeeping activities, felt that the federal government should be responsible because the federal government caused the contamination.

8. Assessment of Needs

While future ownership and management of Rocky Flats remains undetermined, all local government officials were in agreement that the lines of communication between each other, the State, and DOE must remain open in order for decisions to be made about the future use of the

Site. Communication is also considered critical to discharging the joint responsibility for ensuring public health and safety in dealing with contaminated land.

One interviewee noted that the continued maintenance of records is essential in order to ensure that future uses remain consistent with any physical or institutional controls placed on the land. The interviewee recognized that storing records in the area will keep information close to the people who have the institutional knowledge. On the other hand, sometime in the future, information inevitably will be forgotten and land uses may not remain adequate to protect human health and the environment.

A major concern for both DOE and the State is lack of funding for the activities needed to enforce institutional controls and to implement long-term stewardship activities. Local governments are also concerned about funding for monitoring and enforcement activities if they have ownership or management of the land after closure.

9. Conclusion

With scheduled site closure in 2006, DOE, other federal agencies, the State, stakeholders, and local advisory groups are educating themselves on the importance of long-term stewardship and the realities of protecting human health and the environment based upon the proposed level of remediation on the site.

With the White Paper as a framework, the SWG is now addressing the long-term stewardship issues involved in remedy selection and decision-making at Rocky Flats and developing the toolbox to give local communities around the Site the information necessary to assess a comprehensive site stewardship analysis.

Many local government officials and citizens concluded that in order to successfully implement the long-term stewardship activities underway at Rocky Flats, and to support future activities, long-term stewardship needs to be incorporated into the current structure of DOE cleanup and closure plans for Rocky Flats.

B. LOS ALAMOS NATIONAL LABORATORY

1. Introduction

This case study of the Los Alamos National Laboratory (LANL or the Laboratory) examines the roles taken by federal, state, and local governments, as well as members of the community, in understanding and implementing long-term stewardship activities at LANL, with a focus on the role of local government.

2. Summary of Findings

Los Alamos National Laboratory is recognized as one of the top national laboratories in the country. LANL has a mission focused on the long-term management of our country's nuclear weapon stockpile. It is located primarily within Los Alamos County, New Mexico (County) and adjacent to San Ildefonso Pueblo (the Pueblo) and other federal lands.

Several contaminated areas are scattered throughout LANL property. In addition, new contaminated sites are sometimes discovered outside of LANL. Long-term stewardship is recognized as a key to remediating much of LANL.

LANL is currently planning to convey several parcels of real property to the County and the Pueblo. The County and the Pueblo have requested that the sites be remediated to a level that will not require long-term stewardship controls. However, indications are that at some of the properties long-term stewardship will be required.

The County currently ensures that all notifications of properties being conveyed to it include notices of any possible contamination in the conveyance documents, as required by CERCLA Section 120(h). Further, DOE covenants in the deeds to remediate the property if contamination is found after the transfer.

In the past, several properties conveyed to the County contained unknown contamination that was later discovered during upgrades to buildings or new construction excavation. In each case, DOE has returned to remediate the property.

The long-term planning by DOE at LANL indicates long-term stewardship will be relied upon at the Site; however, indications from DOE personnel are that the planning is in the beginning stages and that additional work may be needed. The State of New Mexico (the State) regulators are concerned about remedy implementation at the Site and are investigating methods to ensure that the institutional controls will be known, enforceable, and investigated regularly to prevent failure. Few conversations have occurred between LANL, the County, and the State regarding the implementation of long-term land-use controls at the sites. Currently, the only controls implemented off LANL property are deed notices and covenants.

3. **Background**

a. ***Site Context***

The Laboratory is located on the Pajarito Plateau in north-central New Mexico, approximately 60 miles north-northeast of Albuquerque and 25 miles northwest of Santa Fe. LANL is primarily situated in Los Alamos County, with a small area in Santa Fe County. San Ildefonso Pueblo, Bandelier National Monument, and Santa Fe National Forest abut Laboratory land, and it is in the vicinity of three other pueblos (Jemez, Cochiti, and Santa Clara). The 43 square miles of the Laboratory are divided into 49 technical areas that are used for scientific and support building sites, experimental areas, waste disposal locations, roads and utilities, and safety and security buffers.⁶³

b. ***Management***

Since the Laboratory's inception in 1943, LANL has been managed by the Regents of the University of California (UC) pursuant to management and operating contracts with the Department of Energy and its predecessor agencies. The Los Alamos Area Office (LAAO), a part of the Albuquerque Operations Office, administers the contract with UC and oversees contractor operations at the site. LAAO has responsibility for overseeing the three elements of LANL's Environmental Management (EM) Program: Environmental Restoration (ER) Project, Waste Management Program, and Nuclear Materials and Facility Stabilization Program. The Office of Defense Programs (DP) is the LANL Site landlord.⁶⁴

c. ***Mission***

Since its beginning, LANL's primary mission has been nuclear weapons research and development. Now focused on management and stewardship of the nuclear stockpile, the mission on-site is still active,⁶⁵ and DOE plans call for continued operation of the Laboratory indefinitely. The DOE Albuquerque Operations Office (DOE-AL) and DOE EM headquarters staff view the term "stewardship" in the context of an end state; working to determine the end state for each of their sites in order to generate a total picture of the future of the nuclear weapons complex. However, the Los Alamos Area Office of DOE and others on-site understand the term "stewardship" to relate to stockpile management. This focus on the continuing mission of stewardship of the nation's nuclear stockpile affects the attention and priority given to long-term stewardship by both LAAO and LANL.

⁶³ *From Cleanup to Stewardship: A Companion Report to Accelerating Cleanup: Paths to Closure*. U.S. Department of Energy, Office of Environmental Management. October 1999. DOE/EM-0466.

⁶⁴ DOE generally defines the landlord as being the entity responsible for activities that involve the physical operation and maintenance of DOE installations. Specific tasks vary but generally include providing utilities, maintenance, and general infrastructure for the entire installation.

⁶⁵ Los Alamos National Laboratory web site at <http://www.lanl.gov/worldview/welcome/mission.html> (01/01).

d. County History

In 1943, the federal government began acquiring land in the Los Alamos area for the location of a secret research and development facility for the world's first nuclear weapon. In 1949, the New Mexico Legislature created the County of Los Alamos from portions of Santa Fe and Sandoval Counties.⁶⁶

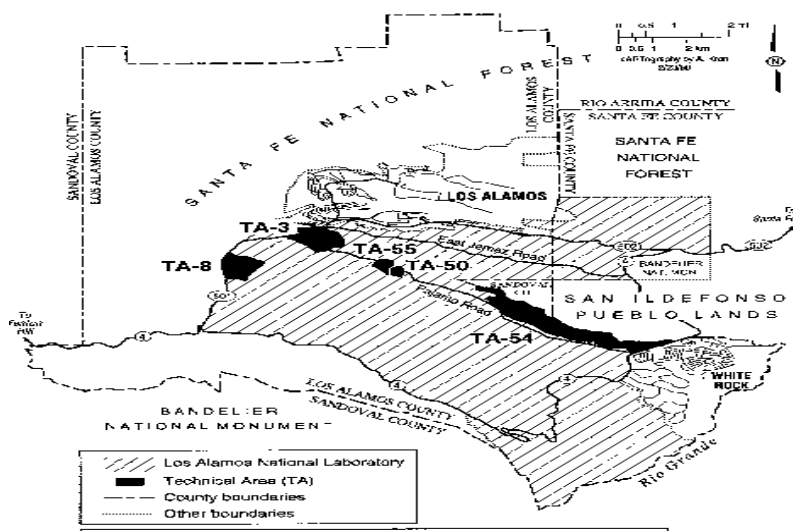


Figure 4.4

The current “town site” is located on the site of the original laboratory, which underwent cleanup to the standards of the time before being transferred. In 1998, with more than 234,000 people living within a 50-mile radius of LANL, the Laboratory was, and still is, the largest employer in Los Alamos County and northern New Mexico.

The AECA also set forth policies directed at ending government ownership and management of the communities by facilitating the establishment of local self-government, providing for transfer to local entities of municipal functions, and providing for the sale to private purchasers of property within these communities.

Over the years, DOE’s predecessor agency has leased and disposed of some of the federal lands under its management to the County, to other government agencies, and to private parties. Today, about 38 percent of the total land that comprised the LANL reserve remains under DOE’s administrative control.⁶⁸

⁶⁶ Record of Decision: Conveyance and Transfer of Certain Land Tracts Administered by the Department of Energy and Located at Los Alamos National Laboratory, Los Alamos and Santa Fe Counties, New Mexico. Federal Register: March 20, 2000 (Volume 65, Number 54).

⁶⁷ 42 U.S.C. 2301-2394.

⁶⁸ Record of Decision: Conveyance and Transfer of Certain Land Tracts Administered by the Department of Energy and Located at Los Alamos National Laboratory, Los Alamos and Santa Fe Counties, New Mexico. Federal Register: March 20, 2000 (Volume 65, Number 54).

e. Environmental Issues and Regulatory Requirements

LANL's activities produce several waste types: low-level, transuranic, radioactive liquid, chemical, and mixed low-level. Chemical waste includes Resource Conservation and Recovery Act (RCRA) hazardous waste and other regulated waste such as asbestos and polychlorinated biphenyls (PCBs).

The Atomic Energy Act of 1954 (AEA), as amended,⁶⁹ makes the federal government responsible for regulatory control of the disposal of radioactive waste, as well as production, possession, and use of three types of radioactive material: source, special nuclear, and byproduct material.⁷⁰ Unlike most other large DOE facilities, LANL is not on the National Priorities List (NPL) and all of the hazardous waste sites at LANL are regulated under RCRA. EPA granted base RCRA authorization to New Mexico on January 25, 1985, transferring regulatory authority over hazardous wastes under RCRA to the New Mexico Environment Department (NMED). In 1990, EPA authorized New Mexico's Hazardous Waste Program to regulate mixed waste in lieu of the federal program.

State authority for hazardous waste regulation is set forth in the New Mexico Hazardous Waste Act (the State Act) and Hazardous Waste Management Regulations.⁷¹ Therefore, all legacy contamination found in the environment at LANL is primarily remediated pursuant to corrective action authority under the State Act.⁷² On November 8, 1989, DOE and UC, as co-operators of LANL, were granted a RCRA operating permit, which establishes requirements for hazardous waste management units.⁷³ The initial permit listed 2124 solid waste management units (SWMUs) that were to be managed under the permit.

f. Land Transfer

On November 26, 1997, Congress passed Public Law 105-119 (the Act). Section 632 of the Act⁷⁴ directs DOE to convey and transfer to Los Alamos County and the Pueblo parcels of land under the administrative control of DOE at or in the vicinity of LANL that are no longer needed for the national security mission at LANL and that can be cleaned up within the next ten years. The purpose of the conveyances and transfers is to fulfill the obligations of the United States with respect to Los Alamos, under sections 91 and 94 of the AECA.⁷⁵ Upon completion of the

⁶⁹ 42 U.S.C. § 2011, *et seq.*

⁷⁰ *Site-Wide Environmental Impact Statement for Continued Operation of the Los Alamos National Laboratory*. U.S. Department of Energy, Albuquerque Operations Office, January 1999. DOE/EIS-0238. Available at <http://nepa.eh.doe.gov/eis/eis0238/eis0238.html> (01/01).

⁷¹ 20 New Mexico Administrative Code 4.1.

⁷² (HSWA) Permit Module VIII.

⁷³ *Site-Wide Environmental Impact Statement for Continued Operation of the Los Alamos National Laboratory*. U.S. Department of Energy, Albuquerque Operations Office, January 1999. DOE/EIS-0238. Available at <http://nepa.eh.doe.gov/eis/eis0238/eis0238.html> (01/01).

⁷⁴ 42 U.S.C. § 2391.

⁷⁵ 42 U.S.C. §§ 2391, 2394. The AECA promotes self-sufficiency for Los Alamos County and the other original AECA communities.

conveyances and transfers, the law requires DOE to stop making financial assistance payments to the County under the AECA.⁷⁶

As required by the Act, DOE identified ten tracts of land as being potentially suitable for conveyance and transfer: Rendija Canyon Tract, Los Alamos Area Office Tract, Miscellaneous Site 22 Tract, Miscellaneous Manhattan Monument Tract, DP Road Tract, TA-21 Tract, Airport Tract, White Rock Y Tract, TA-74 Tract, and White Rock Tract.

The ten parcels include 200 potential release sites (PRSs) and 152 LANL numbered structures. Although the level of characterization and estimated cost and duration of environmental restoration varies significantly from parcel to parcel, DOE expects to achieve “clean closure,” meaning no hazardous wastes would be left on the site, for most of the ten tracts, but that contaminated groundwater would remain at some of the sites. On the other hand, at least some of the proposed remedies are being developed based on the land uses proposed for each site by the County and Pueblo. The County is expected to propose that the initial use be commercial or industrial for some of the sites to be transferred to it. If these sites are remediated to meet the proposed future use, and hazardous substances are left on-site at levels that would not allow unrestricted use, then land use restrictions will be needed to assure that the use is not changed in the future to something that would be incompatible with the levels of residual contamination. The degree to which this may be necessary is uncertain because it depends on what uses the County proposes for each site and the types and levels of contamination. By removing from consideration for transfer a portion of TA-21 that would have been difficult to fully remediate, the extent of land that might be subject to use restrictions has been reduced. The Pueblo, in contrast, expects DOE to clean all sites transferred to it to levels that will allow for unrestricted use.

The law directs DOE to transfer the land as soon as possible. With the current budget, ER expects to clean four sites by 2002, and the portion of the last one to be transferred (TA-21) by 2006. However, DOE is expected to complete cleanup on the parcels by November of 2007. If the cleanup, to whatever standard is appropriate based on the proposed future land use, is not complete at that time, the statutory requirements end and DOE will retain ownership of the land.

g. Experience with Long-Term Stewardship

The Laboratory has been involved in several leases and several transfers of land that had already been remediated or was determined to not need remediation at the time of transfer. For example, the Los Alamos town site was transferred from DOE to the community in the 1960s. According to DOE officials, when transferred, the land was cleaned to the standard of the time and no restrictions or other controls were placed upon the land. As standards change, or when a user discovers residual contamination, DOE has returned to perform further remediation.

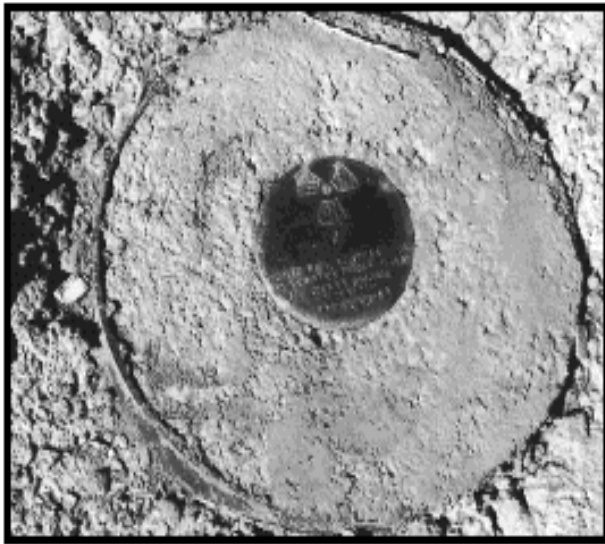
Bayo Canyon, a testing site (Site) used in the 1950s, was transferred to the County in 1967. After transfer, contamination was found on the site. Site cleanup was completed in 1982, as part of the Formerly Utilized Site Remedial Action Program (FUSRAP), but radioactive traces were left in place in subsurface soil. Long-term stewardship at the Site is in the form of small brass plaques,

⁷⁶ *Record of Decision: Conveyance and Transfer of Certain Land Tracts Administered by the Department of Energy and Located at Los Alamos National Laboratory, Los Alamos and Santa Fe Counties, New Mexico.* Federal Register: March 20, 2000 (Volume 65, Number 54).

prohibiting digging until 2142, and referring to the Administrative Record (see Figure 4.5). This site, a part of a larger canyon system, is still subject to ongoing investigations.

There are many permanent markers throughout the County identifying where there has been a cleanup and where hazardous materials remain. These markers refer to where the deed information is recorded. However, one interviewee indicated that these are not always accurate and effective, giving as an example one DOE brass marker that referenced the wrong County courthouse.

Figure 4.5 The inscription reads: “Buried Radioactive Materials. No Excavation Prior to 2142 AD. See County Records. M 21 48 21 W.”



In past and present leases, pursuant to Section 120(h)(3) of CERCLA,⁷⁷ LANL and LAAO have been required to provide information about the type and quantity of hazardous substances that are known to have been stored for one year or more, or released or disposed of on the site. There is some confusion among various interested persons about the precise import and effect of this provision. A 55-year lease of TA-83 did not include any activity restrictions because no PRSs were believed to be on this parcel. In contrast, when DOE executed a lease for TA-3, site of the Los Alamos Research Park next to the Laboratory, in August of 1998,

information about hazardous substances required by CERCLA 120(h)⁷⁸ was attached to the lease because three PRSs were located on the parcel. The lease also includes a right of reentry if additional work is needed.

County staff expressed some concerns about the County’s capability to review and assess highly technical information and reports from LANL concerning contamination issues. In particular, they lack the technical capacity on staff to evaluate the methodologies of the risk assessments used in determining cleanup standards. As a result, County officials are considering hiring additional technical staff in anticipation of the land transfers and their expectation that they will need to review risk assessments and other technical environmental information. They were preparing preliminary budget estimates for the County Council of the costs of hiring staff or contracting for consultants.

DOE Albuquerque staff noted that although they do not have Los Alamos-specific experience with long-term stewardship, they do have significant experience with land transfer and long-term stewardship at other sites, which could be applied to Los Alamos in the future. For

⁷⁷ 42 U.S.C. § 9620(h)(3).

⁷⁸ 42 U.S.C. § 9620(h); CERCLA 120(h) requires a federal agency conveying property to report information about hazardous substances and certain hazardous wastes on the contract and deed. In addition, CERCLA 120(h) requires that a covenant to the deed allow DOE the right of reentry if remedial or corrective actions are needed after transfer.

example, the Uranium Mill Tailings Remedial Action (UMTRA) cleanup program in Grand Junction, Colorado, involved the transfer of land with uranium tailings, and required institutional controls to ensure notification in property transfer documents. In addition, transferred land at Monticello, Utah, will need restrictions on its use. After cleaning the site to an open space standard, DOE placed land use restrictions on the deed prior to transfer. Through DOE's Long-Term Surveillance and Maintenance Program, DOE is responsible for monitoring and enforcement. Although no land has yet been transferred at Pantex, the Albuquerque Office of DOE expects that its work at that site will address issues similar to those at Los Alamos. Finally, DOE Albuquerque is overseeing the cleanup and reuse of the Pinellas Plant in Florida. After cleaning up the surface the Pinellas Plant was sold to the Pinellas County Industry Council in 1995, with a commitment by DOE to continue remediating the groundwater and to clean up any further contamination that might be identified as having been caused by DOE operations. DOE has leased back a large portion of the plant to facilitate the continuing cleanup activities.⁷⁹

4. Local and State Government and Citizen Experience Relating to Environmental Remediation at Los Alamos

DOE, State, and County staff recognize that because residents are used to living and working near hazardous materials, they have a higher-than-normal potential for acceptance of residual contamination and institutional controls. However, County and Pueblo officials expect conveyed property to be "clean" (remediated to a level that will allow unrestricted use and will not require institutional controls). In fact, Pueblo residents expect contamination to be remediated entirely, and consider institutional controls to be irrelevant. One citizen also noted that New Mexicans, known for their fierce independence, would not hesitate to violate land-use controls or activity restrictions on their land and would consider government-added deed restrictions infringements on their property rights.

a. Site Development Plans

DOE Albuquerque staff indicated that they are working to involve the public in defining the end states for land at LANL. One mechanism for this is through involvement in site development plans. DOE completed a draft Comprehensive Site Plan in September of 1999. Created by DOE for planning and building future facilities, these 5-10 year plans are meant to ensure that future facilities are not built on contaminated land. Using a zoning approach, PRSs are mapped on a Geographic Information System (GIS). Interviewees from the County noted, however, that there has been little discussion between the County and DOE about the site plans and the County has had little involvement in creating the draft Comprehensive Site Plan.

b. Informal Information Exchange

DOE facilitates regular information exchanges on Environmental Restoration projects through monthly meetings and informal sessions with interested citizens, and through quarterly meetings with the four pueblos contiguous with DOE property. The public reading room provided by DOE in Los Alamos was also widely viewed as the most complete source of information about cleanup and contamination issues, although NMED staff noted that even those records are not complete.

⁷⁹ 1996 Baseline Environmental Management Report, available at <http://www.em.doe.gov/bemr96/pipl.html> (01/01).

c. Solid Waste Management Unit Working Group

County, DOE, and LANL staff make up the SWMU working group, which discusses cleanup as it relates to land transfer issues. The group was formed in the early- to mid-1990s with the goal of developing a means of informing developers about Site data. The SWMU working group meets once a month and is now working on the land transfer parcels and creating a protocol for notifying DOE if a building permit might cover a SWMU/PRS. LANL staff asked the County to delay action on building permits for 60 days while LANL staff investigated each site, but County staff did not think that was possible because owners were entitled to receive their permits without delay.

d. Citizens Advisory Board

There is also an active Citizens Advisory Board at Los Alamos. The Northern New Mexico Citizens Advisory Board (NNMCAB) is charged with providing independent advice and recommendations to DOE on the environmental restoration and waste management activities of LANL and associated environmental issues.⁸⁰

5. Site Stewardship

a. Current Responsibilities

DOE now takes a risk-based approach to cleanup and is organizing its site work around watersheds. In conjunction with NMED, DOE has developed a prioritization scheme to use in determining the order of remediation for the eight major watersheds affected by LANL. The top three criteria are: 1) infrastructure (safety, regulatory interactions, and project management); 2) mandatory items (regulatory compliance); and 3) high risk (achieve significant risk reduction), while land transfer is fourth. The highest priority watershed is adjacent to the town site.⁸¹ Although located in a lower-priority watershed further to the south, the “260 outfall,” one of the most complex and contaminated areas at LANL, is a high priority because high explosive residuals have been found in the groundwater.

The State regulates LANL under RCRA, but has not established generally applicable cleanup standards for the Laboratory. Instead, the staff has been using guidelines from EPA regional offices, which were developed from a CERCLA rather than a RCRA perspective. NMED staff noted that they have only recently become involved with risk-based closures, so they do not have a framework for risk analysis. NMED expects to issue guidance documents on risk-based closure in the future.⁸² Eventually, DOE expects that the State will require 5-year reviews of cleanups under RCRA, a concept borrowed from CERCLA.

DOE and County representatives expressed frustration with NMED in the remediation process. They think NMED has been slow in approving cleanups, primarily because of inadequate staffing. In addition, NMED’s target remediation levels are viewed as being overly conservative. Due to budget uncertainties, DOE is initiating cleanups whenever money is available, and it expects

⁸⁰ See www.nnmcab.org for more information (01/01).

⁸¹ The Los Alamos town site is primarily residential and commercial and is adjacent to NM Highway 502.

⁸² Not available at the time of this report’s publication.

the cleanup levels will eventually be approved. DOE acknowledges that it may have to perform further remediation if land use changes in the future at a site where a risk-based cleanup achieved a level appropriate for a different type of use. NMED, although not responding specifically to such criticisms, noted that it has not resolved a number of issues with respect to risk-based cleanups under the State's hazardous waste management law. On the other hand, NMED officials think that the fact that LANL has a continuing mission has been detrimental to establishing institutional controls at sites where remediation has been completed.

b. Monitoring, Oversight, and Surveillance

DOE

The Laboratory's Environment, Safety, and Health (ESH) division monitors air,⁸³ water, sediments, soil, foodstuffs, and associated biota on a regular basis. Once samples are reviewed and analyzed for chemical and radioactive constituents, LAAO uses risk models to draw conclusions. Findings are published in an annual surveillance report.⁸⁴ The Laboratory-wide environmental surveillance program, coordinated with surrounding pueblos (including San Ildefonso's Department of Environmental and Cultural Preservation) and citizens, is an institutional requirement managed by ESH. In addition, DOE has agreements with other trustees and federal agencies, including the National Park Service, which manages Bandelier National Monument, to separately monitor activity.

COMMUNITY

The Neighborhood Environmental Watch Network (NEWNET) program⁸⁵ is run daily to monitor airborne radiation. Through several community-maintained environmental monitoring stations, the public has access to data through the Internet and Environmental Teller Machines. DOE provides both funding for the program and community training on the use of the stations. High schools, pueblos, and other community groups maintain the mobile monitors.

NEW MEXICO ENVIRONMENT DEPARTMENT

The Environmental Oversight and Monitoring Agreement in Principle (AIP) between DOE and NMED provides the NMED's DOE Oversight Bureau with technical and financial support from DOE to do independent monitoring.⁸⁶ Under the AIP, NMED acts as an independent arm in environmental monitoring and surveillance, environmental restoration, waste management, and emergency response planning. Monitoring and oversight concerns include on-site discharges and emissions, water quality, air quality,⁸⁷ and off-site radioactivity surveillance.

While NMED's Oversight Bureau is expected to communicate with the public to increase public knowledge of environmental matters, some County officials believe that the Bureau has actually been the source of problems in public risk perception, causing massive public scares for

⁸³ See Los Alamos National Laboratory Air Quality Group (ESH-17) at <http://www.air-quality.lanl.gov/> (01/01)

⁸⁴ See Overview of Environmental Surveillance at Los Alamos during 1998. Los Alamos National Laboratory, LALP-99-192, September 1999.

⁸⁵ See <http://newnet.lanl.gov> for more information (01/01).

⁸⁶ See New Mexico Environment Department DOE Oversight Bureau at http://www.nmenv.state.nm.us/DOE_Oversight/doetop.html (01/01).

⁸⁷ See Independent Monitoring of LANL Air Quality at www.air-quality.lanl.gov/IndepMonitor.htm (01/01).

low-risk findings. For example, when sampling at Acid Canyon (site of an old treatment plant) revealed contamination three feet below the ground, the NMED Oversight Bureau immediately announced the information publicly and the media responded with articles that some County officials considered sensationalist. While DOE contends that the contamination posed no real threat to the public, members of the public were extremely upset with the finding. LANL responded, in part, by creating more signs, telling people to stay on trails to minimize risk while hiking in this area. LANL and LAAO are continuing to respond to this issue and are integrating it with their post-fire activities. While the County is interested in alerting the public about real risks, it is concerned that the County is perceived to have much higher risks of exposure to radiation than warranted. County officials believe the perception of risk is harming their efforts to attract developers and funding from outside the area.

c. Recordkeeping

DOE

DOE and NMED retain separate records of all activities. DOE retains the administrative record, as required by RCRA, which is made and kept by the University of California. Concerns have been raised about record retention. The DOE Environmental Restoration (ER) project is developing a “close out plan” that will prescribe what records to keep. DOE now keeps all backup records, but searching of these records is a manual process. DOE is currently discussing how to keep the records in a more useable format.

ER staff also expressed concern about the completeness of records, as there is no formal process for closing an ER site. LANL recently closed out nearly 300 PRSs with No Further Action (NFA) designations, but ER staff is unsure about how these were recorded.

ER characterization data is kept in the Facility for Information Mapping Analysis and Display (FIMAD), a GIS mapping program managed by the University of California. This database does not include Laboratory-wide environmental surveillance data managed by ESH. Although some staff members are interested in integrating the ER and ESH databases, interviewees indicated that the ER and ESH databases do not match. DOE, LANL, and NMED have access to FIMAD, but most agree that it is not user-friendly.

A review process is required before digging is allowed on DOE land. This review is considered by DOE-AL and LAAO staff to be a significant institutional control at the Laboratory. Baseline activities performed prior to major construction projects, such as the SWMU review done prior to digging on DOE land, become a part of the long-term surveillance and review. The Laboratory also uses, but does not require, an ESH process for identifying “hot spots” before beginning all new projects.

STATE

NMED keeps RCRA Facility Investigation (RFI) workplans and reports, cleanup reports, and permit modification requests. As the on-site regulator, NMED keeps permits for hazardous waste units. The documentation process for NMED permits is formal, and the documentation includes the level of contamination, the reasons the remaining levels do not pose an unacceptable risk, and provisions for external review.

DOE officials indicated that they contract with the Army Corps of Engineers for due diligence, to perform title searches, and to draft deeds on both DOE sites and non-DOE sites. As overseer of the water quantity allocation system, the State engineer should have records of all deed changes. However, DOE has found the filing system to be unreliable. Part of the reason for this is that state groundwater records are still in a card catalog file, and permits for domestic wells are given with little or no record review. NMED staff also stated that there is no requirement to document ownership of land, such as a deed, to receive a permit to drill a well. In fact, the State has no regulatory entity to ensure proper siting of wells. Although NMED could provide maps to the County showing where wells should not be permitted, this is not required.

COUNTY

Records of zoning restrictions and variances are kept in the County Clerk's office. County officials expressed concern about the accessibility and thoroughness of records at the County Clerk's office. The County currently uses traditional paper-based systems of zoning maps and records. Although it has some GIS capability, the County does not have a comprehensive or integrated GIS. Thus, the County is not able to link zoning information with any information or records it may have about known hazards.

County officials also lacked confidence in other County records, beyond property ownership records filed with the County Clerk. One element of the problem is that the County follows a regular cycle of destroying most records every 10 years. In addition, County management staff generally are too overburdened with other work and may lack the institutional knowledge to have adequate memory of record location and significance.

NMED staff indicated that they have considered recommending statutory changes to improve the County's property record management system (as management of records is required by law), but NMED believes that any changes to requirements for property records would be seen as infringing upon private property rights. NMED officials are generally concerned about the effectiveness of property records as institutional controls, explaining that, except for Albuquerque, property records suffer from numerous problems. These include poor surveying, inaccurate boundaries because the original property grants are centuries old and some are from the Spanish colonial government, and inconsistent recording of information. For example, although property records are searched by the name of the owner, changes in the name of an owner that do not result from a sale, such as when a company changes its name or when property passes to an heir, are rarely recorded. Thus, NMED is concerned that some new owners might not be notified of past contamination unless they conduct a record search for that information on their own initiative.

An anecdote about construction at a former sewage treatment plant illustrates the difficulties that can result from record-keeping failures. In this case, when the County began constructing assisted-living units on a parcel next to a nursing home, workers found structures buried underground with traces of nucleotides for which DOE did not have records. DOE sampling later revealed traces of plutonium and americium used in the fill for the sludge pits. Contamination was also found at places where no buildings had ever been located. Wash-down and erosion transported radioactivity into the canyons, which DOE is now remediating. Thus, the County is skeptical about the completeness of DOE records and believes that more PRSs will be found.

At one point, the County was linked to FIMAD, the GIS mapping system managed by the University of California. However, LANL raised security issues and terminated the connection.

County officials recognized that DOE is working to improve record quality. For example, Laboratory employees have been interviewing people that have been at Los Alamos over the last 50 years, and are incorporating that information into their records. The Centers for Disease Control and Prevention are also doing an extensive record search in order to study cancer clusters.

d. Enforcement

NMED is investigating existing authorities under environmental laws, property law, permit law, and contract law, to enforce land use restrictions under risk-based closure. NMED sees the Laboratory's DOE's status as a permittee as the key to the enforceability of institutional controls. NMED explains that as long as DOE holds the property, then it will be liable as the permittee, even after the permit ends. NMED views this as the principal State institutional control for the medium long-term, since the post-closure responsibility extends 30 years after closure and the State can extend that if necessary under its hazardous waste management statute. If contamination is found in the future, beyond the RCRA post-closure time period, NMED has authority under the State Water Quality Act to require remediation of groundwater and surface water contamination.

In general NMED feels constrained in using institutional controls based on property law due to the strong property rights culture in the State. Any restriction on the use of land is considered a violation of an owner's property rights and this prevailing concept of property rights in New Mexico will preclude legislative changes. For example, because there is no specific authority for NMED to hold an easement over private property, it cannot take an easement for sampling purposes. Although easements for environmental reasons are common and DOE would be allowed to purchase or create them, NMED does not think it has authority to require DOE to create an easement. Nor can NMED enforce an easement against the landowner. NMED is considering use of the broad State Hazardous Waste Act, which gives it regulatory authority if there is a change in land use at a permitted site.

e. Funding

Environmental Management (EM) or Defense Programs (DP) currently funds institutional controls through surveillance activities. Current EM budget projections for the next seven years cover institutional controls.

6. Future Roles

a. Cleanup and Future Use

DOE recognizes the following responsibilities for the local government following land transfer: future use planning, determining land use, agreeing to easements for monitoring and restrictions with the owner, and communicating with DOE about the consequences of development. DOE also noted that if residual contamination is discovered in the future, DOE would be responsible for cleaning it up if the contamination was due to past practices.

b. Monitoring, Oversight, and Surveillance

DOE, NMED, and County staff members all thought that DOE should be responsible for long-term monitoring and surveillance. DOE-AL explained that if DOE is going to be responsible for monitoring transferred parcels to assure that future use and construction complies with land use

restrictions, it will need a mechanism to ensure that it is notified of changes in the use of the land. It expects to include in the transfer documents a requirement to notify DOE of changes in land use. DOE is piloting new technology for real-time monitoring and surveillance, but noted that it also plans to retain easements for monitoring after the upcoming land transfer. County staff noted that the local government must also be sure to keep easements for monitoring groundwater wells and engineered barriers when it transfers land to developers.

Because NMED is the regulatory authority, DOE noted that NMED would also be partially responsible for monitoring. If future contamination is discovered, DOE will have a continuing responsibility for cleanup and for notifying the State. NMED can add a site back to the permit even if an NFA determination was issued and the site was removed from the permit; and it can force DOE to remediate the site. The LANL ER Project anticipates that responsibility for long-term surveillance and maintenance will be turned over to other DOE and laboratory organizations after 2006.⁸⁸

A continuing partnership between DOE and the County is needed for roads, fires, and other emergency response because of their co-location. County officials see DOE as responsible for coordination with other government entities. Although DOE would immediately react in an emergency situation, DOE noted that approval would first be needed before entering private land. If a property owner has a radiological concern about his or her site, LAAO has a (RAP) team trained in emergency response that can investigate the issue. In the case of an accident, the state police would manage the emergency response, while LAAO would provide support.

Although federal agencies are expected to ensure consistency of plans and operations, integrate fire activities across agency boundaries, and provide leadership for cooperation with state and local fire management organizations, experience with the spring 2000 wildfires in Los Alamos indicates that greater cooperation among agencies is needed.⁸⁹ The Bandelier National Monument Cerro Grande Prescribed Fire Investigation Report⁹⁰ (the Report) indicated that federal agencies have not fully implemented fire policy along interagency lines, and the agencies must work to assure plan consistency. For future prescribed fires, the Report recommends that each plan be reviewed by all adjacent land and/or fire managers and concurred by signature. If concurrence is not obtained, then the report recommends the project be modified to exclude such other property or jurisdictions from the maximum manageable area of the prescribed burn.

This incident underscores several issues critical to the success of long-term stewardship measures. First, copies of records need to be kept in multiple locations. Although there is not yet any evidence of critical documents being destroyed by the fire, record management systems should ensure the safety of records in the event of an emergency situation such as this. Second, federal

⁸⁸ *Los Alamos National Laboratory Project Baseline Summary Report*. DOE Office of Environmental Management. Available at: <http://www.em.doe.gov/closure/final/pbs/alp95.html> (01/01).

⁸⁹ On May 4, 2000, the U.S. Park Service began a controlled burn at Bandelier National Monument to clear brush as a means to prevent wildfires and reduce fire risk to the Laboratory. The fire burned out of control, destroying more than 45,000 acres, displacing approximately 25,000 people and burning more than 250 homes in Los Alamos. There was concern that the flames might reach stockpiles of plutonium and other weapons materials stored in Los Alamos, creating a cloud of radioactive smoke. However, site officials said the Laboratory's radioactive materials were safely stored in concrete bunkers and monitors showed no increase in normal radiation levels. *Los Alamos Under Siege: A Fire's Dangerous Cost*, Mark Hosenball and Andrew Murr, Newsweek, May 22, 2000.

⁹⁰ National Park Service. *Bandelier National Monument Cerro Grande Prescribed Fire Investigation Report*. May 18, 2000. Available at <http://www.nps.gov/cerrogrande/> (01/01).

agency officials, County staff, and community members must jointly be involved in making decisions. Interior Secretary Bruce Babbitt acknowledged the failure of officials at the 33,000-acre Bandelier park to include other agencies in planning for the prescribed fire. The fire was conceived and put on the ground within the Bandelier park, a small park surrounded by national forest, Indian reservations, the community of Los Alamos, and by many other land managers.⁹¹

c. Recordkeeping

DOE officials acknowledged that they would be responsible for recordkeeping for the foreseeable future, based on current or future legal requirements. County officials and citizens see LANL as most capable of recordkeeping, as it has the edge in technology, but think that an oversight entity would be necessary. One County official also suggested that DOE's outreach office may be a good place to maintain records, as general record accessibility is essential to protecting the public.

LAAO and NMED expressed concern over how they would learn of institutional controls violations, as they are not organized or planning and budgeting for monitoring. Currently, no database exists to determine if land use has changed on previously transferred land. Land use decisions have been left to the County. In the closure plan, NMED envisions requiring notification of any land-use changes, but that is not currently required. The specific means of notification has not yet been determined.

d. Enforcement

There was general agreement among all interviewees that local government should monitor land use through zoning and title searches. The County is responsible for enforcing zoning and site planning; however, one County official explained that traditional zoning and land-use planning may not be appropriate in dealing with formerly contaminated sites, unless a new zoning category is created for former Laboratory property where residual contamination remains in place. The County and NMED expect DOE to enforce property-based land-use restrictions, even if the County discovers the violation.⁹²

If the County discovers a land-use violation on land transferred to a developer, the County could sue the developer/owner in magistrate court for creating a nuisance. A civil action on the reversionary interest in the deed, allowing the County to recover the property if the restriction is violated, would be a long process. In addition, County officials are not sure they would want the property to revert to the County if the new owner had done something to increase the risk. County staff also indicated that NMED should have a role in enforcing institutional controls.

e. Funding

The total escalated lifecycle costs for LANL's EM Program are currently planned to be \$1.07 billion for the ER Project from FY 1997 through FY 2070, including long-term surveillance and monitoring. LAAO officials noted that ER plans to spend \$33 million for long-term stewardship

⁹¹ Park Service Takes Heat for Wildfire. Washington Post. May 19, 2000.

⁹² Deed restrictions are independent of zoning. The County has no authority to enforce deed restrictions unless it is in the chain of title and was a prior owner of the property subject to restriction.

responsibilities in 2008-2070.⁹³ The annual cost estimate for long-term stewardship and monitoring activities is approximately \$3 million, but does not include the cost of enforcing deed restrictions.⁹⁴

ER is currently planning for RCRA monitoring to be done quarterly on 8-15 sites for 15 or 30 years, with reduced frequency if no further contamination is found. Radiation monitoring and maintenance of arid climate caps would continue even longer. DOE has not budgeted for other types of long-term surveillance and monitoring.

There is some debate within DOE, whether DP or EM will be the “landlord,” and thus have long-term responsibility for the Site.

7. Assessment of Needs

County officials are concerned that other entities are not thinking about how future use will fit with cleanup standards. The County would like to create economic development through the use of transferred land, and claims that neither DOE nor NMED understand the County’s intention to use the land for housing and economic development. The County has tried to market land to Wal-Mart and other outside investors, but most do not want to build on a site with a history of contamination. One business owner also indicated that when contamination was found on her property, she chose to deny DOE access for further cleanup. DOE could not adequately answer her questions about who would bear the cost of interrupting or closing the business for remediation.

Although area residents said that they tend to trust the local government more than DOE or NMED, they explained that the County does not have sufficient experience or resources to carry out or enforce institutional controls. They noted that the local government does not have a public health officer to inspect restaurants or enforce building codes. In addition, the County is concerned about the instability of funding from DOE, losing jobs, and other issues with congressional budgeting. The County has also found it very difficult to recruit people to work for the local government because it cannot compete with the higher salaries paid by LANL, and the higher prestige associated with LANL jobs. These issues create tensions between the local government and LANL, and make the County uncertain as to whether it could even staff long-term stewardship programs, if given the opportunity.

In response to a request from the County Council, local government officials are currently trying to determine the resources they would need to staff the upcoming land transfers. They identified the need to hire someone to deal with normal environmental compliance of municipal facilities, as well as someone with knowledge of risk assessment, as they currently have no internal capacity to assess or review the Laboratory’s reports or methodologies. The County estimated a need for \$150,000 - 200,000 per year to fund these positions. The County estimated it would cost 40-50 percent more to contract for this work than to hire the staff directly.

Pueblo and County officials referred to the need for increased information access, noting that they often experience difficulties in getting information from the Laboratory. For example, DOE and the County are jointly building a bridge over a canyon, but DOE has not yet told the

⁹³ *Accelerating Cleanup: Paths to Closure*. DOE Office of Environmental Management. DOE/EM-0362. June 1998.

⁹⁴ *Appendix E, Los Alamos National Laboratory, From Cleanup to Stewardship*. DOE Office of Environmental Management. DOE/EM-0466. October 1999. Also see <http://lts.apps.em.doe.gov/reports/companion.asp> (01/01).

County where they plan to build their section. The jurisdiction ends half way over the proposed bridge, and County officials are concerned that the two sides may not meet.

While public access to FIMAD could potentially provide the community with vast amounts of information in which they are interested, the system is not known for its user-friendliness, and the link has been terminated in the past due to security issues. The Pueblo also noted that it is extremely difficult to interpret and explain the technical reports that they already receive, as they do not have sophisticated technical knowledge.

8. Conclusion

LANL, LAAO, San Ildefonso Pueblo, and the County are currently focused on cleanup of the sites to be conveyed to the Pueblo and the County. The parties agree that they would prefer that these sites be cleaned to levels that would allow unrestricted use, but some sites may require long-term stewardship.

The County has staff that are knowledgeable about long-term stewardship activities and needs, but has limited capability to meet those needs. The County would need to substantially improve its information management systems and change some practices in order to integrate environmental contamination into its zoning system and property records system.

C. OAK RIDGE RESERVATION

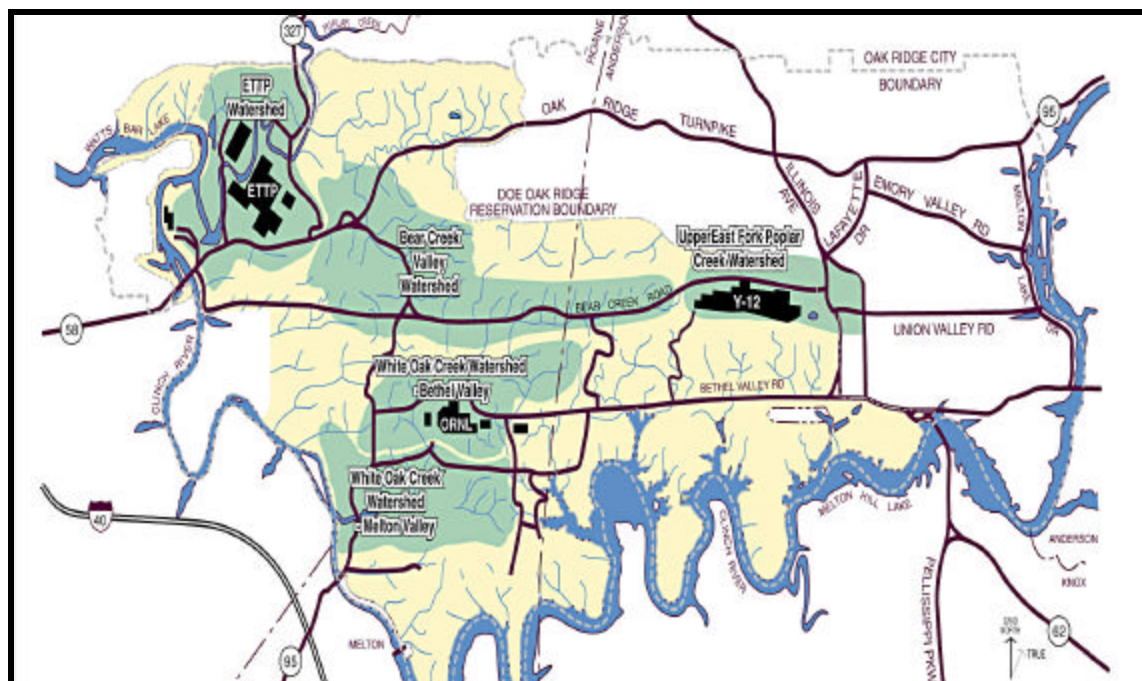


Figure 4.6 Oak Ridge Reservation (Divided by Watershed Area)⁹⁵

1. Introduction

This case study of the Oak Ridge Reservation (ORR or the Site) examines the roles taken by federal, state, and local governments as well as members of the community, in understanding and implementing long-term stewardship activities at ORR, with a focus on local government.

2. Summary of Findings

DOE's ORR has significant long-term stewardship issues to address both on- and off-site. DOE plans to remediate several contaminated areas to levels that will require long-term oversight and monitoring. Further, DOE is constructing a CERCLA disposal cell on-site that will require long-term stewardship. DOE is also leasing and conveying ORR property by deed. The leased property on ORR has significant restrictions associated with its use. DOE also has conveyed property by deed off ORR with covenants restricting property use (e.g., not permitted to use the groundwater). To date, there have been some difficulties ensuring that the entities leasing or acquiring the property follow all of the restrictions. DOE seems to have a plan to inspect and enforce lease restrictions for on-site activities but no plans for monitoring and enforcing deed restriction once the property is conveyed.

DOE, EPA, and the State of Tennessee (State) regulators, Tennessee Department of Environment and Conservation, DOE Oversight Division (TDEC DOE-O), the parties to the Federal Facilities Agreement (FFA) at ORR, are currently evaluating the legal and engineering process for successful implementation of long-term stewardship activities on-site. The parties to the FFA realize that long-term stewardship will be required on-site due to current proposed remediation

⁹⁵ U.S. Department of Energy's Oak Ridge Operations Office.

levels of contaminated property and the development of an on-site disposal cell. The parties to the FFA are working to develop long-term stewardship solutions with the input of neighboring local governments, the Oak Ridge Site Specific Advisory Board (SSAB) and other stakeholders.

Off-site, the property conveyed to non-federal parties, to this point, has been declared “clean” by DOE and the State before deed conveyance. DOE ORR real estate officers typically convey property by deed with a groundwater use restriction. However, the controls placed on the properties do not currently have a formal monitoring or enforcement mechanism.

Long-term stewardship policies for ORR are being developed by several groups — including the TDEC DOE-O, SSAB, DOE, and others — for on-site issues. The policies are only general and do not include concrete details for specific remediation sites (except for the waste disposal cell, which has a specific solution associated with the RCRA permit).

Specific long-term stewardship solutions are still in the planning stage. The City of Oak Ridge (the City), which has land use authority over the Site, and Anderson and Roane counties currently have no formal role in remediation decisions. In the context of long-term stewardship activities on- and off-site, the City is interested in developing a pilot program with DOE and the host counties to implement a geographic and electronic information management system. Such a system could eventually make records of on- and off-site contamination and any institutional controls employed available to the public. Further, the City is willing to investigate other possible roles. The City does not currently have funding to pay for these activities and would look towards DOE, as the entity legally responsible for remediation, to help support long-term stewardship activities such as these. Anderson County stated that it is also interested in learning more about long-term stewardship issues.

3. Background

a. Site-Specific Environmental Issues

Currently, DOE, the State, EPA, neighboring local governments, and other stakeholders, are working to address many environmental issues at ORR, including:

- groundwater contamination both on- and off-site;
- acres of radioactive waste and uranium in underground burial sites;
- radioactive waste discharged into surface streams;
- contaminated rivers and streams;
- the largest stored waste inventory in the DOE complex;⁹⁶ and
- construction of a waste disposal cell.

Efforts to remediate contaminated portions of ORR are ongoing; however, it is recognized that some hazards will remain on-site for many years, which absent institutional controls and long-term stewardship, could present risks to human health and the environment.

⁹⁶ National Governors’ Association, Center for Best Practices. *Cleaning Up America’s Nuclear Weapons Complex*, 2000. (The ORR stores 44 percent of the low-level radioactive waste, 56 percent of the mixed low-level waste, and 76 percent of the remote-handled TRU waste).

b. Site Context

The ORR covers 34,513 acres in East Tennessee; 33,905 acres are within the city limits of Oak Ridge. The Site is in Anderson and Roane Counties, and approximately 22,175 acres have been designated a National Environmental Research Park. The rest of the ORR is divided into three separate facilities: the East Tennessee Technology Park (ETTP), formerly known as the K-25 Plant; the Oak Ridge National Laboratory (ORNL), formerly known as the X-10 Plant; and the Oak Ridge Y-12 Plant (Y-12). The southern and western portions of the ORR are bordered by the Clinch River. The nearest metropolitan area is Knoxville, 20 miles southeast of ORR.

The ORR was established in 1942 by the Atomic Energy Commission (AEC), the predecessor to DOE, as part of the World War II Manhattan Project. The Manhattan Project also established the City, known as the “Secret City” due to its location in the ridges and valleys of East Tennessee and the highly secretive nature of operations at the ORR. Access to the City was by special badge only, until 1949, when the City was opened to the public.

Y-12, two miles south of the City’s downtown area, occupies 811 acres and was created as a facility for uranium enrichment and nuclear weapons production. Y-12’s postwar mission was the production and fabrication of nuclear weapons components. As the Cold War ended, the mission at Y-12 shifted to weapons dismantlement, decontamination and decommissioning, and environmental restoration.

The ETTP, a 1500 acre facility located four miles west of the City’s downtown area, housed a gaseous diffusion plant for uranium enrichment, producing Uranium 235 for nuclear weapons and power generation. The plant closed down in 1987, and the Community Reuse Organization of East Tennessee (CROET) is now leasing parts of ETTP to private businesses.

ORNL is a 2900 acre facility, located ten miles south of the City’s downtown area. ORNL was used to separate plutonium from irradiated uranium fuel, and is home to the world’s first full-scale nuclear reactor. Currently, ORNL is a multi-program laboratory and research facility.

The DOE Oak Ridge Operations Office (ORO) oversees environmental management, defense, assets utilization, and science activities at the Site. Y-12 maintains the defense mission for ORO, by reworking nuclear weapons components and housing special nuclear materials from DOE facilities across the nation. Environmental Management, ORO’s largest program, deals with the contamination left after 50 years of research and weapons production.⁹⁷

In 1989, the ORR was placed on the CERCLA National Priorities List (NPL), the list of the country’s most environmentally contaminated sites. Uranium is the main radioactive material remaining on-site at the ORR, while other radioactive and toxic chemical substances such as strontium, cesium, and tritium are found in mixed-waste burial grounds, settlement ponds, seepage pits and trenches, inactive tanks, abandoned underground pipelines, soils, and natural waterways.

⁹⁷ DOE’s Oak Ridge Operations Web Site, <http://www.oakridge.doe.gov/programs.html> (01/01).

High amounts of rainfall in East Tennessee result in additional contamination through leaching from the waste areas into soil, surface water, sediments, and the groundwater.⁹⁸ Off-site contamination has been found in the Lower East Fork Poplar Creek, which flows through the City, the Clinch River, the Watts Barr Reservoir, and the Union Valley groundwater.

The State of Tennessee entered into the Tennessee Oversight Agreement (TOA) with DOE in 1991, to address pollution of State waters and the potential effects to human health and the environment surrounding the ORR. Under the TOA, DOE is required to provide the State with both financial and technical support, focused on four principal areas: environmental restoration, environmental monitoring and oversight, emergency response and preparation, and public outreach.⁹⁹ The TOA was extended in 1996, and in 2001 it will be reviewed again for further extension.

In addition, DOE, EPA and the State entered into an FFA¹⁰⁰ in 1992, to begin work on the remediation of existing contamination at ORR. The FFA was designed to “ensure that the environmental impacts associated with past and present activities at the Site are thoroughly investigated and that appropriate remedial action is taken as necessary to protect the public health and welfare and the environment.”¹⁰¹ The FFA requires remediation activities to be accomplished under CERCLA.

c. Experience with Long-Term Stewardship

Like all DOE sites, ORO’s experience with institutional controls and long-term stewardship is still in its early stages. While ORO has leased and conveyed property by deed with restrictions, and has begun to issue RODs that require long-term stewardship activities, the relatively short time frame in which these activities have taken place makes it difficult to predict whether the program will ultimately be successful over very long time horizons. A few examples are cited below.

(i) Community Reuse Organization of East Tennessee Lease

ORO has some experience leasing facilities for reindustrialization at and adjacent to the ETTP. CROET is leasing ETTP to primarily industrial businesses. The businesses operate daily in the facilities with restrictions that were included in the leases between CROET and DOE and CROET and its tenants. For example, one of the buildings has a restriction barring contact above 8 feet by a lessee. Also, one of the facilities has some residual contamination in the basement, and there are notices that workers are not allowed in the basement of the facility. These controls are in place to permit reuse of the buildings.

⁹⁸ Oak Ridge Reservation’s Stewardship Working Group, *Stakeholder Report on Stewardship—Vol 2*, December 1999. Copies are available by calling the Information Resource Center at (865) 241-4582.

⁹⁹ TDEC DOE Oversight Division, *Status Report to the Public*, December 1999. Auth. No. 327809.

¹⁰⁰ Federal Facility Agreement Under Section 120 of CERCLA and Sections 3008(h) and 6001 of the Resource Conservation and Recovery Act (RCRA). DOE/OR-1014. Docket No. 89-04-FF (Federal Facility Agreement).

¹⁰¹ Federal Facility Agreement, DOE/OR-1014.

(ii) City of Oak Ridge

ORO has conveyed several parcels of real property by deed to the City. Properties conveyed include a golf course, water plant, vacant land, buildings and land in city areas, rights of way, and park areas.

One of the parcels is currently used as a golf course. The deed that DOE conveyed to the City included a covenant that prohibits the City from using the groundwater. However, several years after DOE conveyed the property to the City, the City's contractor drilled water wells. DOE, after learning about the drilling of the wells, notified the City that the use of the wells was prohibited under the deed. The City ceased drilling the wells.

4. Local and State Government and Citizen Experience Relating to Environmental Remediation and Reuse at Oak Ridge

OAK RIDGE SITE SPECIFIC ADVISORY BOARD

The Oak Ridge SSAB is a federally appointed panel of citizens to provide recommendations to DOE's Oak Ridge Environmental Management Program. The SSAB was created in 1995 under the Federal Advisory Committee Act (FACA). DOE funds the SSAB.

The SSAB provides advice and recommendations on issues including environmental restoration, waste management, economic development, long-term stewardship, and environmental safety and health. The SSAB is composed of up to 20 members from Anderson, Knox, Loudon, and Roane Counties. Non-voting members include representatives from DOE ORO, EPA Region IV, TDEC DOE-O, and local high-school youth.

END USE WORKING GROUP

The End Use Working Group (EUWG), a subgroup of the SSAB, was formed in 1997, with administrative, technical, and financial support from ORO's Environmental Management Program, to address the need for broad-based public involvement in ORO remediation decisions. ORO asked the EUWG to develop guidelines and recommendations for future use of contaminated areas on the ORR.

Comprising about 20 members, the EUWG included representatives from the Oak Ridge Environmental Peace Alliance, the Citizens' Advisory Panel and the Board of the Oak Ridge Reservation Local Oversight Committee, the SSAB, Friends of the Oak Ridge National Laboratory, Oak Ridge Environmental Quality Advisory Board, League of Women Voters, and the Coalition for a Healthy Environment. The Oak Ridge City Council and the Oak Ridge Regional Planning Commission also participated. The EUWG, while its own separate entity, kept the SSAB advised of its activities, as well as the EPA Region IV and TDEC DOE-O.

The EUWG published the "Final Report of the Oak Ridge Reservation's End Use Working Group" in July 1998,¹⁰² which contained community guidelines for contaminated land and water

¹⁰² Copies and information can be found at http://www.ornl.gov/doe_oro/em/emhome.html or by calling the Information Resource Center at (865) 241-4582.

on the ORR, recommendations for end uses of each of the five watersheds on the ORR as well as for several sites not included in the watersheds, and recommendations for building an on-site disposal facility on the ORR.

A Stewardship Committee of the EUWG, along with a Stewardship Committee from the Friends of the Oak Ridge National Laboratory, also published the “Stakeholder Report on Stewardship” (Stakeholder Report) in July 1998. The Stakeholder Report contained recommendations on long-term stewardship of contaminated land and the roles and responsibilities to be played by stakeholders.¹⁰³ The Stakeholder Report also called for the formation of a stakeholder group to look more closely into the issues associated with stewardship, and in 1999 the Stewardship Working Group (SWG) was formed.

STEWARDSHIP WORKING GROUP

The SWG worked on some of the same issues of authority and funding, stewards, operations, physical and institutional controls, information and research, as did the EUWG Stewardship Committee. However, the SWG followed up on the issues left unresolved in the Stakeholder Report, and looked into stewardship requirements in CERCLA documents, CERCLA five-year reviews, and the role of the community in stewardship oversight activities at ORR.¹⁰⁴

In December 1999, the SWG produced the “Stakeholder Report on Stewardship, Volume 2,” which recommended that the Secretary of Energy issue a national policy with a commitment to long-term stewardship, along with guidance for implementation of a national policy with local participation and involvement. This report also recommended that DOE amend the FFA to provide for public and local government participation in ORR’s Land Use Control Assurance Plan (LUCAP), the DOE Long-Term Stewardship Plan, and five-year reviews.¹⁰⁵

Currently the SSAB sponsors a Stewardship Team, with membership similar to the EUWG and SWG, that is following up on the recommendations of the earlier groups.

OAK RIDGE RESERVATION LOCAL OVERSIGHT COMMITTEE

The ORR Local Oversight Committee (LOC) was created in 1991 to improve public understanding of environmental issues in communities most affected by DOE activities at ORR. Local government officials from Anderson County, the City of Oak Ridge, and Knox, Loudon, Megis, Morgan, Rhea, and Roane Counties govern the LOC. The LOC also sponsors a Citizens’ Advisory Panel, comprising about 15 residents of the local communities affected by DOE activities at the ORR. The LOC is funded by a grant from TDEC DOE-O.

The LOC monitors DOE activities to ensure they meet the human health, environmental, and economic interests of the affected communities. The LOC publishes a monthly newsletter, comments on DOE proposals, and produces TDEC DOE-O’s annual Status Report to the Public.

¹⁰³ Copies and information can be found at <http://www.oakridge.doe.gov/em/ssab/pubs.htm> or by calling the Information Resource Center at (865) 241-4582.

¹⁰⁴ *The Oak Ridge Reservation Stakeholder Report on Stewardship, Vol. 2.* December 1999.

¹⁰⁵ Copies and information can be found at <http://www.oakridge.doe.gov/em/ssab/pubs.htm> or by calling the Information Resource Center at (865) 241-4582.

COMMUNITY REUSE ORGANIZATION OF EAST TENNESSEE

CROET was chartered in 1995, and is a non-profit organization acting as a liaison with DOE regarding economic development issues. CROET is the locally recognized Community Reuse Organization (CRO) by DOE. CROET was originally created to generate economic development and diversification as DOE downsizes at ORR, by reusing DOE property for private sector investment and job development. Also, CROET was formed to acquire grants and other funding and to use it throughout the region to foster economic development. DOE's Office of Worker and Community Transition funds CROET.

Currently, CROET is leasing several areas of ORR. Leased properties include portions of ETTP for reindustrialization purposes and ED-1 for new development purposes. CROET plans to lease and develop ED-3 from DOE for additional development.

The properties leased to CROET include several proprietary institutional controls that restrict the use of the property. The ETTP lease provisions are described above (e.g. restrictions on use of portions of the building). The clean parcel lease at ED-1 includes a restriction on the use of the groundwater.

CROET's long-term stewardship focus has been on the properties that it manages and leases. The goal has been to ensure that the restrictions still permit reuse of the properties.

CITY OF OAK RIDGE ENVIRONMENTAL QUALITY ADVISORY BOARD

The City Council of Oak Ridge established the Environmental Quality Advisory Board (EQAB) in the early 1970s to advise the City Council on matters related to environmental quality in the City. EQAB members are citizen volunteers appointed by the City Council; the City provides staff support to EQAB.

EQAB's activities include monitoring the activities of DOE and other agencies as they address environmental contamination and other concerns in and around ORR. EQAB's other duties include making recommendations regarding the City's Greenbelt areas—City-owned lands within residential neighborhoods that have been designated natural environments and set aside in perpetuity for public uses such as hiking and nature study.

5. Site Stewardship

a. Current Responsibilities

Contamination has been found at ORR both on- and off-site in 527 areas, representing about 15 percent of the Site.¹⁰⁶ In order to organize remediation efforts, DOE, EPA, and TDEC DOE-O separated ORR into five watershed areas (see Figure 4.6). This approach allows for the CERCLA process to focus more clearly, with RODs for each of the following: White Oak Creek Watershed in Bethel Valley, White Oak Creek Watershed in Melton Valley, Bear Creek Valley Watershed, Upper East Fork Poplar Creek Watershed, and ETTP Watershed. ORO is responsible

¹⁰⁶ TDEC DOE Oversight Division, "Status Report to the Public." December 1999. Auth No. 327809.

for producing the on-site CERCLA studies and engineering studies. The planned completion date for ORO CERCLA activities at the ORR is 2014.¹⁰⁷

EPA Region IV is currently implementing the LUCAP at ORR, which is administered through a Memorandum of Understanding (MOU) between TDEC DOE-O, DOE, and EPA. The LUCAP sets out the procedures for dealing with land use controls over the long-term. Additional Land Use Control Implementation Plans (LUCIP) will be developed as final cleanup decisions are made.

Under the FFA, TDEC DOE-O represents the State in the development and implementation of environmental restoration milestones. TDEC DOE-O reviews and comments on all DOE CERCLA documents and coordinates the corrective actions that occur under CERCLA and RCRA. It also participates in the Watts Bar Interagency Working Group¹⁰⁸ and other FFA-specified projects.

Again, the City expressed an interest in having a more formal role in the cleanup decision-making process, including maintaining a redundant records management system. The City realizes that it could play a role as a conduit of information to citizens regarding on-site contamination. When property is conveyed to a non-federal entity in the future, the City could also help ensure that proper mechanisms are in place to assure the safety of its citizens. Currently, there is no such mechanism in place; most parties agreed that the status quo will not suffice in the future.

DOE regularly meets with the SSAB to discuss environmental issues on the ORR. The SSAB provides input to DOE, EPA, and TDEC DOE-O on issues from the SSAB perspective.

b. Monitoring and Oversight

ON-SITE

DOE is responsible for the on-site environmental contamination monitoring. All known contaminated sites that could pose a threat to human health and the environment at the ORR have been fenced off and notices have been posted. Any digging on-site by contractor employees requires an internal permit, which becomes part of the work plan.

One example of the daily monitoring done by DOE involves the groundwater plume and contaminated soil near the 3019 area at ORNL, which was caused by a tank leak. DOE first discovered the location of the source, roped the area off, developed a work plan, and held a meeting with its employees to determine the environmental remediation requirements. Then DOE technicians took samples and measurements. The same procedure is used throughout the ORR when potentially environmentally contaminated property is discovered. For long-term environmental contamination monitoring, DOE must adhere to the milestones set by the FFA with EPA and TDEC DOE-O.

¹⁰⁷ U.S. Department of Energy, Office of Environmental Management. *Status Report on Paths to Closure*, March 2000. DOE/EM-0526.

¹⁰⁸ The Watts Barr Interagency Working Group is made up of TDEC, ORO, USACE, EPA, and the TVA.

TDEC DOE-O conducts its monitoring of DOE facilities and activities through facility surveys on the ORR and manages the Environmental Radiation Ambient Monitoring System.¹⁰⁹ The System is a coordinated effort with EPA Region IV, and plays an active role in monitoring a contaminated groundwater plume in Union Valley, located off-site, east of the Y-12. In Union Valley, DOE sought license agreements with all the landowners, and therefore it is the State's job to also ensure that DOE follows the license agreements.

The City supports the primary allocation of regulatory responsibility for on-site monitoring to the FFA parties. However, this may change based on the degree to which its citizens are affected in decisions requiring long-term monitoring. The City also feels the public should have a more substantial role in the CERCLA process. One member of the LOC felt that the City should play more of a role in on-site activities, to ensure that information is flowing to the public.

The City and several citizens noted that much of ORR environmental contamination has yet to be fully characterized. As one member of the SSAB stated, adequately characterized sites are "not the forte at Oak Ridge." Nevertheless, ORO provides information about contamination to the SSAB and at other public meetings. According to the City, DOE has a lot of institutional knowledge of where contamination exists; however, it is not all recorded.

OFF-SITE

TDEC DOE-O and EPA review the environmental documentation for any property transfers falling under CERCLA section 120(h). They also audit DOE to ensure that there is a mechanism in place to ensure that Site contractors follow the requirements for the leased areas at EFTP, such as groundwater restrictions.

The State has the primary responsibility for developing fish advisories, in consultation with such agencies as the Agency for Toxic Substances and Disease Registry, the Tennessee Valley Authority (TVA), the Tennessee Wildlife Resources Agency, and DOE. One example of the advisories is the warning against the consumption of fish or contact with the water from East Fork Poplar Creek because of contaminants such as mercury and polychlorinated biphenyls (PCBs).¹¹⁰

c. *Recordkeeping*

DOE maintains a Document Control Center (DCC), which is administered by the Site contractor. These records adhere to federal guidelines for site records that must be archived. The information contained in the DCC is available upon public request.

Additionally, the Information Resource Center (IRC) was set up by the ORO EM program to make documents available to the public. The IRC is a public reading room that houses the CERCLA Administrative Record for the ORR, including all of the documents that support the ROD. These documents include studies required by the FFA, National Environmental Policy Act (NEPA) records, and TDEC DOE-O's Remedial Action Reports (RAR) that are required by the FFA. The Administrative Record contains all the CERCLA decisions that have been made.

¹⁰⁹ TDEC DOE Oversight Division, *Status Report to the Public*, December 1999. Auth. No. 327809.

¹¹⁰ *Id.* DOE Oversight Division, *Status Report to the Public*, December 1999. Auth. No. 327809.

Records from RCRA closures, which require a deed restriction on-site, are public and also must be filed with property records at either the Anderson or Roane County Courthouse. However, TDEC DOE-O noted that it is a challenge for local governments and citizens to find the information. Because DOE is not taxed by the City or by the Counties, DOE property is not indexed by tax identification numbers, which makes it difficult to search for records. One interviewee concurred that the communities surrounding the Site have a difficult time obtaining data.

Title searches of Roane County records go back as far as 30 years, and rely heavily on handwritten notations on cards. This type of search concerns the City, especially in dealing with long-term records management. The City has copies of the Roane County records in its own vaults for properties that the City owns, including lands transferred to the City from ORR.

The City is now working with Anderson County to develop a Geographic Implementation System (GIS) for the City. This system could be integrated with DOE's system to develop a GIS for recordkeeping on institutional controls. The GIS would be coordinated with the Counties and therefore ultimately would be available to anyone involved in developing property.

The Oak Ridge Environmental Information System (OREIS),¹¹¹ an Internet database that contains environmental information for the Site, is also in place. The OREIS is managed by the ORR environmental management contractor, and was opened to the public in 1999. The basic mission of OREIS is efficient retrievability and long-term retention of ORR, Portsmouth, Ohio, and Paducah, Kentucky environmental data. The scope of OREIS includes data supporting environmental restoration, compliance, and surveillance activities. One TDEC DOE-O official said that the OREIS is in the process of becoming more user-friendly.

TDEC DOE-O has an open office, allowing the public to inspect RODs and other documents. TDEC DOE-O officials think that the current recordkeeping system is sufficient, as long as the DCC, IRC, and OREIS are maintained.

d. *Enforcement*

ON-SITE

Currently, when DOE grants property licenses or leases, restrictions on use are contained in the license or lease. These restrictions are case-specific and are dependent on the intended use and environmental conditions of the property. Each lessee is given notice of the FFA requirements, and the primacy of the agreement. In some cases, certain federal laws, such as those governing wetlands protection, apply to the leases.

The leases granted at ETTP have restrictions that depend upon the particular section of the building. Before DOE grants the lease, there are extensive environmental reviews and a baseline assessment of each building to examine the existing hazards and risks, and, after the lease is signed there can be no structural changes to the building without DOE's approval. Workers in the buildings are not allowed to build above eight feet or below the floor.

¹¹¹ OREIS is available at <http://eimdb-web.bechteljacobs.org:8080/oreis/help/oreishome.html> (01/01).

Four different lessees are located in Building 1420 of ETTP, which is a former machine shop. The basement has contaminated equipment and therefore it is locked and the lessees are prohibited from entering the area. There have been some unannounced inspections by ORO's Health and Safety Oversight Division at ETTP; however, DOE says that it does not act as a oversight entity at the Site.

OFF-SITE

Deed restrictions are used in the conveyance documents for off-site property. For example, DOE usually includes covenants restricting the use of groundwater on conveyed properties. DOE stated, however, that there are no formal mechanisms in place for DOE to enforce these types of restrictions.

One City official expressed concern over DOE's process of attaching groundwater restrictions to all property leased or conveyed by deed. The official stated that DOE does not fully characterize the property to determine if groundwater is contaminated before putting in the deed restrictions, and this practice has significant economic development consequences.

e. Funding

ORO stated that although currently there is a significant amount of funding for ORR surveillance and maintenance of ongoing treatment and waste disposal areas, money designated for stewardship is minor. Long-term stewardship activities are included in the ongoing, everyday operations funding. One ORO official expressed a desire for more funding for monitoring and oversight by ORO personnel.

One City official stated that he was skeptical of long-term stewardship at the ORR because he has been involved for so long that he knows the problems associated with funding and cost issues. The official recalled how people take care of things when there is a lack of funding or concern — the result, he said, is that contaminated land just gets a cap put on it.

A member of the LOC expressed concern that DOE should do more to commit funding to the City and County governments for long-term stewardship oversight activities. The problem with funding, the interviewee stated, is that stewardship is intertwined with other issues such as cleanup, downsizing, and struggling local economies, which makes it hard to focus on stewardship alone.

6. Future Roles

a. Cleanup and Future Use

According to DOE officials, there is no long-term view that property at the ORR will be turned over for local use. DOE is planning for federal ownership of the Site in perpetuity. DOE's end-state scenarios for the ORR include:¹¹²

- Remediation of ORNL to allow controlled industrial use of its main plant area through soil excavation and building demolition.

¹¹² U.S. DOE, Office of Environmental Management. *From Cleanup to Stewardship, A Companion Report to Accelerating Cleanup: Paths to Closure*. October 1999. DOE/EM-0466 (From Cleanup to Stewardship).

- Remediation of the outlying areas in Bethel Valley for unrestricted use through the excavation of burial grounds and contaminated soil.
- Use of hydraulic isolation to control contaminant migration at the Melton Valley burial ground area, with restricted use.
- Near-term remediation of Y-12 focusing on soil and sediment removal to control the migration of contaminants, with controlled industrial use.

DOE officials do feel that the local stakeholders have taken a strong step forward with the SSAB and the SWG. ORO is now in the process of evaluating the recommendations made in the stakeholder reports. With three different sets of contractors and DOE's relationship with the cities and counties nearby, ORO agrees it has a lot of work to do in establishing long-term stewardship plans. Officials there intend to release a stewardship program plan by the end of 2000.

A member of the EQAB stated the widely acknowledged fact that there will be some places that will not be practical to clean up, and therefore will become long-term stewardship legacies. These include the disposal facilities at Y-12, Melton Valley and possibly the burial sites at K25 (ETTP). There needs to be assurance, said the interviewee, that people do not forget about what exists in these places.

b. Monitoring and Oversight

As long as the federal government retains ownership, ORO staff believes that all responsibility for monitoring and oversight activities will be theirs. Given a hypothetical of the State taking ownership of some property, ORO officials thought that there would be cooperation between the State and DOE on property with contamination left in place. DOE would test the property before a lease or deed was granted and the environmental information would be contained within the lease or deed.

Currently, TDEC DOE-O has confidence in the institutional controls on-site. However, in the future, if TDEC DOE-O funding or DOE disappears, it is unsure what will happen to the on-site monitoring and oversight responsibilities. While the City said that it would be willing to monitor the Site in the future, it would only do so with liability indemnification from DOE and funding in order to build the capacity to take on the monitoring activities.

According to one member of the SSAB, the five-year CERCLA review is one of the most important things that a stakeholder has to rely on for long-term monitoring. DOE is considering writing it into its Community Involvement Plan.

An interviewee from CROET stated that it is unlikely that DOE will ever walk away from the ORR. The interviewee did not trust the local government or the State to handle monitoring responsibilities. Instead, reference was made to a principle known as Weinberg's Thesis, which states that contamination will be around forever, and a priesthood is needed to handle it. The interviewee suggested that this proposed priesthood be composed of both DOE and EPA in perpetuity.

c. Recordkeeping

DOE is in ongoing discussions with the contractor that handles the Administrative Record required by the FFA, regarding the possibilities for records retention over the long term.

The City's goal for creating a GIS/records management pilot program with DOE is to develop a compatible, reliable, and "redundant" system for records related to institutional controls. This type of system would help ensure that environmental data are shared among the local, state, and federal governments, thereby increasing public confidence in long-term stewardship and reducing the risks that information would be lost. Eventually, the City plans to put the database on the Internet and have review capabilities for the public.

A representative from the EQAB stated that in the long term, information management is the most important factor in long-term stewardship. For local governments, having access to information and being able to share it with the citizens is very important.

d. Enforcement

ON-SITE

According to ORO officials, as long as the United States retains ownership of the ORR, local governments will have no on-site role in the enforcement of institutional controls. The local governments and other stakeholders agree with this position.

OFF-SITE

Both the State and DOE felt that if the City were to play any role in the future, it would be through zoning, which it currently does well. The City, however, felt that it may have to play a stronger role in enforcement in order to help protect the health and safety of its citizens. In that regard it is vital that the City know where contamination exists, in order to prohibit an activity that would be a health threat in the community, such as digging in a contaminated area.

In the future, if DOE no longer controls the Site, one member of the EQAB questioned who would take responsibility for long-term stewardship. The interviewee did not have faith in the State to take on a large role, and thought that EPA would have difficulty as a regulatory agency taking over management. She discussed the need to think about developing an enduring entity that would be responsible for long-term stewardship activities.

DOE recognized the need to develop enforcement mechanisms for real property conveyed by DOE to non-federal entities to ensure that deed restrictions are followed.

e. Funding

The SWG's recommendations called for DOE to refine its understanding of the specific costs of operating stewardship activities and to incorporate them into the budget process.¹¹³ When DOE releases its stewardship plan for the Site, the funding mechanisms for long-term stewardship

¹¹³ *The Oak Ridge Reservation Stakeholder Report on Stewardship, Volume 2, December 1999.*

may also be outlined. Also, the SWG recommended that DOE promote mechanisms for funding stewardship that do not depend on the congressional appropriations process.

The example cited by the SWG was the Consent Order between TDEC and DOE for the on-site waste disposal facility, which provides long-term funding for surveillance and maintenance. However, there is still disagreement between DOE and the State over the permanence of DOE's financial commitment. According to DOE, its funding is subject to annual appropriations, a standpoint the State disagrees with. There has not been a resolution to the dispute.

7. Assessment of Needs

While the City recognizes that it does not have the resources to fully participate in the FFA, it would like a formal role for local governments in the FFA. The City would like to be a part of the decision-making process to help shape decisions that will have lasting effects on its citizens. Currently, there is no mechanism in place to ensure the participation of and communication with the officials who are elected and appointed to represent the City's interests.

Also, while TDEC, ORO, U.S. Army Corps of Engineers, EPA, and the TVA are all involved in the Watts Bar Interagency Working Group (Working Group), the local governments surrounding the ORR are not involved. If they were to be on the Working Group, the City thinks that local governments could then be institutionalized into the decision-making process.

8. Conclusion

Stakeholders around the ORR have been proactive in establishing a dialogue on long-term stewardship within the community, addressing the possible stewards and suggesting policy for DOE to undertake. However, DOE has yet to define site-specific roles and responsibilities for long-term stewardship. Also, DOE has not established a formal mechanism to monitor and enforce institutional controls on property that it has conveyed off-site.

While the Consent Order between DOE and the State begins to address the need for and funding of long-term stewardship, federal and state governmental entities at ORR are still developing solutions to integrate long-term stewardship into the cleanup decision-making process at ORR.

APPENDICES & EXHIBITS

APPENDIX A

LOCAL GOVERNMENT LONG-TERM STEWARDSHIP MEETING HIGHLIGHTS

April 8-9, 1999
Westminster, CO

Welcome and Meeting Overview

City and County officials from local communities from around the United States, whose neighbors are United States Department of Energy (DOE) facilities, met in Westminster, Colorado on April 8-9 to discuss long-term stewardship and institutional controls. Energy Communities Alliance (ECA) and the Environmental Law Institute (ELI) conducted the meeting in order to educate local government officials about long-term stewardship and to obtain input from local governments on their role, capability, and interest in working on and implementing institutional controls and long-term stewardship in, and adjacent to, their communities. Participants also discussed stewardship issues regarding land that will be retained by the Federal government and land that will be conveyed out of Federal ownership. Several representatives from the Department of Energy (DOE) also participated in the meeting. ECA and ELI plan to select at least three sites, and conduct case studies on the role of local government in the selection and implementation of long-term stewardship and institutional controls.

ECA Executive Director, Seth Kirshenber, and ELI Director of the Center for State, Local & Regional Environmental Programs, John Pendergrass, opened the meeting with a primer on institutional controls and long-term stewardship, followed by a meeting overview to define the issues, outline the project goals, and to provide an overview of some of the ongoing activities among the various groups studying the issues and their conclusions. Kirshenber stressed that even though the type of institutional controls will vary from site to site, the unifying concern among most communities is how to ensure that over time, the remediation at the facilities will remain protective of human health and the environment.

One of the DOE representatives, who pointed out that residual hazards are inevitable, asked participants to consider the consequences of environmental cleanup (the remediation of the environmental contaminants on the property) 30 years from now. He encouraged local governments to work in cooperation with the federal government in order to address the risks and overhead costs that will follow. Pendergrass noted that an essential component of managing risks after cleanup is to decide how each institutional control and long-term stewardship mechanism will work, who will operate that mechanism, and who will be responsible for long-term stewardship activities of the site.

SITE-SPECIFIC PRESENTATIONS

Rocky Flats

Site Overview

Located just northwest of Denver, Colorado, the Rocky Flats Site is located on a 384 acre Industrial Area and is surrounded by a 5,878 acre Buffer Zone. From 1952-1989, nuclear weapons components and assemblies were produced, using large quantities of plutonium and other metals. All production ended in 1992.

The Kaiser-Hill Company is currently the lead contractor undertaking the cleanup activities at the site, where nuclear materials are still being stored in a high-security protected area. Significant contamination is suspected to exist underground between buildings in the industrial area and in several areas of the buffer zone.

Present/Future Challenges

With a goal of accelerated closure by 2006, activities at the site are focused on remediation activities including the demolition and decommissioning of facilities. Under-building contamination is being addressed through characterization and remediation. Remaining contamination is being cleaned up and will eventually be moved off-site with all other wastes. Site officials intend to ship nuclear materials to Pantex; transuranic waste to the Waste Isolation Pilot Plant; residues to Savannah River; and low-level residue/other to the Nevada Test Site, Envirocare, and other sites to be determined.

Stewardship Issues

The following stewardship issues have been identified by the Rocky Flats Coalition of Local Governments (RFCLOG):

- Who will be the future steward?
- How can sufficient stewardship funding be established?
- How can life-cycle maintenance of containment caps be ensured?
- How will surface and groundwater monitoring and management continue?
- How will institutional controls be enforced?
- How should information be managed? (Issue of long-term information storage and retrieval)
- What is the meaning of open space: restricted access, unlimited access or limited access?
- What do communities demand of the open space definition/question?

The State of Colorado assumes recreational use to mean limited access. One state official noted that the current zoning is vague. The Colorado Department of Public Health and the Environment has determined, however, that the maximum exposure for an individual at the site, if cleaned up to "recreational use" levels, must be limited to 28 days per year, 3 hours per visit. A representative from Westminster responded that soil contamination level is a point of contention with communities around Rocky Flats.

Stewardship Dialogue: The Dialogue Planning Group

The Dialogue Planning Group (DPG) was convened by the Rocky Flats Local Impacts Initiative (RFLII) in January of 1998. The DPG began as an information discussion group, the participants identified numerous upcoming decisions affecting stewardship issues and thus determined that a stewardship dialogue must be initiated.

Participants in the DPG include officials/members of local governments adjacent to or owning land adjacent to Rocky Flats, State and Federal regulatory agencies, Kaiser-Hill, Department of Energy, the Rocky Flats Citizens Advisory Board, the Future Site Use Working Group, the Rocky Flats local Impacts Initiative, Congressman Skaggs Office and the Colorado Attorney General's Office.

Early DPG discussions involved the need to define an achievable goal. They realized that stewardship issues are highly complex and concepts are interwoven. As a result, they determined that education must precede dialogue. A "white paper" was created as an education tool to define the issues, describe interrelationships, stimulate discussion, and build expertise.

The City of Westminster and the City of Arvada have full time employees and Jefferson County has a part time employee dedicated to site issues.

A complaint of the local government's is that the local governments were not given remediation selection options with remediation technology, associated institutional controls, and accompanying costs. The biggest question is how will the costs associated with long-term stewardship activities be funded.

The local community feels it is ahead of DOE on stewardship issues and that DOE needs to move forward. Part of the problem is that site personnel come and go so quickly that institutional memory is lost. Also, DOE tends to look at cleanup in a piecemeal, rather than holistic, fashion.

One major contamination issue involves surface water. DOE has not yet determined the source of the contamination or decided on what to do with water that is flowing off-site.

A participant noted that Rocky Flats has a model contractor situation with performance based contracting. The contractor only gets paid for doing certain things. Long-term stewardship was not included in the contract.

Conclusions

The establishment of an informal, inclusive working group is an effective way to build trust and openness. In addition, education should be a key component of any stewardship program/process.

Oak Ridge Reservation

Site Overview

The Oak Ridge Reservation (ORR) is located approximately 15-20 miles from downtown Knoxville, is fully encompassed within the City of Oak Ridge and affects several communities adjacent to the site. Because of high rainfall in the area, runoff from the facilities is known to flow into the river system. Thus, activities at ORR impact the City as well as several communities downstream (Knox, Loudon, and Anderson Counties). The City has been involved in stewardship activities at the site, but they are trying to get other affected communities involved as well.

Stewardship Issues/Stewardship Working Group

In a 1996 Record of Decision discussing surface impoundments, DOE's proposed plan did not involve communities in making cleanup decisions. However, the site-specific advisory board (SSAB) was involved in the determination of "how clean is clean", and stewardship was one issue involved in the determination.

As a result, the SSAB-developed Stewardship Working Group (SWG) was convened at the site. The SWG defines stewardship as "the acceptance of the responsibility and the implementation of activities necessary to maintain long-term protection of human health and of the environment from hazards posed by residual radioactive and chemically hazardous materials."

The SWG aimed to identify elements of an effective stewardship program, promote public understanding, develop long-term stewardship requirements, identify options and promote the commitment of adequate funding. Their studies have identified authority and funding as being key elements of stewardship. By December 1, 1999, SWG hopes to publish a report on the findings of its three subcommittees -- funding, stewards (roles) and information management (integration of information and accessibility for local governments, technical people and the public).

Proposal for On-Site Disposal Cell

Currently, a proposal to build an on-site disposal cell at the Oak Ridge Reservation is under consideration. The on-site disposal cell is significant because it would mean permanent acceptance of ORR as a disposal facility. Working Group members are working to ensure that there are provisions for funding and long-term stewardship in this proposed plan. The ROD will not be signed until provisions for long-term stewardship are included.

Oak Ridge stressed that mitigation measures for communities, resulting from the real or perceived image of contamination caused by DOE, must be discussed and addressed when discussing long-term stewardship.

The City explained that they are currently going through rulemaking involving the creation of a fund, managed by the state, for such things as oversight and long-term stewardship for the on-site disposal cell. The City also stressed that waste to be disposed at this facility will only be from DOE's ORR, and will only be CERCLA waste.

Melton Valley Test Case

To evaluate long-term stewardship components being examined by SWG, the SSAB focused on Melton Valley (Valley). The Valley includes one operating reactor and two non-operating reactors, and includes contaminated areas, which are primarily solid waste disposal areas. DOE does not know the exact makeup of the waste, as they have received waste from many different sources, but there is potential of the waste surfacing. Currently, three major contaminants are known to be going off-site. DOE is reviewing capping as a remedy, but there is potential for long-term releases.

SWG considered using K-25, where a reindustrialization program is being implemented and private companies are leasing the space, but they decided to focus on Melton Valley.

As a final note, the City strongly encouraged the engagement of retirees (particularly former workers) in the stewardship process as a way to preserve institutional memory.

Hanford, Washington

The 582 square mile Hanford Reservation is located along the Columbia River in southeastern Washington State. Of this area, six percent (6%) is either used or contaminated. The majority of the contamination is located in three areas devoted to plutonium production: the 300 Area produced Uranium fuel rods; the 100 Area irradiated those rods in reactors to generate Plutonium; and the 200 Area separated the Plutonium.

This production generated a full range of radioactive liquids, which then contaminated the soils. Though permanent remedies are preferred during selection process, residual contamination will remain in many spots. For instance, the 200 Area, which will not be transferred, is often referred to as a “sacrifice zone” because a large amount of contamination will remain there after remediation is complete. In such cases, proper implementation of institutional controls will be critical to protecting human health and the environment. The City of Richland would prefer it if regulators, not DOE, decided what institutional controls should be used.

When selecting institutional controls, the future land use of the site should be considered. And the first step in determining future use is a good land use plan. DOE performed an EIS at Hanford that was rejected because of how it looked at land use, so they are now creating a separate land use plan. In a related effort, the Future Uses Working Group (FUWG) was convened and it came up with a land use plan with six alternative land uses and uniform land use designations. Each alternative had a chapter explaining the generic land use policies that would accompany each plan.

During this process, the concerns of Native American tribes have been accommodated whenever possible, but serious differences still remain. For example, the planning maps generated by the local governments on the FUWG allotted 63% of the land for conservation and preservation, while the maps generated by the tribes allotted 90% for conservation. Also, the Native American tribes do not agree with the principle of a sacrifice zone.

A separate working group developed principles for use of institutional controls including: physical controls should be supplemented with administrative; cost projections should include

governmental administrative costs; local government must continue property records; and any system should provide for federal, state, local, and tribal institutional memory.

The Benton County Board of Commissioners views DOE as a temporary land holder. Before the Manhattan Project, the property had numerous owners. As a result, local jurisdictions are pressing to assume jurisdiction over the parts of the site as remediation efforts are completed. Benton County currently has some permitting authority over the site, and has a Memorandum of Understanding with DOE regarding shoreline permits.

The 1100 Area, located within the boundaries of the City of Richland, has been transferred. Other parcels have been leased for development, and the Hanford Reach may be transferred soon.

Some of the ideas put forth to safeguard development include: an implementation plan for permitting; project review processes for land use plans; special use permit review would be required for projects that involve institutional controls; coordination with the Site Planning Office for central planning; regular meetings on institutional controls with DOE; a shared database with graphics mapping capabilities (the key tasks would be to define what would go into such a database and what communities want from it).

Other issues include water rights, roads not built to state standards, and transfer of the supply system.

Los Alamos, New Mexico

Los Alamos County, NM (County) contains ghosts of past, present and future. The town is actually located on the old research site. Every time someone digs they find something interesting. Some of those things were items DOE paid to remove, but apparently never were removed.

Stewardship has a history in Los Alamos: the Atomic Energy Commission (AEC) conducted destructive testing in the 1950's in a canyon in Los Alamos after which the AEC enacted controls to keep people from the hazard. Unfortunately, the stewardship has not been kept up.

A landfill on DOE land run by the County municipality must be closed. DOE contractors engaged in some questionable practices, and the municipality now has to deal with the results. Caps may be used to contain contamination at some sites.

Legislation was passed allowing DOE to transfer land to the County, but DOE was slow to move. Subsequent legislation was enacted requiring DOE to transfer land to the County and to the San Ildefonso Pueblo under a specific timetable. The County understands that it may be responsible for long-term stewardship activities on property conveyed to the County.

Further, the County is tracking the cleanup issues at LANL and knows that there will be significant long-term stewardship activities undertaken on LANL.

Nye County, Nevada

Nye County, the third largest county in the United States covering 18,064 square miles, is home to both the Nevada Test Site and Yucca Mountain. Certain hazards were cleaned up, but given the enormity of the contamination, the bomb sites will not be remediated. The fallout has migrated, and monitoring will be needed to see if any contamination is migrating off-site.

Nye County just recently came to the table and is still defining the issues of long-term stewardship for themselves. While these sites do provide positive impacts for the County, it should not have to pay for oversight of any problems caused by these places. Yucca Mountain is not yet a problem now, but serious problems could develop if the institutional controls fail. Transportation could also become an issue if the site begins to accept waste.

Discussions on institutional controls involving transfer of waste from one community to another should involve both the sending and receiving communities. Sending communities should also continue to be involved in long-term stewardship activities at receiving sites even after all transfers are complete.

The County feels that local government is the level best suited to administer long-term stewardship activities. This is provided that other levels of government provide local governments with a reliable source of funding. Technical oversight should also be a County function. However, County representatives will need the required funds to hire the technical expertise necessary to work on these issues.

Currently, there is no statutory requirement for local governments to be involved in cleanup decisions. If such a requirement were to be adopted, it should provide for a mechanism to fund the participation of local governments.

A participant noted that Pinellas County, Florida developed an inter-personnel program with DOE to share personnel with regulatory agencies. Under the program DOE pays a portion of an individual's salary to oversee stewardship activities.

Augusta, Georgia

The Savannah River Site (SRS) will have a continuing mission for the foreseeable future. Despite this, a consistent budget for Environmental Management is needed to protect human health and the environment. Specifically, funding is needed for the In-Tank Precipitation program so that high-level waste can be removed from underground storage tanks and those tanks closed. New facilities will also have to be built for temporary storage of materials.

SRS was awarded the Mixed Oxide (MOX) fuel project that assists with the final disposition of Plutonium. MOX fuel is a combination of Plutonium and Uranium that can be used in some commercial nuclear reactors. The project will require proper funding to be successful. Residents are concerned about the transportation of Plutonium and Uranium through their community. DOE is addressing this issue by building a bridge around the city that bypasses much of the developed areas of the community.

St. Charles County, Missouri

A fast growing community in suburban St. Louis, St Charles County is committed to playing a serious role in long-term stewardship. As for the site itself, the Army took title to it during World War II to produce TNT. The Army then gave a small portion to AEC, which they used to process Uranium.

Dealing primarily with low-level radioactive contamination, DOE has been cleaning up the site since the mid-1980's. Some of the contamination has migrated off-site. Extensive remediation efforts have been underway including placing materials in pits, cleaning out a quarry, and exhuming the foundations of all the buildings. Also, a disposal cell and water treatment plant has been built.

Remediation should be complete within three years, but extensive groundwater monitoring will be required far into the future. The County believes that provisions for access to an alternate water supply should be made in case the contamination migrates.

A participant added that the site has a long-term stewardship plan and that the disposal cell is huge and will be the highest point in the County. A pyramid-type structure may be located on the cell to alert people to the hazards below.

The property does not abut any development, but zoning questions have already arisen. The more basic question of who should own the property has not yet been answered.

WHAT ARE DOE, STATE AND FEDERAL REGULATORS DOING ABOUT INSTITUTIONAL CONTROLS AND LONG-TERM STEWARDSHIP?

On the second day of the meeting, representatives from the state of Colorado and DOE addressed their perspective on long-term stewardship and institutional controls.

Steve Tarlton, Rocky Flats Oversight Unit Leader for the Colorado Department of Public Health & Environment, stated that both institutional controls and stewardship result from remedy selection. Local input, enforceability and knowledge about the cleanup criteria based on land use is needed, he said, in order to provide proper stewardship. "Changes must be consistent with the remedy selection," adding that DOE cannot be an effective "doer" and "regulator". "Somebody needs to do it, and somebody needs to oversee that it gets done." Other long-term issues mentioned were data management (updating, transferring and using the information), and the past, current and future use of nation-wide Records of Decision (RODs).

DOE representatives then discussed the Programmatic Environmental Impact Statement (PEIS) which is a study they are undertaking in order to better address the role of local governments in remedy selection.

Last December, DOE settled a lawsuit with the Natural Resources Defense Council, Inc. (NRDC), which resulted in the creation of several new tools to enhance public understanding of the multi-billion dollar cleanup of the former nuclear weapons complex. Under the terms of the

settlement, the Environmental Restoration and Waste Management (ER/WM) Program will develop a PEIS.

According to the PEIS Settlement Lawsuit Database Draft Project Plan, the settlement agreement has three major components:

- DOE will establish a central information database, available to the public through the Internet, containing information on radioactive and non-radioactive waste and contaminated facilities at DOE sites. The information to be included in the database will come from the Department's Offices of Environmental Management, Defense Programs, Science, and Nuclear Energy. DOE will work with NRDC and others to enhance the usefulness of the database and to explore the establishment of Internet links to other DOE databases.
- DOE will establish a \$6.25 million fund to assist citizens' groups and Tribal Nations in conducting technical and scientific reviews of environmental management activities at DOE sites. The resulting technical reports will be made available to any interested member of the public.
- DOE has selected RESOLVE, Inc. as the administering organization for the fund and has transferred management of the initial \$1.25 million to RESOLVE, Inc. RESOLVE, Inc. is a Washington, D.C. based non-profit organization specializing in environmental dispute resolution, environmental mediation, consensus building, facilitation, conflict resolution and policy dialogue.
- DOE will prepare and invite public comment on a study on long-term stewardship.

The PEIS study will identify and select local remedies, include those people in the decision-making process and examine how to maintain institutional authority. The study will also seek to define the primary and secondary stakeholder groups and develop better mechanisms to manage cleanup issues.

For more information about the RESOLVE fund, contact Bruce Stedman at (202) 965-6217.

WISH LIST

The afternoon session was devoted to discussing the role of local municipalities where property is conveyed or returned by the federal government to non-federal owners, and institutional controls and long-term stewardship where ownership will remain with the Federal government.

The meeting concluded with suggestions from local governments for how DOE and State and Federal regulators should approach the issue of long-term stewardship and institutional controls. Specifically, participants were asked what they need in order to implement, participate in, and support the development of long-term stewardship activities in their community. Participants emphasized defining the roles and responsibilities among levels of government, assessing local government capacity and needs, and identifying more effective institutional controls. One elected local government official said that she would like to see the federal government and regulator agencies match their funds with the number of tasks they pass off to local governments. Another participant added that there is an overall disconnect between community and DOE interests, which

impedes any long-term planning. One idea is for ECA to collaborate with state governments and develop a common policy between state and local governments. Other suggestions included:

- ◆ Incorporation of long-term stewardship into RODs. The Weldon Spring ROD includes a sentence stating the need for a long-term stewardship plan; one that will be reviewed and updated. Local government is intended to be a key part of this ROD. When asked where the City is getting the funding to do this, the Weldon Spring official responded that a small portion of the City budget is being spent on the project.
- ◆ Validation of controls. Rocky Flats community members expressed a need for details about the controls implemented. They only want to use validated controls, not experimental controls. They need to see theories tested before they are applied.
- ◆ Indemnification. There is currently no statutory authority to provide localities with indemnification for long-term stewardship activities. CERCLA provides remedies, but there are no absolutes.
- ◆ Development of a legislative agenda. A representative from Nye County noted that the existing statutes do not allow agencies to do what they want to do. A legislative agenda needs to be formulated to accommodate stewardship issues.
- ◆ Options/remedy selection. Westminster representatives expressed that they want to be given a breakdown of remedy options, institutional controls to support these options, and costs for both. This upfront work is required before local governments can make decisions.
- ◆ Formal mechanism for local government participation. Oak Ridge stated that a formal mechanism is needed to give local governments a seat at the table with the decision-makers. Communities need to participate in setting milestones and remedy selection. A State of Colorado representative noted that local governments consider themselves to be asset holders, which is a notch above stakeholders. However, local governments are often treated the same as stakeholders.
- ◆ Community Assistance. Oak Ridge explained that communities should not accept sole responsibility for monitoring. She also noted that redundancy at the local level is critical. Assistance is needed with records management, developing GIS capability, educating the public, developing local oversight capability and in emergency management.
- ◆ Coordination among local governments/tribes. Several communities expressed difficulty in moving forward with stewardship when communities cannot develop a consensus. It is particularly difficult to get Tribes to accept institutional controls, as they insist on sites being completely clean. In addition, Tribes are considered sovereign nations, not local governments.
- ◆ Unifying policy on stewardship. Rocky Flats communities explained that a policy from DOE and EPA headquarters is needed. In addition, the Administration needs to get involved -- raising awareness and being involved with funding issues.

ADDITIONAL ISSUES

- ◆ Integrated transportation and disposal system
- ◆ Economic redevelopment assistance
- ◆ Agreement on definitions of institutional controls and stewardship
- ◆ Compensation for loss of economic potential and long-term stigma effects
- ◆ Funding for contingencies if containment is breached or institutional controls fail

- ◆ Funding for pensions of retired personnel (currently comes out of cleanup budget)
- ◆ Funding for emergency response – this funding is provided to the state and parceled out by them. Funding should be consistent throughout the DOE complex
- ◆ Statutory right to independent technical assistance and funding
- ◆ Link research and development funds with long-term stewardship
- ◆ Flexibility – establish mechanisms to incorporate new technologies after the ROD is issued
- ◆ Legal mechanism for review of plan over time
- ◆ Local governments should be identified as asset holders, NOT stakeholders
- ◆ Parcelization is critical in transfer of land
- ◆ Cost-savings to DOE, resulting from stewardship activities, should be returned to the sites
- ◆ Use of monitoring databases
- ◆ Development of interagency group to address nuclear facility issues
- ◆ Hold plenary meeting between DOE, the Administration and all local, state and tribal governments

APPENDIX B

ROLE OF LOCAL GOVERNMENT IN LONG-TERM STEWARDSHIP AND INSTITUTIONAL CONTROLS PROJECT

ROUNDTABLE MINUTES

August 2-4, 2000
Hyatt Regency Hotel
Denver, CO

The following is a summary of the Energy Communities Alliance (ECA) and Environmental Law Institute (ELI) Roundtable about the role of local government in long-term stewardship.

Welcome and Meeting Overview

Representatives from city, tribal, county, and state governments, citizen interest groups, the US Environmental Protection Agency (EPA) and the Department of Energy (DOE) met in Denver, Colorado on August 2-4, 2000 to discuss the role of local governments in long-term stewardship. (The full list of participants is included as Appendix D).

The meeting opened August 2 with a primer on institutional controls given by ECA Executive Director Seth Kirshenber, and ELI Director of the Center for State, Local and Regional Environmental Programs, John Pendergrass. On August 3, Rocky Flats Environmental Technology Site Manager Barbara Mazurowski welcomed participants and Mr. Kirshenber, Mr. Pendergrass and Mr. Werner discussed their respective organizations' background and involvement in long-term stewardship issues. Mr. Kirshenber and Mr. Pendergrass also outlined the ECA and ELI Role of Local Government in Long-Term Stewardship and Institutional Controls Project (the "Project").

Participants then provided feedback on the long-term stewardship issues facing their communities, and listened to panel presentations on the long-term stewardship activities ongoing and expected for three DOE sites: the Rocky Flats Environmental Technology Site, Colorado, the Los Alamos National Laboratory, New Mexico and the Oak Ridge Reservation, Tennessee.

To conclude the second day Mr. Kirshenber and Mr. Pendergrass briefly presented the general findings from the case studies. The third and final day of the conference began with a discussion of the role of local government in long-term stewardship findings and ended with a discussion of ideas and steps for moving forward. (The full agenda is attached as Exhibit A).

Project Overview

DOE recognizes the need to address long-term stewardship, as well as the need to involve local governments in planning along with State regulators and the EPA. The goal of the ECA and ELI Long-term Stewardship and Institutional Controls Project (Project) is to obtain input from local governments on their interest, role, and capability, if any, in working on and implementing

institutional controls and long-term stewardship activities in and around their communities. In an effort to better understand the potential roles and responsibilities, if any exist, of local governments, the Project gathered information and gained insight into the following key issues:

- ◆ Local government responsibility related to long-term stewardship and institutional controls
- ◆ Federal (DOE, EPA, other) responsibility related to long-term stewardship and institutional controls; and
- ◆ Local needs related to long-term stewardship and institutional controls.

In an effort to address and understand these issues ECA and ELI conducted case studies of three distinct areas where long-term stewardship and institutional controls are an issue: Rocky Flats in Colorado, Los Alamos in New Mexico, and Oak Ridge in Tennessee.

Participant Input on Long-term Stewardship Issues in Their Communities

In an effort to further understand the specific issues and concerns of each of the participants with regard to long-term stewardship and institutional controls, Mr. Kirshenberg and Mr. Pendergrass requested that each of the participants voice a few of their thoughts about long-term stewardship and institutional controls. The following is a list of the major concerns:

- The meaning of long-term stewardship needs to be clarified.
- DOE should consult a wider variety of groups with vested interests in the process when selecting cleanup remedies.
- Legally, there is not a clear understanding of how local and state governments are to work together on long-term stewardship issues.
- Legal mechanisms are needed to enforce institutional controls in perpetuity.
- Communities adjacent to DOE sites that require long-term stewardship and institutional controls must communicate with each other.
- DOE must understand the importance of communicating long-term stewardship issues to local governments and the public so that the process of implementation and enforcement of stewardship activities does not fail.
- What are the legal restrictions involved in land transfers and who will be responsible for remediation of property if contamination is discovered after DOE conveys property?
- Are we going to pay now or pay later, in dealing with environmental cleanup?
- Some local officials feel that there is a lack of commitment from DOE to engage in long-term cleanup activities.
- There must be an improvement in trust between DOE and local governments.
- Institutional memory is important, in order to ensure that future generations have access to information so that they are aware of contaminated areas.
- Inter-generational equality should be considered to ensure that future generations are not burdened with our waste.

SITE PANEL-ROCKY FLATS

Frazer Lockhart, DOE Rocky Flats Assistant Manager for Closure Projects

Mr. Lockhart opened the panel with a presentation on Rocky Flats and the current status of the closure project. The target of the closure group is to get Rocky Flats as close to a non-long-term stewardship site as possible. In an effort to do this DOE will move all of the plutonium off the site and demolish all of the buildings while assuring that all of the cleanup activities are completed to the appropriate level for their future use. A key issue in the cleanup of Rocky Flats is the surface water, and this concern functions as a driving force as well as the cleanup standard. Rocky Flats is unique in that it is very close to the end of cleanup, estimated in 2006, and so the issues that surround long-term stewardship are today's concerns for the site.

The groundwork for long-term stewardship at the site began in 1994 when the Rocky Flats personnel began to consider future use of the site. They determined that the final ROD will have provisions for long-term monitoring, institutional controls, deed restrictions, and mineral and water rights transfers.

David Abelson, Executive Director, Rocky Flats Coalition of Local Governments

Mr. Abelson discussed the role that the Rocky Flats Coalition of Local Governments (the "Coalition") has had with the issues of long-term stewardship at the site as well as what the Coalition feels are the major long-term stewardship/institutional control concerns. Recently the Coalition worked with the Citizen Advisory Board (CAB) of Rocky Flats in an effort to create a Rocky Flats working group that can evaluate cleanup assumptions for the site. The principal issues are the protection of human health and the environment for future generations, the removal of wastes to off-site locations, protection for the buffer zone as a national wildlife refuge, as well as the prospect of protecting the entire site, which would prohibit industrial development. The Coalition has taken the position that the site should continue to be owned by the federal government. However, local governments should have a role in land management.

The Coalition's challenge is to identify the key stewardship needs, and their role in the remedy selection process for Rocky Flats, because currently the remedy selections are not conducted with long-term stewardship issues in mind. The Coalition and the State of Colorado have worked together to develop a "toolbox" that will hopefully facilitate the integration of remedy selection and stewardship. The participants discussed the "toolbox" at length.

Dan Miller, First Assistant Attorney General for the State of Colorado

Mr. Miller discussed the attributes of effective institutional controls and the need to have an effective institutional control as part of an environmental cleanup plan. Key aspects of an effective institutional control are: enforceability, need for an institution, and a requirement for institutional memory to keep the control in place.

Mr. Miller stated that the legal enforceability of an institutional control is a concern when a contaminated site is cleaned up and then transferred. Another concern is whether or not the state

has the capacity to take care of the land. If DOE does not need the land, other federal agencies should use it because otherwise the land may transfer into private hands, which could cause problems for further environmental remediation activities.

Mr. Miller provided a critical review of the mechanisms used to control the contaminated lands should be considered. Common law, such as easements and covenants, is flawed because it is not designed for the purposes of long-term stewardship. This brings out one of the key attributes of an enforceable institutional control: the entity that creates the institutional control should be able to enforce the control. Also important is to make sure that an institution is in place that will enforce the control. In most cases the layered approach to institutional controls is the best method because oversight is needed on a site- by-site basis as well as on a statewide/national level. In addition, the real estate industry should also be educated (as well as the lessees) about the issues surrounding long-term stewardship and institutional controls that are placed on the land. Finally, Mr. Miller said that institutional memory is important. One way to retain institutional memory is to create a museum on the site that would help to maintain awareness of residual contamination.

SITE PANEL - LOS ALAMOS

Deborah Griswold, Team Leader, DOE Albuquerque Operations

Ms. Griswold reviewed the function of the Albuquerque operations office and the next steps that the office is planning to pursue. One of the next steps is to develop a field office level long-term stewardship plan in Albuquerque whose principles will include roles and responsibilities, stakeholder involvement, general planning assumptions, and how to reevaluate sites based on changes in standards or technology.

In terms of budgeting, Ms. Griswold said the Albuquerque office has created a baseline that goes to the year 2070. She also noted that the Albuquerque office does not consider long-term stewardship an option, rather it is a necessity and Los Alamos National Laboratory (LANL) must make the institutional controls work because there is just not enough money to make everything perfectly safe for everyone forever.

Greg Lewis, Director, Water and Waste Management Division, New Mexico Environment Department(NMED)

Mr. Lewis discussed a number of different factors that make the Los Alamos area unique in terms of long-term stewardship. Among these distinguishing characteristics is that Los Alamos has a continuing mission and that the geography/dispersal of the units within the area make it difficult to sufficiently cleanup many of the areas. Another issue is contamination that in some cases may be seeping towards the groundwater, even though the water table is at depths of about 1,000 ft below the surface.

Mr. Lewis mentioned that New Mexico has no set laws for institutional controls, however the NMED is currently drafting legislation that would create enforceable property law to deal with environmental issues. In general, however, the location of contamination is not well documented and the idea of long-term stewardship is in its infancy in the State and is slowly evolving.

**Fred Brueggeman, Assistant Administrator for Intergovernmental Relations,
Los Alamos County**

Mr. Brueggeman also pointed out that Los Alamos is unique because it is not a closure site and that it has had about fifty years of experience in long-term stewardship already. However, the fact that it is not a closure site does adversely affect it because in recent years much of the money that would have gone to Los Alamos for cleanup has gone to other sites that are being cleaned up to be closed, and are therefore a higher priority.

In terms of future use of the site, the County and the San Ildefonso Pueblo are planning to acquire several parcels of real property from DOE. Many parcels are “clean,” however some contain environmental contaminants and may take several years for DOE to remediate. A second issue with much of the property in the area that DOE previously owned is whether or not the people who bought the property years ago knew about the contamination, because stewardship activities were not in place when the land was transferred. Separately, there are certain areas in Los Alamos that are still so contaminated that they must be closed off to development.

Mr. Brueggeman said the County is preparing to acquire the water supply system from the DOE because it is really the only option given how little water there is in the area.

SITE PANEL - OAK RIDGE

Lorene Sigal, Oak Ridge Site Specific Advisory Board

Ms. Sigal explained that the Oak Ridge site, in contrast with the Rocky Flats and Los Alamos sites, has contamination on less than 10% of its area. These contaminated areas are divided into five watersheds, two of which are areas that will never be cleaned up.

Early in 1997, the Site Specific Advisory Board (SSAB) End Use Working Group (WG) was created. This group studied each of the five watersheds with the understanding that the wastes were not going to disappear, therefore, the WG had to accept an alternative. The stakeholders decided that they would not accept the contaminated areas in their “backyard” unless long-term stewardship practices were instituted. The stakeholders in the Oak Ridge community created a series of reports, then realized in 1998 that they had not covered all of the issues that were pertinent. Of the thirty recommendations that these reports put forth about fifteen are either completed or in progress, while there has been little action on the other fifteen. However, some of the latter recommendations require action from Congress. Accomplishments include the creation of a DOE Field Office position to deal with stewardship, a draft Oak Ridge stewardship plan and a local citizen’s long-term stewardship board. The WG is concerned because most of the citizens involved are older, so they are also actively recruiting younger people and as a result will do a mini-course in long-term stewardship at the high school next year.

Ms. Sigal noted a WG concern that stewardship requirements are not being evaluated in the remedy selection process, and that the citizens would like to see stewardship evaluated in the proposed plans so that they can have input. The WG would also like stewardship activities to be included in the CERCLA Records of Decision (RODs). Currently, the WG is dealing with the land

use control assurance plan, and updating the public involvement plan. The WG would like to see the DOE, EPA, state governments, local governments and stakeholders working together in the decision making processes.

Susan Gawarecki, Ph.D., Executive Director, Oak Ridge Local Oversight Committee

Ms. Gawarecki began her portion of the panel by offering a brief description of the Oak Ridge Local Oversight Committee (LOC). The Oak Ridge LOC draws its membership from a broader base than that of the SSAB, however, they have not been able to get a regular attendee from the EPA. This creates a problem because then the EPA does not know what the stakeholders are thinking with regards to the projects.

Currently the plan for Oak Ridge is to place a cap on contaminated areas and keep the contamination under surveillance and under federal ownership. Therefore, the federal government will provide stewardship for the sites. There is also an agreement to develop an environmental management waste facility where waste would be taken from superfund cleanups from around the Oak Ridge region. Ms. Gawarecki noted that a good example of how stewardship is moving forward at Oak Ridge is the DOE's payment into a state trust fund for long-term oversight of the site. This payment will be conducted under the auspices of a state law that is already in place.

Another concern of the LOC is the off-site areas that are contaminated by discharge. The challenge is to make sure that employees working in the industrial areas under reconstruction, with fixed contamination, are trained in radiation safety. The last issue discussed by Ms. Gawarecki was land transfers and the enforcement of deed restrictions. This issue is exemplified by a golf course with a deed restriction stating that no wells were to be drilled on the property because of a contaminated water source. However, the deed restriction was not obeyed and a well was drilled on the golf course property. In this case the violation was noticed and rectified only because a DOE official drove by the area and noticed the well, enforced the deed restrictions and consequently the well was removed.

Jerry Kuhaida, Mayor of Oak Ridge

Mayor Kuhaida opened his presentation by stressing that the city council is responsible for the future of the community. For this reason it is actively involved with economic development and the quality of life within the city. Of the industrial areas outside of the city of Oak Ridge about 5,000 acres are highly developable. In one way the lack of development in the areas can be seen as a 40% loss of revenue for the Oak Ridge economy.

The council is concerned about the pits and trenches which will not be removed, that take the contamination down river. Council members are also concerned about acting too quickly and "moving dirt" before the location and movement of the contaminants is fully understood. In terms of moving forward he felt that a GIS system for mapping where the contamination is would be a good idea. This would help with record management for the sites.

ROLE OF LOCAL GOVERNMENTS IN IMPLEMENTING LONG-TERM STEWARDSHIP ACTIVITIES

ECA and ELI reviewed with participants their findings on the role of local governments in long-term stewardship (ECA and ELI Findings are attached as Exhibit D). Participants were then asked to provide their comments on the ECA and ELI Findings, as well as provide input on the tools necessary for local government involvement in long-term stewardship activities.

Involvement in the Decisionmaking Process

- ◆ Local governments need to be actively involved in the remedy selection/decision-making process from the onset.
- ◆ Local governments request that DOE Field Office staff and local governments work as a team.
- ◆ Local governments should be notified of DOE activities that have long-term stewardship implications within their jurisdictions.
- ◆ Local governments must work with DOE to ensure long-term monitoring of land transferred out of federal ownership.
- ◆ Local governments and DOE should work together on future land use plans.
- ◆ Local governments need a permanent and meaningful role when working with federal agencies.
- ◆ Local governments should work with each other and other stakeholder groups to gain consensus on land-use.
- ◆ Local governments need to establish what their appropriate goals are in working on long-term stewardship activities, especially when there are numerous local governments adjacent to one DOE site.
- ◆ Local governments need to actively engage in long-term stewardship activities by bringing the issues to DOE and to regulators.
- ◆ DOE's Environmental Management Division should ensure that local governments and communities understand the CERCLA process and therefore the pros and cons of engaging in stewardship activities.
- ◆ DOE must be willing to consider community values and long-term health effects in any decision-making.

Information Management

- ◆ DOE and local governments should maintain a database of information that can be shared about the nature and location of contamination (i.e. a GIS). This database should be updated as technology advances and the software must be compatible between local, state and federal governments.
- ◆ Site information must be archived and documented properly by DOE.
- ◆ Local governments, the State and DOE should be proactive in sharing information with their communities about long-term stewardship.

- ◆ There should be a record of the particular successes and failures relating to implementation of long-term stewardship activities and institutional controls. This record should be widely publicized.
- ◆ There should be a federally or non-federally funded information repository that is operated by local governments. A staff position should be created to maintain the repository. This repository need not necessarily be located in a building, as this implies a static source of information. The repository should be located somewhere readily accessible to the public.
- ◆ Local governments must have access to where, how much and how mobile contamination on and off-site is.

Funding

- ◆ The federal government should be expected to continue to pay for and enforce institutional controls.
- ◆ Congress should be lobbied to provide long-term funding for stewardship activities.
- ◆ Local governments need funding for long-term stewardship activities.
- ◆ Local governments should clarify the types of funding they are looking for, and therefore, the types of activities they are willing to work on.
- ◆ Local governments must realize that involvement in long-term stewardship activities may require an unreimbursed expenditure. It is unrealistic to expect that someone else will pay for all of these activities.

Authority

- ◆ Local government needs go well beyond their current regulatory authority.
- ◆ Local governments should advocate to state legislatures to codify local government enforcement rights.
- ◆ Local governments should have the authority to enforce institutional controls on property that has been transferred from the federal government.
- ◆ It is important to note that neither DOE nor GSA has a coherent program for reinspection and enforcement of land-use restrictions for property transferred out of federal ownership.

STEPS FOR MOVING FORWARD*

The last session of the Roundtable was devoted to looking to the future and trying to decide what the next steps should be, on the part of all of the attendees, with respect to long-term stewardship on the national and local levels. Participant input has been divided into the following areas:

* The recommendations identified by participants do not necessarily represent the views of ECA or ELI. Instead, the recommendations are statements made at the meeting by participants.

Database/Information Sharing

- ◆ DOE's Office of Long-Term Stewardship should facilitate information sharing on its website.
- ◆ ECA should utilize its e-mail server to facilitate information sharing.
- ◆ ECA or DOE should create an e-mail listserve for parties interested in long-term stewardship.
- ◆ DOE should use Arcview or a similar program that has maps that can be regularly updated at the sites.
- ◆ Information relevant to long-term stewardship should be put in libraries, land archives, museums, a DOE headquarters office and provided to historical societies.
- ◆ Regulators should create within the Record of Decision (ROD), permit modification, or financial assurance package explicit requirements for a local government-run and maintained site information repository with a minimum of 30 years operation after the final closure of the facility. This should be paid for by DOE.

Local Government Tasks

- ◆ Take an active role in environmental remediation decision making at the sites.
- ◆ Clarify the funding or reimbursement needs for specific tasks.
- ◆ Determine exactly what local governments' needs are (*e.g.*, GIS system, regular briefings, local or state legislation).
- ◆ Increase attention to specific technical and policy details related to long-term stewardship.
- ◆ Educate the DOE as to a local governments' land use planning, codes, zoning and values. The opinion was expressed that DOE must be receptive, but it is primarily local government's obligation to educate the DOE.
- ◆ Investigate local government capacity for long-term stewardship and enforcement (*e.g.*, land records, zoning *etc.*).
- ◆ It is the duty of local governments to play an active role in DOE Environmental Management activities.
- ◆ Local governments must share information with each other about their respective involvement in and experience with long-term stewardship activities to learn from each other.

LEGISLATION/DOE POLICY/ENFORCEMENT OF INSTITUTIONAL CONTROLS

- ◆ Federal legislation may be needed that would require the federal government to take responsibility for contaminated sites in perpetuity.
- ◆ There is a need for a national long-term stewardship policy.
- ◆ ECA and ELI should work on developing model local and state government enforcement legislation.

- ◆ ECA and ELI should analyze the legal issues present at multiple sites for state and local governments to enforce institutional controls, and provide suggestions for improving existing authorities.
- ◆ Local governments need the authority and funding to enforce institutional
- ◆ controls within their jurisdiction.
- ◆ Local governments should also recognize that many of their long-term stewardship desires go beyond their current regulatory authority, therefore, active communication and coalition building between local and state governments is needed.
- ◆ Identify the state laws necessary for local governments to have the authority that they need to facilitate long-term stewardship and then work toward getting that legislation passed.
- ◆ Include land-use controls in ROD's and the Federal Facility Agreement (FFA) so that they are clearly enforceable under citizen suit provisions.
- ◆ The National Contingency Plan (NCP) should be revised to take into account long-term stewardship issues explicitly.
- ◆ EPA should include institutional control recommendations in its new guidance in the NCP so that failure to comply would be subject to a citizen suit.
- ◆ A plan for reinspection and enforcement of land-use restrictions on land transferred by DOE should be created.

Technology

- ◆ Organizations interested in long-term stewardship must stay involved and keep abreast of evolving environmental technology developments.
- ◆ DOE should provide funding to interested local governments so that local governments can hire staff to be technical liaisons on environmental remediation issues.
- ◆ Partnerships should be created with private industry in an effort to develop innovative remediation and information management technologies.

Funding

- ◆ DOE and state and local governments need to understand the costs of current remediation, as well as the projected cost for long-term stewardship activities, in order to plan for future funding.
- ◆ A higher reliance should be placed on cost-benefit analysis in the remedy selection process, this analysis would include studying the cost of enhanced reliance on institutional controls (e.g., the scope of work, what it would cost overall, and what it would cost to make it better).

Participants discussed the actual financing of long-term stewardship and there were a number of suggestions for methods to raise funds. These suggestions are as follows:

- ◆ Local governments should charge DOE with a tipping fee or storage fee per ton/per curie of waste left on sites for disposal.
- ◆ DOE should publish a list of surplus property and then make the list available to local government for economic development.

- ◆ Local governments should organize a uniform lobbying effort for funding of long-term stewardship.

General

- ◆ Both ECA and ELI need to continue to promote the issues of long-term stewardship and institutional controls, as well as continue to help the people working on these issues at the local level.
- ◆ The 'toolbox' created by local governments and the State at Rocky Flats should be expanded, to act as a standardized resource for all sites who will need long-term stewardship.
- ◆ Be sure that the new ECA and ELI case study gets a lot of press and exposure.
- ◆ Participants suggested reading the new ELI report, "Protecting Public Health at Superfund Sites: Can Institutional Controls Meet the Challenge?," the Oak Ridge SSAB report "Stakeholder Report on Stewardship," and the DOE Report "Managing Data for Long-Term Stewardship," prepared by ICF Kaiser.
- ◆ Local governments should be worried about sites remaining in federal ownership.
- ◆ Long-term stewardship must provide a mechanism that will alert future generations of hazards long after those who remember the hazards are gone.

EXHIBIT A
ENERGY COMMUNITIES ALLIANCE
&
ENVIRONMENTAL LAW INSTITUTE

ROLE OF LOCAL GOVERNMENT LONG-TERM STEWARDSHIP
AND
INSTITUTIONAL CONTROLS PROJECT

Roundtable
August 2-4, 2000
Hyatt Regency Hotel
Denver, Colorado

PRELIMINARY AGENDA

Wednesday, August 2, 2000

3:45-4:00 Pre-registration

4:00-6:00 Primer on Institutional Controls (optional)
This session will provide participants with a background on long-term stewardship and institutional controls issues. The session will include a lengthy question and answer session.

Thursday, August 3, 2000

7:30-8:30 Continental Breakfast
Registration

8:30-8:45 Welcome
DOE Rocky Flats Site Manager Barbara Mazurowski will give a brief welcome.

8:45-9:15 Introduction
ECA, ELI and DOE will brief the participants on their background and involvement in long-term stewardship issues.

9:15-9:45 Project Overview/Context
ECA/ELI will brief the participants on the ECA/ELI long-term stewardship project and provide an overview of the findings. DOE will provide a brief overview of its current long-term stewardship activities.

- 9:45-10:15 Participant Input
Each participant will provide input on long-term stewardship issues and concerns.
- 10:15-10:30 Break
- 10:30-11:30 Site Panel – Rocky Flats
Panelists: Dan Miller, First Assistant Attorney General, State of Colorado
Frazer Lockhart, DOE Rocky Flats Assistant Manager for Closure Projects
David Abelson, Executive Director, Rocky Flats Coalition of Local Governments
Tom Marshall, Executive Director, Rocky Mountain Peace and Justice Center
- 11:30-12:30 Site Panel – Los Alamos
Panelists: Deborah Griswold, Team Leader, DOE Albuquerque Operations
Greg Lewis, Director, Water and Waste Management Division, New Mexico Environment Department
Fred Bruggeman, Asst. Administrator for Intergovernmental Relations, Los Alamos County
- 12:30-1:45 Lunch
- 1:45-2:30 Site Panel – Oak Ridge
Panelists: Jerry Kuhaida, Mayor, Oak Ridge
Lorene Sigal, Oak Ridge Site Specific Advisory Board
- 2:30-2:45 Break
- 2:45-4:15 Findings
ECA/ELI will present general findings and policy recommendations. Each participant will comment on the findings.
- 5:30-6:30 Reception at the Hotel
- 7:00 Dinner (on own)

Friday, August 4, 2000

- 8:00-8:30 Continental Breakfast

- 8:30-10:15 Discussion of Role of Local Government in Long-Term Stewardship Findings
ECA and ELI will provide overall findings on the role of local governments in long-term stewardship. Participants will provide input on the ECA and ELI findings on the role of local government in long-term stewardship.
- 10:15-10:30 Break
- 10:30-11:30 Discussion of Role of Local Government: Tools and Recommendations
Participants will determine the tools needed for local governments to work on and implement institutional controls and long-term stewardship activities.
- 11:30-12:30 Ideas for Moving Forward
DOE will address the role of local government in long-term stewardship. ECA and ELI staff will summarize the issues from the meeting and present ideas for moving forward.

EXHIBIT B

DRAFT

ENERGY COMMUNITIES ALLIANCE AND ENVIRONMENTAL LAW INSTITUTE

ROLE OF LOCAL GOVERNMENT IN LONG-TERM STEWARDSHIP PROJECT

GENERAL LTS FINDINGS

Below are Draft General Findings from the case studies of Rocky Flats Environmental Technology Site, Los Alamos National Laboratory and the Oak Ridge Reservation. ECA and ELI have grouped the Draft General Findings by subject matter.

General Findings

1. Long-term stewardship does not seem to be integrated into the removal and remedy selection or RCRA process at all of the DOE sites.
2. DOE has not identified the parties that will be responsible for implementing long term stewardship programs at the sites.
3. The parties being relied upon by DOE and the regulators to implement the remedy (i.e. undertake a role in long-term stewardship) must be willing to undertake the role and must be integrated into the remedy decision making process.
4. DOE has not worked with non-regulators at any of the case study sites to develop a long-term stewardship implementation plan, even where DOE will rely upon long-term stewardship in its remedy for the site.
5. Long-term stewardship will depend upon numerous laws and institutions that vary from state to state.
6. The environmental, land use, and real property regulatory environment of each state and local jurisdiction must be fully understood by DOE and the regulators when relying upon institutional controls and other regulatory long-term stewardship mechanisms.
7. DOE Field Offices have not instituted a formal review process to enforce institutional controls on property that the Department has transferred with deed restrictions.
8. Most entities do not believe that DOE has documented or fully characterized environmentally contaminated sites on DOE facilities. However, there is an expectation that DOE will fully document the sites and provide the information to the local communities.
9. Long-term stewardship is still a “new” issue for DOE, states, tribes, local governments, and citizens.
10. Many of the organizations focusing on long-term stewardship are relying upon the state or EPA to oversee long-term stewardship activities at the sites.

11. Citizen, local governments and state regulators are advocating long-term stewardship discussions at the sites – not the DOE field offices.
12. DOE does not have a national policy that is implemented in the field on long-term stewardship.
13. Many of the DOE sites are remediated under removal actions and RCRA process versus records of decisions (RODs). At these sites long-term stewardship may not be integrated into the DOE and regulator decision making process and the public comment process until after the remedy is complete and the long-term stewardship decision is made by default.

Funding/Capacity

1. Funding for long-term stewardship is a major determinant of the capacity of all government agencies, as well as DOE, to implement long-term stewardship activities.
2. Some state regulators believe that the current regulatory scheme of the state overseeing DOE activities works. However, others believe changes are needed in their state laws in order to successfully implement long-term stewardship activities.
3. Many states are willing to play a role in long-term stewardship as long as there is funding for their activities.
4. Tribes would like more funding in order to educate themselves on environmental issues, including long-term stewardship. Many Tribes advocates that all environmentally contaminated sites should be remediated to a level that will allow unrestricted use and will not require institutional controls.
5. Annual funding from the Federal government is not reliable.
6. Most entities do not trust the Federal budget process to ensure a steady and sufficient funding stream for long-term stewardship activities.

Record-keeping

1. On and off-site environmental contamination locations are not always available to the public on an updated basis.
2. Environmental records are not always maintained at the site.
3. Environmental, building maintenance and building activity records are often misplaced.
4. Most parties are concerned about DOE's ability to maintain records of the site – especially closure sites.

Public Communication

1. Long-term Stewardship education is beginning at DOE facilities – led by the citizens groups.
2. DOE's public information activity of disclosing the location of environmental contamination is important to the success of long-term stewardship activities.
3. The importance of security at DOE sites can have a negative impact on long-term stewardship activities, especially in terms of documenting contamination and

providing access to site records. However, most people interviewed understand the need for security at the sites.

4. DOE Field Offices have a difficult time retaining continuity in its newly created long-term stewardship positions.
5. The public, generally, even adjacent to DOE facilities, is not aware of the meaning of long-term stewardship.
6. Most interviewees felt that DOE does not communicate with them regarding long-term stewardship in relation to specific remedy selection or removal action decisions on-going at their sites.

Enforcement

1. DOE Field office staff frequently assume that state or local governments will enforce deed restrictions. State and local governments may not have the authority to enforce deed restrictions and rarely have the staff or funding to do so.
2. DOE and the regulators need understand and assign roles and responsibilities of each party that will enforce long-term stewardship activities.
3. Currently, when property is conveyed, often the only institutional controls in place are the deed restrictions.
4. There are no real property law based institutional controls on DOE sites – beyond federal ownership – to enforce. However, there are environmental information sources on environmental issues at DOE facilities.
5. One entity is not an effective monitor of itself – redundancy of enforcement, where possible, is needed.

Monitoring

1. When citizens are aware that contamination exists in a certain location, they are interested and want to take a role in monitoring.

EXHIBIT C

DRAFT

ENERGY COMMUNITIES ALLIANCE AND ENVIRONMENTAL LAW INSTITUTE

ROLE OF LOCAL GOVERNMENT IN LONG-TERM STEWARDSHIP PROJECT

LOCAL GOVERNMENT FINDINGS

Below are Draft Local Government Findings from the case studies of Rocky Flats Environmental Technology Site, Los Alamos National Laboratory and the Oak Ridge Reservation. ECA and ELI have grouped the Draft Local Government Findings by subject matter.

General Findings

1. Local governments are interested in working with the DOE and regulators on long-term stewardship issues.
2. DOE has not asked a local government to participate in actual long-term stewardship activities at any of the case study sites.
3. Currently, local governments have no formal role and are not able to participate in the formal remedy selection process, RCRA process or the Federal Facility Agreement at each site.
4. Long-term stewardship is still a “new” issue for local governments, DOE and states.
5. Local governments do not believe that DOE Field Offices have a plan for long-term stewardship.
6. Local governments are ‘asset’ holders, not ‘stake’ holders.
7. At the case study sites, local governments have regulatory land use jurisdiction over the DOE site but not Federal activities.
8. If a local government will participate in implementing long-term stewardship activities to implement the remedy, that local government must be willing to undertake the role and must be integrated into the remedy decision making process.
9. Local governments and others expect that DOE will document and fully characterize environmentally contaminated sites on DOE facilities and share the information with the public and local governments.
10. Where a local government is acquiring real property from DOE, generally the local government’s preference is for a level of remediation that will not require long-term stewardship controls (i.e. deed restrictions).
11. If DOE would like local governments to have a role in implementing and enforcing institutional controls and participating in long-term stewardship activities, it must consult

with the local government that has land use jurisdiction over the site and develop a long-term stewardship agreement.

12. Local governments are relying on states to have a role in implementing and enforcing long-term stewardship on DOE sites. Where property is conveyed to a non-Federal entity, local governments stated that states should have a role in enforcing institutional controls where contamination is left in place.
13. Local governments are concerned about whether they would have increased financial liability if they undertook a formal long-term stewardship role.
14. DOE is not communicating long-term stewardship activities on- and off- site to the affected local government(s) on a regular basis.

Funding/Capacity

1. Funding for long-term stewardship is a major determinant of the capacity of local governments, as well as DOE and the state, to implement long-term stewardship activities.
2. Local governments have little or no experience enforcing institutional controls that are in place as part of an environmental remedy.
3. Local governments require additional training and expertise to develop the capacity to implement or enforce long-term stewardship activities.

Record-keeping

1. Several local governments indicated that DOE environmental contamination information should be linked into the local GIS and record-keeping systems to ensure that City/County offices have access to the information when it makes permitting and other land use decisions.
2. Local governments, in general, are willing to perform record-keeping activities, as long as there is funding for the additional costs of taking on the record-keeping activities.
3. Local governments may need to develop new information management systems in order to handle DOE site records.
4. Several local governments indicated that a museum (at a closure site) is the proper place to store records of the site to create a long-term repository that is accessible to the local community.

DOE Public Communication

1. DOE does not always communicate issues to local governments relating to long-term stewardship. Conversely, most SSABs felt that DOE did communicate with them regarding long-term stewardship.

Enforcement

1. DOE Field Office staff do not expect that there will be any role for local governments in long-term stewardship on-site at active sites.
2. Most local governments do not see a role in long-term stewardship on-site.
3. Local governments would like property that is remediated to a level that will not require institutional controls.

4. Currently, when property is conveyed, the only institutional controls in place are the deed restrictions.
5. On-site, local governments rely upon the state for enforcement of institutional controls. Off-site, local governments may be willing to undertake a role, where requested by DOE, to enforce institutional controls (if the local government has the capacity).
6. Local governments around the case study sites have no significant experience enforcing environmental institutional controls.

Monitoring

1. Local governments rely on DOE and the state to monitor environmental contamination on-site.
2. Local governments rely on the state to monitor environmental contamination off-site.
3. Los Alamos had the community involved in monitoring, both on and off-site, through a LANL program. At Rocky Flats, the cities of Westminster and Broomfield have conducted monitoring for groundwater contamination.
4. When citizens are aware that contamination exists in a certain location, they are interested and want to take a role in monitoring.
5. Many local governments have dealt with failures of DOE to inform local governments of monitoring results. Many local governments are skeptical of the accuracy of monitoring data being supplied by DOE.

EXHIBIT D

7/27/00

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ENERGY COMMUNITIES ALLIANCE AND ENVIRONMENTAL LAW INSTITUTE

ROLE OF LOCAL GOVERNMENT IN LONG-TERM STEWARDSHIP PROJECT

POLICY RECOMMENDATIONS

1. DOE should develop and implement a national policy on long-term stewardship.
2. DOE and the applicable regulators should integrate long-term stewardship into the cleanup decision making processes under CERCLA, RCRA, and other authorities.
3. Long-term stewardship should be considered at the same time and with the same level of investigation and analysis as engineering solutions to risk management.
4. Specific mechanisms for implementing long-term stewardship, and the parties responsible for implementing them, should be identified as part of any decision to rely on long-term stewardship.
5. Whenever local governments, or other entities, will be expected to carry out a role or responsibility in long-term stewardship, the local government or other entity must be included in the decision making process.
6. Local governments should be consulted early in the decision making process for any off-site cleanup and for any on-site cleanup on land that may be transferred out of federal ownership.
7. DOE and the applicable regulators should ensure that they understand the environmental, land use, and real property laws and regulations of the state and local jurisdictions when relying on institutional controls and other regulatory or institutional mechanisms for long-term stewardship.
8. DOE and the applicable regulators should ensure that they understand the cultural, social, economic, and political environments of the neighboring communities and how they might affect long-term stewardship before making cleanup decisions that necessitate long-term stewardship.
9. DOE should improve the characterization of potential release sites at its facilities.
10. DOE should improve its systems for making information about site characterization available to the public.

11. Before making a decision to remediate a site to a level that would not allow unrestricted use, a cost benefit analysis should be undertaken to compare the costs and benefits of remediating to a level that would allow unrestricted use compared to restricted use combined with long-term stewardship. Such a comparison should include the relative benefits to neighboring communities of the different uses, as well as the long-term costs of long-term stewardship.
12. Monitoring and enforcement of long-term stewardship activities should be integrated into the duties and responsibilities of federal, state, and local regulators. Citizens and non-governmental organizations should be encouraged to monitor and enforce long-term stewardship commitments.
13. Implementation, monitoring, and enforcement of long-term stewardship should follow fail-safe principles, including redundancy of functions.
14. DOE should provide funding for local government activities associated with implementing, monitoring, and enforcing long-term stewardship. Such funding should be provided in a manner that allows local governments to make long-term commitments, such as multi-year contracts. Such funding methods could include one-time payments of the entire estimated life cycle costs or payments to cover specified multiple-year periods.
15. Records relating to site characterization, risk assessments, cleanup standards, completion reports, and long-term stewardship, at a minimum, should be kept on-site or in close proximity to the site, and be made available to the public.
16. The records described above should also be included in a national archive in a manner that facilitates access to and use of the information contained in the records.
17. DOE should work with states and local governments to educate citizens and perform outreach about the potential risks posed by residual contamination and about methods of avoiding those risks, including compliance with institutional controls.
18. DOE should not rely on SSABs for its outreach to local governments, but should meet with, seek input from, and discuss long-term stewardship directly with local governments.

APPENDIX C

PROJECT QUESTIONNAIRES

ECA/ELI Long-Term Stewardship/Institutional Controls Case Study Questionnaire for Local Government Officials

DEFINITIONS

Institutional Controls: Legal, administrative, or institutional mechanisms for restricting use of a site (including managing risk to human health or the environment at contaminated sites). Examples of institutional controls include zoning limitations, notices and warnings, record keeping requirements, and permit programs.

Long-term Stewardship: All activities required to maintain an adequate level of protection of human health and the environment from the hazards posed by nuclear and/or chemical materials, waste, residual contamination or infrastructure remaining after the cleanup strategy selected in the record of decision is implemented.

In preparation for our interview for the ECA/ELI case studies, please review the following list of questions. These questions are intended to be a resource for you in identifying the issues involved in long-term stewardship and the implementation of institutional controls. Please note that some questions may not pertain to your site.

If you have any questions, please contact Audrey Eidelman, ECA at (202) 828-2318 or Rebecca Jensen, ELI at (202) 939-3247.

Existing System

1. How are land use restrictions recorded on property in your jurisdiction (deed, central repository, property transfer deed, etc.)?
2. What types of governmental institutional controls (e.g., zoning, permits, etc.) are available in your jurisdiction? In your state?
3. What methods are used to provide notice of institutional controls at a site to:
 - a) A prospective buyer?
 - b) An local or state governmental office responsible for issuing permits?
 - c) A state agency?
 - d) A federal agency?
 - e) An Indian Nation/Tribe?
 - f) Another local government office that needs the information (please list offices and explain)?
 - g) Citizens?

4. What methods are available and instituted in your area to search records for institutional controls by:
 - a) The local government?
 - b) A private party?
5. How are institutional controls enforced in your jurisdiction (i.e., building and property inspections; notice from citizens)?
6. What level of government and office is responsible for overseeing and enforcing institutional controls (i.e., zoning board of adjustment; land use control board; planning commission, building permit inspector, local health department)?
7. What governmental entity (i.e., local, regional, state, federal) is responsible for implementing environmental land use controls in your jurisdiction?
8. How often are sites investigated to determine if the owner or user of the property is adhering to the institutional controls?
9. How does your jurisdiction fund activities associated with institutional controls?

Past Operational Experience

10. Has your jurisdiction ever implemented land use controls at a contaminated site? (If no, go to question 13.)
11. Is your jurisdiction responsible for enforcing those land use controls (please explain)?
12. How successful has your jurisdiction been in enforcing institutional controls at contaminated sites? Do you know of an example of a breach of institutional controls in your jurisdiction and how the situation was discovered and remedied?
13. What system does your jurisdiction have (if any) for avoiding breaches?
14. What process is available to change an existing governmental institutional control?
15. How confident are you that a present owner cannot breach a governmental institutional control without the knowledge of the local jurisdiction (please explain)?
16. If a property is zoned industrial, how easy or difficult would it be for a property owner to:
 - a) Use the property as a residential use?
 - b) Change the zoning to residential or commercial (please explain)? (Or are such uses allowed within an area zoned industrial?)
 - c) What if the project has strong political backing (please explain)?
17. Are deeds or any other records searched before the zoning of a property is changed?

18. When a community develops a long-term land use plan, are the deed restrictions on property within the community reviewed? (Is the state registry (if any) or other lists of contaminated sites reviewed?)

Specific Jurisdiction

19. How much has your jurisdiction contemplated implementation and enforcement of institutional controls and/or participating in long-term stewardship activities at sites on the DOE facility not cleaned up to levels permitting unrestricted use?

20. How does your jurisdiction expect to implement and enforce institutional controls on the DOE facility in your community (please consider both property that will be conveyed; if any, and long-term stewardship property)?

21. Does your community have sufficient funds to implement and enforce controls at sites that are cleaned up to a risk-based level (please explain)? If property in the community is cleaned up to a level that is protective of human health and the environment for industrial use only?

22. How would your jurisdiction implement and enforce the governmental controls?

23. What type of controls would you rely upon?

24. How much would it cost your jurisdiction (please attempt to estimate)? Who would you expect to pay?

25. How would the jurisdiction maintain records?

Please consider the following hypothetical questions:

26. DOE remediates a property located within your jurisdiction to a risk-based standard that does not permit a future use other than a “park” where certain portions are off limits. DOE does not convey ownership of the property. Statistically, if used as a restricted use “park,” the site does not pose a threat to human health and the environment.

- What role would your jurisdiction be willing to undertake to ensure the site remains protective of human health and the environment?
- What legal authority do you have over the site?
- Do you care about the site since DOE will maintain control over the site?
- Do you feel confident that the site will remain protective of human health and the environment?
- How would the public be educated about risks posed by the site?
- Would you be willing to monitor the site? Would DOE need to pay the costs of monitoring?
- What role should local government have at these sites?

27. DOE is transferring the property via deed. The deed’s language prohibits the use of groundwater as a drinking source and the digging of soil beyond 6 feet.

- How would the local government implement and enforce institutional controls at the site?
- What entity would enforce the controls?
- How easy would it be for the owner to change the use of the site?
- What would happen if 10 years later, a new owner of the property digs multiple holes that are 12 feet deep? How would your jurisdiction react?

Specific Site Questions Will Be Asked By The Interviewer

ECA/ELI Long-Term Stewardship/Institutional Controls Case Study Questionnaire for DOE Officials

DEFINITIONS

Institutional Controls: Legal, administrative, or institutional mechanisms for restricting use of a site (including managing risk to human health or the environment at contaminated sites). Examples of institutional controls include zoning limitations, notices and warnings, record keeping requirements, and permit programs.

Long-term Stewardship: All activities required to maintain an adequate level of protection of human health and the environment from the hazards posed by nuclear and/or chemical materials, waste, residual contamination or infrastructure remaining after the cleanup strategy selected in the record of decision is implemented.

In preparation for our interview for the ECA/ELI case studies, please review the following list of questions. These questions are intended to be a resource for you in identifying the issues involved in long-term stewardship and the implementation of institutional controls. Please note that some questions may not pertain to your site.

If you have any questions, please contact Audrey Eidelman, ECA at (202) 828-2318 or Rebecca Jensen, ELI at (202) 939-3247.

Existing System

1. How are land use restrictions recorded for property at your facility transferred out of federal control (deed, central repository, property transfer deed, etc.)?
2. What types of governmental institutional controls (e.g., zoning, permits, etc.) are available to your facility, if any?
3. What methods are used to provide notice of institutional controls at your facility to:
 - a) A prospective buyer?
 - b) A local or state governmental office responsible for issuing permits?
 - c) Other state agencies?
 - d) Other federal agencies?
 - e) An Indian Nation/Tribe?
 - f) A local government office that needs the information?
 - g) Citizens?
4. What methods are available to search records for institutional controls by:
DOE?
Another federal government agency?

The state government?
The local government?
A private party?

5. How will institutional controls be enforced in the jurisdiction in which your facility is located (i.e., building and property inspections; notice from citizens)?
6. What governmental entity (i.e., local, regional, state, federal) is/will be responsible for implementing environmental land use controls in your site?
7. How often should conveyed property be investigated to determine if the owner or user of the property is adhering to the institutional controls?
8. How does your facility fund activities associated with institutional controls?

Past Operational Experience

9. Has your facility transferred property out of federal ownership? (If no, go to Question 12.)
10. Has any of the property required institutional controls? If so, what kind?
11. Who, if anyone, is responsible for enforcing the land use controls at the transferred property (please explain)?
12. How successful has enforcement of institutional controls been for contaminated property? Do you know of an example of a breach of institutional controls on property transferred by your facility and how the situation was discovered and remedied?
13. What system does your facility have (if any) for avoiding breaches?
14. What process is available to change an existing governmental institutional control?
15. How confident are you that a future owner will not be able to breach a governmental institutional control without the knowledge of DOE (please explain)?

Specific Jurisdiction

16. How much have the jurisdictions surrounding your facility (state and local) contemplated implementation and enforcement of institutional controls and/or participated in long-term stewardship activities at sites on your facility that will not be cleaned up to levels permitting unrestricted use?
17. What types of controls are being contemplated?
 - _ Who should be responsible for record keeping?
 - _ How would records be kept?
18. How much will implementing these controls cost (please attempt to estimate)?

19. What do you consider to be the proper role, if any, of state and local governments?
20. Do you expect any local governments in your area to be responsible for implementing Long-Term Stewardship activities? What will be their role?
21. Do you expect the Federal government to fund any of the activities? Why would they fund them, and how?

Please consider the following hypothetical questions:

22. DOE remediates a property to a risk-based standard that does not permit a future use other than a “park” where certain portions are off limits. DOE does not convey ownership of the property. Statistically, if used as a restricted use “park,” the site does not pose a threat to human health and the environment.
 - What types of institutional controls would you consider using?
 - How would the public be educated about risks posed by the site?
 - Who would be responsible for coordination among all the governmental entities (i.e., local governments, state agencies, Indian tribes, other federal agencies)?
 - What role should local government have at these sites?
23. DOE is transferring the property via deed. The deed’s language prohibits the use of groundwater as a drinking source and the digging of soil beyond 6 feet.
 - What entity would enforce the controls?
 - How easy would it be for the owner to change the use of the site?
 - What would happen if 10 years later, a new owner of the property digs multiple holes that are 12 feet deep? How would your facility react?

Specific Site Questions Will Be Asked By The Interviewers

ECA/ELI Long-Term Stewardship/Institutional Controls Case Study Questionnaire for State Government Officials

DEFINITIONS

Institutional Controls: Legal, administrative, or institutional mechanisms for restricting use of a site (including managing risk to human health or the environment at contaminated sites). Examples of institutional controls include zoning limitations, notices and warnings, record keeping requirements, and permit programs.

Long-term Stewardship: All activities required to maintain an adequate level of protection of human health and the environment from the hazards posed by nuclear and/or chemical materials, waste, residual contamination or infrastructure remaining after the cleanup strategy selected in the record of decision is implemented.

In preparation for our interview for the ECA/ELI case studies, please review the following list of questions. These questions are intended to be a resource for you in identifying the issues involved in long-term stewardship and the implementation of institutional controls. Please note that some questions may not pertain to your site.

If you have any questions, please contact Audrey Eidelman, ECA at (202) 828-2318 or Rebecca Jensen, ELI at (202) 939-3247.

Existing System

1. How are land use restrictions recorded on property in the jurisdiction the facility is located in (deed, central repository, property transfer deed, etc.)?
2. What types of governmental institutional controls (e.g., zoning, permits, etc.) are available in this jurisdiction?
3. What are the legal authorities of the state to implement Long-Term Stewardship on the DOE facility? What about former DOE property?
4. What are the legal authorities of the local governments to implement Long-Term Stewardship on the DOE facility?
5. What methods are used to provide notice of institutional controls at a site to:
 - a) A prospective buyer?
 - b) A local or state governmental office responsible for issuing permits?
 - c) Another state agency?
 - d) A federal agency?
 - e) An Indian Nation/Tribe?

- f) A local government office that needs the information?
- g) Citizens?

6. What methods are available to search records for institutional controls by:
 - a) The local government?
 - b) A prospective buyer?
 - c) A citizen?
7. How are institutional controls enforced in the jurisdiction (i.e., building and property inspections; notice from citizens)?
8. What level of government and office is responsible for overseeing and enforcing institutional controls (i.e., zoning board of adjustment; land use control board; planning commission, building permit inspector, local health department)?
9. What governmental entity (i.e., local, regional, state, tribal, federal) is responsible for implementing environmental land use controls in your jurisdiction?
10. How often are sites investigated to determine if the owner or user of the property is adhering to the institutional controls?
11. How do you fund your activities associated with institutional controls?

Past Operational Experience

12. Has your agency ever been involved in implementing land use controls at a contaminated site? (If no, go to question 13.) At a DOE site (please consider both property that has been conveyed and long-term stewardship property)?
13. Who is responsible for enforcing those land use controls (please explain)?
14. How successful has enforcement of institutional controls been at contaminated sites? Do you know of an example of a breach of institutional controls (if any) in your state and how the situation was discovered and remedied?
15. What system does your agency have (if any) for avoiding breaches?
16. What process is available to change an existing governmental institutional control?
17. How confident are you that a present owner cannot breach a governmental institutional control without the knowledge of your agency (please explain)?

Planning

18. How much has your State contemplated implementation and enforcement of institutional controls and/or participating in long-term stewardship activities at sites on the DOE facility not cleaned up to levels permitting unrestricted use?

19. What future does your State see in the use of institutional controls and other long-term stewardship activities?
20. How does your agency expect to implement and enforce institutional controls at DOE facilities (please consider both property that will be conveyed and long-term stewardship property)? Does your agency have a formalized plan? How long will it take to implement?
21. What type of controls would your agency rely upon?
22. What is the proper role for local governments (please explain)? What should be the source of their funding?
23. Should federal sites be treated differently than non-federal sites (please explain)?
24. Who should be responsible for record keeping? Why?
25. How would their records be maintained?

Please consider the following hypothetical questions:

26. DOE remediates a property to a risk-based standard that does not permit a future use other than a “park” where certain portions are off limits. DOE does not convey ownership of the property. Statistically, if used as a restricted use “park,” the site does not pose a threat to human health and the environment.
 - What is the role of the State?
 - What legal authority does your agency have over the site?
 - What role would your agency be willing to undertake to ensure the site remains protective of human health and the environment?
 - What is the role of the Federal government?
 - Do you feel confident that the site will remain protective of human health and the environment?
 - What role should local government have at this site?
27. DOE is transferring the property via deed. The deed’s language prohibits the use of groundwater as a drinking source and the digging of soil beyond 6 feet.
 - What entity would enforce the controls?
 - How would your agency assist local governments in implementing and enforcing institutional controls at the site?
 - How would your agency react if 10 years later, a new owner of the property digs multiple holes that are 12 feet deep?

Specific Site Questions Will Be Asked By The Interviewers

ECA/ELI Long-Term Stewardship/Institutional Controls Case Study Questionnaire for Tribal Government Officials

DEFINITIONS

Institutional Controls: Legal, administrative, or institutional mechanisms for restricting use of a site (including managing risk to human health or the environment at contaminated sites). Examples of institutional controls include zoning limitations, notices and warnings, record keeping requirements, and permit programs.

Long-term Stewardship: All activities required to maintain an adequate level of protection of human health and the environment from the hazards posed by nuclear and/or chemical materials, waste, residual contamination or infrastructure remaining after the cleanup strategy selected in the record of decision is implemented.

In preparation for our interview for the ECA/ELI case studies, please review the following list of questions. These questions are intended to be a resource for you in identifying the issues involved in long-term stewardship and the implementation of institutional controls. Please note that some questions may not pertain to your site.

If you have any questions, please contact Audrey Eidelman, ECA at (202) 828-2318 or Rebecca Jensen, ELI at (202) 939-3247.

Existing System

1. How are land use restrictions recorded on property in the jurisdiction the facility is located in (deed, central repository, property transfer deed, etc.)?
2. What types of governmental institutional controls (e.g., zoning, permits, etc.) are available in this jurisdiction? In the state? To your Nation/Tribe?
3. What methods are used to provide notice of institutional controls at a site to:
 - a) A prospective buyer?
 - b) A governmental office responsible for issuing permits?
 - c) A state agency?
 - d) A federal agency?
 - e) A Nation/Tribe?
 - f) A local government office that needs the information?
 - g) Citizens
4. What methods are available to search records for institutional controls by:
How are institutional controls enforced on Nation/Tribal lands (i.e., building and property inspections, notice from citizens)?
 - a) The local government?

- b) A prospective buyer?
- c) A Nation/Tribe?

5. What level of government and office is responsible for overseeing and enforcing institutional controls in your community?
6. What governmental entity (i.e., local, regional, tribal, state, federal) is responsible for implementing environmental land use controls in your community?
7. How often are sites investigated to determine if the owner or user of the property is adhering to the institutional controls?
8. How does your Nation/Tribe fund activities associated with institutional controls?

Past Operational Experience

1. Has your Nation/Tribe ever been involved in implementing land use controls at a contaminated site? (If no, go to question 12.)
2. Who is responsible for enforcing those land use controls (please explain)?
3. How successful has enforcement of institutional controls been at contaminated sites? Do you know of an example of a breach of institutional controls (if any) at a site near you and how the situation was discovered and remedied?
4. What process is available to change an existing governmental institutional control?
5. How confident are you that a present owner cannot breach a governmental institutional control without the knowledge of your Nation/Tribe (please explain)?

Planning

6. How much has your Nation/Tribe contemplated implementation and enforcement of institutional controls and/or participating in long-term stewardship activities at sites on the DOE facility not cleaned up to levels permitting unrestricted use?
7. How does your Nation/Tribe expect to participate in the implementation and enforcement of institutional controls on the DOE facility in your community (please consider both property that will be conveyed and long-term stewardship property)? Will your Nation/Tribe control any property conveyed?
8. Does your Nation/Tribe have sufficient funds to implement and enforce controls at sites that are cleaned up to a risk-based level (please explain)? If the property is cleaned up to a level that is protective of human health and the environment for industrial use only?
9. What type of controls would you rely upon?
10. How much would it cost your Nation/Tribe (please attempt to estimate)?

Please consider the following hypothetical questions:

11. DOE remediates a property located within your jurisdiction to a risk-based standard that does not permit a future use other than a “park” where certain portions are off limits. DOE does not convey ownership of the property. Statistically, if used as a restricted use “park,” the site does not pose a threat to human health and the environment.
 - What role would your Nation/Tribe be willing to undertake to ensure the site remains protective of human health and the environment?
 - What legal authority does your Nation/Tribe have over the site?
 - Will your Nation/Tribe remain involved with the site since DOE will maintain control over it?
 - Do you feel confident that the site will remain protective of human health and the environment?
 - Would your Nation/Tribe be willing to monitor the site? Would DOE need to pay the costs of monitoring?

12. DOE is transferring the property via deed. The deed’s language prohibits the use of groundwater as a drinking source and the digging of soil beyond 6 feet.
 - How would institutional controls be implemented and enforced at the site?
 - What would happen if 10 years later, a new owner of the property digs multiple holes that are 12 feet deep?
 - How would your Nation/Tribe react?

Specific Site Questions Will Be Asked By The Interviewers

ECA/ELI Long-Term Stewardship/Institutional Controls Case Study Questionnaire for Citizens

DEFINITIONS

Institutional Controls: Legal, administrative, or institutional mechanisms for restricting use of a site (including managing risk to human health or the environment at contaminated sites). Examples of institutional controls include zoning limitations, notices and warnings, record keeping requirements, and permit programs.

Long-term Stewardship: All activities required to maintain an adequate level of protection of human health and the environment from the hazards posed by nuclear and/or chemical materials, waste, residual contamination or infrastructure remaining after the cleanup strategy selected in the record of decision is implemented.

In preparation for our interview for the ECA/ELI case studies, please review the following list of questions. These questions are intended to be a resource for you in identifying the issues involved in long-term stewardship and the implementation of institutional controls. Please note that some questions may not pertain to your site.

If you have any questions, please contact Audrey Eidelman, ECA at (202) 828-2318 or Rebecca Jensen, ELI at (202) 939-3247.

Existing System

1. What do you think of utilizing institutional controls at the site or on property conveyed to the local community? Why?
2. Have you been involved in the implementation and/or enforcement of institutional controls at a site with residual hazardous contamination (please explain)?
3. Have you ever searched available records for institutional controls? How easy was it to find the information you were looking for?

Planning

4. How do you expect institutional controls will be implemented and enforced at the DOE facility in your community (please consider both property that will be conveyed and long-term stewardship property)? On property conveyed from DOE to the local community or state?
5. What type of controls would you rely upon?

6. What do you think is the proper role of local governments at property remediated to a level that would require LTS activities at the site? On property conveyed to the community?
Past Operational

7. Do you know of an example of a breach of institutional controls (if any) in your community and how the situation was discovered and remedied?
8. Who was responsible for enforcing those controls (please explain)?
9. What system exists at (if any) for avoiding breaches?
10. What process is available to change an existing governmental institutional control?
11. How confident are you that a present owner cannot breach a governmental institutional control without the knowledge of you or the enforcing entity (please explain)?
12. If a property is zoned industrial, how easy or difficult would it be for a property owner to:
 - a) Use the property as a residential use?
 - b) Change the zoning to residential or commercial (please explain)? (Or are such uses allowed within an area zoned industrial?)
 - c) What if the project has strong political backing (please explain)?

Please consider the following hypothetical questions:

13. DOE remediates a property to a risk-based standard that does not permit a future use other than a “park” where certain portions are off limits. DOE does not convey ownership of the property. Statistically, if used as a restricted use “park,” the site does not pose a threat to human health and the environment.

- Do you feel confident that the site will remain protective of human health and the environment?
- What role should local government have at these sites?

14. DOE is transferring the property via deed to a private local business. The deed’s language prohibits the use of groundwater as a drinking source and the digging of soil beyond 6 feet.

- What entity should enforce the controls?
- How would you react if 10 years later, a new owner of the property digs multiple holes that are 12 feet deep?

Specific Site Questions Will Be Asked By The Interviewers

APPENDIX D

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APPENDIX E

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APPENDIX F

Applicable Federal Long-Term Stewardship Orders and Policies

Several different acts and regulations govern DOE sites as they clean up, close, and enter into long-term stewardship. The following list provides brief discussions and links to the organizations that promulgated the regulations and the regulations themselves.

The DOE Long-Term Stewardship Information Center has an extensive list, with descriptions, of statutory and regulatory requirements for long-term stewardship at <http://lts.apps.em.doc.gov/center/reports/overview.html> (2/01).

DOE Statutes

Atomic Energy Act of 1954, 42 U.S.C. 2011 et seq. Delegates authority for control of nuclear materials including source material, byproduct material, and special nuclear material, to the DOE and to the Nuclear Regulatory Commission. The Act grants DOE authority to take possession of and responsibility for nuclear materials under defined circumstances. The Act also requires DOE to protect human health, safety, and the environment and authorizes DOE to establish, implement, and enforce standards to protect human health, safety, and the environment with respect to activities under its jurisdiction. This requirement establishes long-term stewardship responsibility for residual hazards at DOE facilities. DOE uses the DOE Directives System to establish and implement DOE Orders under the Act.

DOE Organization Act of 1977, Hall Amendment, National Defense Authorization Act of 1993, 42 U.S.C. 7256(e). Allows DOE to lease (for up to ten years) temporarily not needed or excess property at weapons production facilities to be reconfigured or closed. DOE is responsible for health, safety, and environmental monitoring of leased property under agreement with EPA. Prior to entering into any lease, DOE is required to obtain the concurrence of EPA (for NPL sites) or the State to determine whether environmental conditions of the property are such that leasing the property is consistent with safety and the protection of public health and the environment. DOE can also lease excess property for up to five years under § 649 of the Act with fewer restrictions than under the Hall Amendment.

Federal Facilities Compliance Act of 1992, 42 U.S.C. 6961 et seq. The Act makes DOE subject to fines and penalties for violations of RCRA and requires DOE to adhere to state, interstate, and local government hazardous and solid waste management requirements. The Act also defines “mixed” radioactive and hazardous waste as being subject to both Atomic Energy Act and RCRA requirements.

National Defense Authorization Act of 1996, Public Law 104-201, 42 U.S.C. 7274k note. Section 3153 of the Act requires DOE to develop future use plans for Defense Nuclear

Facilities, including Savannah River Site, Hanford Site, Idaho National Engineering and Environmental Laboratory, and the Rocky Flats Environmental Technology Site.

National Defense Authorization Act of 1998, Public Law 105-85, § 3158, 42 U.S.C. 1256 note. Requires DOE to develop regulations for the sale or lease of real property at DOE facilities. Such regulations could include requirements for long-term stewardship for sale or lease of DOE real property.

Nuclear Waste Policy Act of 1982, as amended, 42 U.S.C. 10101 et seq., 42 U.S.C. 10222(b). Authorizes DOE to take possession of and develop a geologic repository for the permanent disposal of spent nuclear fuel and high level radioactive waste generated by civilian and defense nuclear activities. Engineered barriers and institutional controls are required to be established at any geologic repository site. The Act also establishes a Nuclear Waste Fund within the Treasury Department.

Uranium Mill Tailings Radiation Control Act, Uranium Mill Tailings Remedial Action Amendments of 1988 and Extension Act of 1996, 42 U.S.C. 7901 et seq. Classifies uranium mill tailings disposal sites under Title I or Title II. Title II sites are those that were still under active NRC license in 1978. The Act requires remediation and long-term surveillance and maintenance for inactive uranium mill tailings sites.

DOE Orders

DOE Directives Homepage. Department of Energy Directives include Policies, Orders, Notices, Manuals, and Guides, which are intended to direct, guide, inform, and instruct employees in the performance of their jobs, and enable them to work effectively within the Department and with agencies, contractors, and the public.

DOE Order 4300.1C, "Real Property Management," contains guidance on establishing Department-wide policies and procedures for the acquisition, use, inventory, and disposal of real property.

DOE Order 5480.19, "Conduct of Operations Requirements for DOE Facilities," contains the guidelines for the conduct of operations requirements at DOE facilities.

DOE Order 435.1, "Radioactive Waste Management," regulates how DOE manages radioactive waste.

DOE Guidance

EPA Policy on Deletion and Deferral of Sites from the CERCLA National Priorities List (NPL) (DOE/EH-413-0001) (Mar 00).

Effects of Future Land Use Assumptions On Environmental Restoration Decision Making (DOE/EH-413/9810) (Jul 98).

Using Remedy Monitoring Plans To Ensure Remedy Effectiveness and Appropriate Modifications (DOE/EH-413 9809) (Jul 98).

CERCLA Requirements Associated with Real Property Transfers (EH-413-9808) (Apr 98).

Deletions of Federal Facilities from the Federal Agency Hazardous Waste Compliance Docket and the National Priorities List (EH-413-074/0597) (May 97).

Use of Institutional Controls in a CERCLA Baseline Risk Assessment (EH-231-014/1292) (Dec 92).

Cross-Cut Guidance on Environmental Regulations for DOE Real Property Transfers (DOE/EH-413/9712) (Oct 97).

EPA Draft Comprehensive Five-Year Review Guidance (11/24/99).

EPA Guidance on Transfer of Federal Property Undergoing CERCLA Remedial Action (10/18/99).

Final Directive On the Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites (6/9/99).

Monitored Natural Attenuation in Environmental Restoration (2/17/99).

Conditional Remedies Under RCRA Corrective Action (DOE/EH-413/064r) (Jan 00).

Technical Impracticability Decisions for Ground Water at CERCLA Response Action and RCRA Corrective Action Sites (DOE/EH-413/9814) (Aug 98).

Using Remedy Monitoring Plans To Ensure Remedy Effectiveness and Appropriate Modifications (DOE/EH-413 9809) (Jul 98).

Effects of Future Land Use Assumptions On Environmental Restoration Decision Making (DOE/EH-413/9810) (Jul 98).

Standards Applicable to Owners and Operators of Closed and Closing Hazardous Waste Management Facilities: Post-Closure Permit Requirement and Closure Process (63 FR 56710) (5/10/99).

Environmental Response Design and Implementation Guidance (DOE/EH-413-9915) (Dec 99).

Monitored Natural Attenuation in Environmental Restoration (2/17/99).

RCRA Ground Water Assessment Plans and Annual Ground Water Quality Assessment Reports at Interim Status Facilities (EH-413-069/0396) (Mar 96).

RCRA Expanded Public Participation Final Rule Issued (1/31/97).

Guidance for UMTRA Project Surveillance and Maintenance. Describes the procedures that will be used to verify that UMTRA disposal sites continue to function as designated.

Guidance for Implementing the Long-term Surveillance Program for UMTRA Project Title I Disposal Sites Provides guidance for writing site-specific long-term surveillance plans and describes site surveillance, monitoring, and long-term care techniques for Title I UMTRA disposal sites.

Guidance to DOE Sites Developing Project Baseline Summaries for Long-term Stewardship Costs (Excerpt). An excerpt from EM's Guidance for the Spring Update of the PBS Database: Life-Cycle Planning Data, FY 2001 Budget Formulation Information, and Paths to Closure with respect to the long-term stewardship initiative.

Memorandum of Understanding (MOU) Between the U.S. Department of Energy and the U.S. Army Corps of Engineers Regarding Program Administration and Execution of the FUSRAP Program. A MOU between the U.S. Department of Energy (DOE) and the U.S. Army Corps of Engineers (USACE) for the purpose of delineating administration and execution responsibilities of each of the parties for the Formerly Utilized Sites Remedial Action Program (FUSRAP).

DOE Correspondence

DOE Response letter to Earl Leming, Director of DOE Oversight Division of TDEC. Jim Werner's reply to the State of Tennessee Department of Environment and Conservation DOE Oversight Division.

DOE Response Letter to the State and Tribal Government Working Group's Closure for the Seventh Generation. DOE's initial acknowledgment and response to the STGWG report on long-term stewardship.

DOE Response Letter to the EMAB Long-term Stewardship Committee Report and Recommendations. DOE's initial acknowledgment and response to the EMAB report and recommendations on long-term stewardship.

DOE Memorandum on Science & Technology needs for Long-term Stewardship. Describes the importance of identifying Science & Technology needs for long-term stewardship.

Other Official Documents

FY2000 Defense Authorization Act Conference Report (Excerpt). Language on the Long-term Stewardship Plan excerpted from the Congressional Record, August 5, 1999; page H7855.

Environmental Protection Agency (EPA)

Brief summaries of these laws can be found at: www.epa.gov/epahome/laws.htm

Clean Air Act of 1970 and Clean Air Act Amendments of 1990, 42 U.S.C. 7401 et seq. The CAA sets air emissions standards and monitoring, reporting, and recordkeeping requirements for radon emissions from former mill tailings sites under UMTRCA Title I and Title II.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA and Superfund Amendments and Reauthorization Act (SARA)), 42 U.S.C. 9601-9675. CERCLA, as amended by SARA, provides for the cleanup and long-term stewardship of inactive hazardous waste sites. CERCLA requires facilities with contaminated sites regulated under CERCLA to conduct long-term surveillance and maintenance of engineered control remedies and implement institutional controls for sites that are not remediated to conditions suitable for release of the property for unrestricted use. Section 120(e) requires DOE to enter into an interagency agreement with EPA upon completion of the remedial investigation/feasibility study for a CERCLA site. DOE usually negotiates an interagency agreement (Federal Facility Agreement) with EPA and the State early in the CERCLA process. The FFAs govern how DOE, EPA, and the State will implement investigation and cleanup of CERCLA sites and issue Records of Decision for these sites. RODs issued for CERCLA actions are required to describe the implementation of engineered controls and institutional controls, however, FFAs may not explicitly require that detailed plans for controls be developed.

Resource Conservation and Recovery Act, as amended, 42 U.S.C. 6901-6922(k). Regulates treatment, storage, disposal, handling, and transportation of hazardous waste from generation to disposal. Includes corrective action program to clean up facilities contaminated with hazardous wastes from past activities.

Institutional Controls and Transfer of Real Property Under CERCLA Section 120(h)(3)(A), (B), or (C) -- Draft Document (June 1999) is now available for downloading in WordPerfect format.

EPA's Directive, "Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites," (#9200.4-17P) outlines EPA's policy with regard to the use of monitored natural attenuation for the remediation of contaminated soil and groundwater at sites regulated under all programs administered by EPA's Office of Solid Waste and Emergency Response (OSWER).

EPA promulgates regulations in title 40 of the Code of Federal Regulations. For the specific requirements of such regulations, please go to www.access.gpo.gov/cgi-bin/cfrassemble.cgi.

Nuclear Regulatory Commission (NRC)

The U.S. Nuclear Regulatory Commission (NRC) is an independent agency established by the U.S. Congress under the Energy Reorganization Act of 1974 to ensure

adequate protection of the public health and safety, the common defense and security, and the environment in the use of nuclear materials in the United States.

NRC promulgates its regulations in title 10 of the Code of Federal Regulations, which can be found at www.nrc.gov/NRC/CFR/index.html. Parts 60 and 61 govern the disposal of high-level radioactive wastes in geologic repositories and licensing requirements for land disposal of radioactive waste, respectively.

APPENDIX G

GLOSSARY¹

Agreement-in-Principle: An agreement between the Department of Energy and a state that describes commitments by the Department to fund certain activities, such as environmental oversight, monitoring, site access, and emergency response initiative, that are preformed by the state at a facility.

Atomic Energy Act (AEA): The federal law that regulates the production and uses of atomic power. The AEA was passed in 1946 and amended substantially in 1954 and several times since then. (42 U.S.C. §§ 2011-2297)

Atomic Energy Commission: Created by the United States Congress in 1946 as the civilian agency responsible for producing nuclear weapons. It also researched and regulated atomic energy. In 1975, its weapons production and research activities were transferred to the Energy Research and Development Administration, and its regulatory responsibility was given to the new Nuclear Regulatory Commission.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A federal law (also known as Superfund), enacted in 1980 and reauthorized in 1986, that provides the legal authority for emergency response and cleanup of hazardous substances released into the environment and for the cleanup of inactive waste sites. (42 U.S.C. §§ 9601-9675)

Decommissioning: Retirement of a nuclear facility, including decontamination and/or dismantlement.

Decontamination: Removal of radioactive or hazardous contamination by a chemical or mechanical process.

End State: The physical state of a site after it has been treated or remediated.

Environmental Impact Statement (EIS): The detailed written statement that is required by section 102(2)(C) (42 U.S.C. § 4332 (2)(C)) of NEPA for a proposed major federal action significantly affecting the quality of the human environment.

Environmental Management (EM) Program: An office of DOE, created in 1989 to oversee the Department's waste management and environmental cleanup efforts. Originally called the Office of Environmental Restoration and Waste Management, it was renamed in 1993.

¹ Unless otherwise noted, as defined in Appendix D of **From Cleanup to Stewardship: A Companion Report to Accelerating Cleanup: Paths to Closure**. U.S. Department of Energy, Office of Environmental Management. October 1999. DOE/EM-0466, and in the Glossary of **The 1996 Baseline Environmental Management Report**. Volume I. U.S. Department of Energy, Office of Environmental Management. June 1996. DOE/EM-0290.

Environment, Safety, and Health Division (ESH): The Division prepares permits, performs and documents environmental monitoring and compliance activities, and provides technical advice in the analysis of air, water, sediments, soil, food, flora and fauna and hazardous materials.²

Feasibility Study: 1) Analysis of the practicability of a proposal; e.g., a description and analysis of potential cleanup alternatives for a site such as one on the National Priorities List. The feasibility study usually recommends selection of a cost-effective alternative. It usually starts as soon as the remedial investigation is underway; together, they are commonly referred to as the "RI/FS". 2) A small-scale investigation of a problem to ascertain whether a proposed research approach is likely to provide useful data.³

Federal Facilities Agreement: Type of compliance agreement stemming from section 120 of CERCLA, which requires written agreement for compliance activities among the Department of Energy, the state, and the Environmental Protection Agency.

Formerly Utilized Sites Remedial Action Program (FUSRAP): A federal program initiated in 1974 to identify and remediate sites around the country that were contaminated during the 1940s and 1950s as a result of researching, developing, processing, and producing uranium and thorium, and storing processing residues.

Hazardous Substances: 1) Any material that poses a threat to human health and/or the environment. Typical hazardous substances are toxic, corrosive, ignitable, explosive, or chemically reactive. 2) Any substance designated by EPA to be reported if a designated quantity of the substance is spilled in the waters of the United States or is otherwise released into the environment.⁴

Hazardous Waste: A category of waste regulated under RCRA. To be considered hazardous, a waste under RCRA must be a solid waste and must exhibit at least one of four characteristics described in 40 CFR 261.20 through 40 CFR 261.24 (i.e., ignitability, corrosivity, reactivity, or toxicity) or be specifically listed by the EPA in 40 CFR 261.31 through 40 CFR 261.33. Source, special nuclear, or by-product materials as defined by the AEA are not hazardous waste because they are not solid waste under RCRA.

High-Level Waste (HLW): High-level waste is the highly radioactive waste material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced during reprocessing and any solid material derived from such liquid waste that contains fission products in sufficient concentrations; and other highly radioactive material that is determined, consistent with existing law, to require permanent isolation.

Industrial Land Use: Active industrial facility where groundwater may be restricted.

²As defined in Overview of Environmental Surveillance at Los Alamos during 1998. LALP-99-192. Los Alamos National Laboratory. September 1999.

³ Glossary of Terms of Environment. EPA Web Site: <http://www.epa.gov/OCEPAterms/intro.htm>

⁴ Ibid.

Institutional Controls: Non-engineering measures – usually, but not always, legal controls – intended to affect human activities in such a way as to prevent or reduce exposure to hazardous substances. They include, but are not necessarily limited to: land and resource use and deed restrictions; well-drilling prohibitions, building permits and well use advisories and deed notices; other legally enforceable measures. However, they are distinct from physical engineering measures such as treatment and containment systems. The EPA has defined ICs as: Non-engineered measures intended to affect human activities in such a way as to prevent or reduce exposure to hazardous substances. They are almost always used in conjunction with, or as a supplement to, other measures such as waste treatment or containment. There are four categories of institutional controls: government controls; proprietary controls; enforcement tools; and informational devices.⁵

Landlord: Activities that involve the physical operation and maintenance of DOE installations. Specific tasks vary but generally include providing utilities, maintenance, and general infrastructure for the entire installation.

Long-term Stewardship: Encompasses all activities required to maintain an adequate level of protection to human health and the environment posed by nuclear and/or chemical materials, waste, and residual contamination remaining after cleanup is complete.

Low-level Waste (LLW): Low-level radioactive waste is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in section 11e.(2) of the Atomic Energy Act of 1954, as amended), or naturally occurring radioactive material.

Land Use Control Assurance Plan: Plan that establishes a policy to assure long-term effectiveness of land use controls at federal facilities. A Land Use Control Assurance Plan may require site use permits, signs, trespass parameters, monitoring/field inspections, and Site Specific Implementation Plans. Land Use Control Assurance Plans are only used in EPA Region IV.

Manhattan Project: The U.S. Government project that produced the first nuclear weapons during World War II. Started in 1942, the Manhattan Project formally ended in 1946. The Hanford Site, Oak Ridge Reservation, and Los Alamos National Laboratory were created for this effort.

Mixed Waste: Waste that contains both source, special nuclear, or byproduct material subject to the Atomic Energy Act of 1954, as amended, and a hazardous waste subject to the Resource Conservation and Recovery Act.

National Environmental Policy Act of 1969 (NEPA): The basic national charter for protection of the environment. It establishes policy, sets goals, and provides means for carrying out the policy (42 U.S.C. §§ 4321-4370d)

⁵ EPA. *Institutional Controls: A Site Manager's Guide to Identifying, Evaluating and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups*. September 2000, EPA 540-00-005

National Priorities List (NPL): The EPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under CERCLA.

No Further Action: A determination made, based on technical evidence, that remedial action is not warranted at a given site.

Plutonium (Pb): A radioactive, metallic element with the atomic number of 94. It is produced artificially by neutron bombardment of uranium. Plutonium has 15 isotopes with atomic masses ranging from 232 to 246 and half-lives from 20 minutes to 76 million years.

Polychlorinated Biphenyls (PCBs): A group of commercially produced organic chemicals used since the 1940's in industrial applications throughout the nuclear weapons complex. PCBs are found in many gaskets and large electrical transformers and capacitors in the gaseous diffusion plants. They have been proven to be toxic to both humans and laboratory animals.

Potential Release Site (PRS): Areas of possible contamination that are studied to see if there is enough information to determine if immediate mitigation is required, or if they pose no significant health risk. Crews may also determine that the information about a site is insufficient and order more sampling and testing.

Radioactive: Of, caused by, or exhibiting radioactivity.

Radioactivity: The spontaneous transformation of unstable atomic nuclei, usually accompanied by the emission of ionizing radiation.

Record of Decision (ROD): A public document that explains the cleanup alternatives to be used at National Priorities List sites. In addition, a ROD under NEPA is a concise public document that records a federal agency's decision(s) concerning a proposed action for which the agency has prepared an EIS.

Remedial Investigation: An in-depth study designed to gather data needed to determine the nature and extent of contamination at a Superfund site; establish site cleanup criteria; identify preliminary alternatives for remedial action; and support technical and cost analyses of alternatives. The remedial investigation is usually done with the feasibility study. Together they are usually referred to as the "RI/FS". **Remedial Project Manager (RPM):** The EPA or state official responsible for overseeing on-site remedial action.⁶

Resource Conservation and Recovery Act (RCRA): A federal law enacted in 1976 to address solid waste and the treatment, storage, and disposal of hazardous waste (42 U.S.C. §§ 6901-6992k).

Site-Wide Environmental Impact Statement (SWEIS): The SWEIS provides an overview of current and proposed operations, analysis of impacts of alternative courses of

⁶ Glossary of Terms of Environment. EPA Web Site: <http://www.epa.gov/OCEPATERMS/intro.htm>

action on human health and the environment, as well as potential actions being considered to mitigate adverse impacts.

Solid Waste Management Unit (SWMU): Under the Resource Conservation and Recovery Act, a site is divided into Solid Waste Management Units (or SWMUs), where some waste handling or treatment activity has occurred. SWMUs include units that handle hazardous waste, such as waste oil tanks and waste accumulation areas.

Spent Nuclear Fuel (SNF): Fuel that has been withdrawn from a nuclear reactor following irradiation, the constituent elements of which have not been separated by reprocessing.

Stakeholder: a member of the public or an organization who has an interest or "stake" in an outcome.

Stockpile Stewardship: A DOE program to ensure core competencies in activities associated with the research, design, development and testing of nuclear weapons; it also refers to the assessment and certification of their safety and reliability.

Toxic Substances Control Act (TSCA): A federal law enacted in 1976 to protect human health and the environment from unreasonable risk caused by manufacturing, distribution, use, disposal of, or exposure to, substances containing toxic chemicals (15 U.S.C. §§ 2601-2692).

Transuranic Waste: Radioactive waste containing more than 100 nanocuries of alpha-emitting transuranic (element that has an atomic number higher than uranium) isotopes per gram of waste, with half-lives greater than 20 years, except for: (1) high-level radioactive waste; (2) waste that the Secretary of Energy has determined, with the concurrence of the Administrator of EPA, does not need the degree of isolation required by the 40 CFR 191 disposal regulations; or (3) waste that the NRC has approved for disposal on a case-by-base basis in accordance with 10 CFR 61.

Uranium (U): A radioactive, metallic element with the atomic number 92, the heaviest naturally occurring element. Uranium has 14 known isotopes, of which uranium-238 is the most abundant in nature. Uranium-235 is commonly used as a fuel for nuclear fission

Uranium Mill Tailings Remedial Action (UMTRA): A DOE program to plan, implement, and complete environmental restoration at inactive uranium-processing sites and their vicinity sites, as directed and authorized by the UMTRCA.

Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA): The act that directed DOE to provide for stabilization and control of the uranium mill tailings from inactive uranium mill sites in a safe and environmentally sound manner to minimize radiation health hazards to the public (42 U.S.C. 7901 et seq.).

Vitrification: A process by which waste is transformed from a liquid or sludge into an immobile solid that traps radionuclides and prevents waste from contaminating soil, ground water, and surface water.

APPENDIX H

ACRONYMS

AEA	Atomic Energy Act
AEC	Atomic Energy Commission
AECA	Atomic Energy Community Act
AIP	Agreement in Principle
ARAR	Applicable and Relevant Appropriate Requirements
CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CHWA	Colorado Hazardous Waste Act
CRO	Community Reuse Organization, Rocky Flats
CROET	Community Reuse Organization of East Tennessee
DCC	Document Control Center, Oak Ridge
DOE	Department of Energy
DP	DOE's Office of Defense Programs
DPG	Rocky Flats Stewardship Dialogue Planning Group
EIS	Environmental Impact Statement
EM	DOE's Office of Environmental Management
ER	DOE's Office of Environmental Restoration, Los Alamos
EPA	Environmental Protection Agency
ESH	DOE's Office of Environment, Safety, and Health
ETTP	East Tennessee Technology Park
EUWG	Oak Ridge End Use Working Group
EQAB	Oak Ridge Environmental Quality Advisory Board
FAA	Federal Advisory Committee Act
FBI	Federal Bureau of Investigations
FACA	Federal Advisory Committee Act
FFA	Federal Facilities Agreement
FFERDC	Federal Facilities Environmental Restoration Dialogue Committee, Rocky Flats
FIMAD	Facility for Information Management, Analysis and Display, Los Alamos
FSUWG	Future Site Use Working Group, Rocky Flats
FUSRAP	Formerly Utilized Sites Remedial Action Program
GIS	Geographic Information System
IMP	Integrated Monitoring Plan, Rocky Flats
IRC	Information Resource Center, Oak Ridge
LAAO	Los Alamos Area Office
LANL	Los Alamos National Laboratory
LOC	Oak Ridge Reservation Local Oversight Committee
LUCAP	Land Use Control Assurance Plan
LUCIP	Land Use Control Implementation Plan
NCP	National Contingency Plan
NEPA	National Environmental Policy Act of 1969
NEWNET	Neighborhood Environmental Watch Network

NFA	No Further Action
NMED	New Mexico Environment Department
NNMCAB	Northern New Mexico Citizen's Advisory Board
NPL	National Priority List
NRC	Nuclear Regulatory Commission
OREIS	Oak Ridge Environmental Information System
ORNL	Oak Ridge National Laboratory
ORO	Oak Ridge Operations Office
ORR	Oak Ridge Reservation
PCB	Polychlorinated biphenyl
PRS	Potential Release Site
RAR	Remedial Action Report
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RFLII	Rocky Flats Local Impacts Initiative
RFCA	Rocky Flats Cleanup Agreement
RFCLOG	Rocky Flats Coalition of Local Governments
ROD	Record of Decision
SNF	Spent Nuclear Fuel
SSAB	Site-Specific Advisory Board, Rocky Flats and Oak Ridge
SWEIS	Site-Wide Environmental Impact Statement
SWG	Stewardship Working Group
SWMU	Solid Waste Management Unit
TDEC	Tennessee Department of Environment and Conservation
TDEC	Tennessee Department of Environment and Conservation Department of Energy
DOE-O	Oversight Division
TOA	Tennessee Oversight Agreement
TSCA	Toxic Substances Control Act
TVA	Tennessee Valley Authority
UC	University of California
UMTRA	Uranium Mill Tailings Remedial Action
UMTRCA	Uranium Mill Tailings Radiation Control Act of 1978
USFWS	U.S. Fish and Wildlife Service
WIPP	Waste Isolation Pilot Project
Y-12	Oak Ridge Y-12 Site

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ENERGY COMMUNITIES ALLIANCE

Energy Communities Alliance (ECA) is the membership organization of local governments that are adjacent to or impacted by Department of Energy (DOE) activities. ECA's mission is to bring together local government officials in DOE impacted communities to share information, establish policy positions and advocate community interests in order to effectively address an increasingly complex set of constituent, environmental, regulatory and economic development needs. ECA works on several programs with other organizations and DOE, to promote interaction, understanding and a continuing dialogue on issues such as Environmental Restoration, Economic Development and Diversification, Environment, Safety and Health, and Waste Transportation.



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