Oct 2001

LIBRARY COPY

LANL Reference

LONG-TERM STEWARDSHIP STUDY

Volume I – Report

Prepared to comply with the terms of a settlement agreement:
Natural Resources Defense Council, et al. v. Richardson, et al., Civ. No. 97-936 (SS) (D.D.C. Dec. 12, 1998).

Final Study

October 2001

U.S. Department of Energy
Office of Environmental Management
Office of Long Term Stewardship

9842

Foreword

The Department of Energy (DOE) has prepared this *Long-term Stewardship Study* ("*Study*" or "*Final Study*") to comply with the terms of a settlement agreement between DOE, the Natural Resources Defense Council, and 38 other plaintiffs [*Natural Resources Defense Council, et al. v. Richardson, et al.,* Civ. No. 97-936 (SS) (D.D.C. Dec. 12, 1998)]. The *Study* describes and analyzes several issues and a variety of information associated with long-term stewardship. The *Study* defines long-term stewardship as 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.) Depending on specific circumstances, long-term stewardship could include any combination of land-use controls, monitoring, maintenance and information management.

The *Study* discusses current long-term stewardship issues and challenges identified by the public during a public scoping and comment process. In accordance with the terms of the settlement agreement, DOE followed the President's Council on Environmental Quality (CEQ) procedures for public scoping, 40 CFR §1501.7(a)(1)-(2), and, in general, the procedures set forth in DOE's NEPA regulations for public review of environmental impact statements, 10 C.F.R. §1021.313, even though the *Study* is not a National Environmental Policy Act (NEPA) document or its functional equivalent. Appendix B of the *Study* describes how DOE identified the *Study* scope and met NEPA scoping requirements. The Department is using this input to help shape and guide long-term stewardship decision-making. However, the *Study* is not a policy document and does not indicate the specific long-term stewardship actions that the Department will take.

DOE identified the issues addressed in the *Study* by conducting a public scoping process, soliciting public comments on the *Draft Study* released to the public in October 2000, and considering information from a variety of organizations (both DOE and non-DOE) that have analyzed the subject of long-term stewardship. The Department received comments on the *Draft Study* from 50 sources, including state agencies, citizen groups, DOE advisory groups, private citizens, Tribal nations, and federal agencies. The *Final Study* reflects textual changes made in response to those comments or clarifications that DOE felt were appropriate. The comment-related issues and clarifications are highlighted in comment text boxes in chapters 2-10 of Volume One. Volume Two provides DOE's responses to comments on the *Draft Study*. Together these documents highlight public input on the Department's planning, funding, and stakeholder involvement processes to identify and address long-term stewardship needs.

Where possible, the *Study* identifies alternatives for addressing long-term stewardship. The potential environmental impacts associated with these alternatives are site specific and will be addressed as part of the long-term stewardship and environmental management systems planning at individual sites.

A better understanding of the challenges faced by DOE will allow individuals and organizations inside and outside the Department to make more informed decisions to shape future long-term stewardship activities, both nationally and at individual sites. The *Study* and public comments address eight key challenges:

- Incorporating long-term stewardship considerations into site-specific cleanup decisions to improve DOE's ability to plan for and implement long-term stewardship.

- Ensuring the continued effectiveness of long-term stewardship for long periods of time and if property ownership changes to other federal or non-federal entities.

- Developing processes for meaningful public involvement in long-term stewardship decisions and plans.

- Building partnerships with state, local, and Tribal governments to plan for long-term stewardship activities, land use, enforcement of hazard controls, and information management requirements.

- Ensuring long-term public access to information and outreach efforts about residual risks to continue protection of human health and the environment.

- Providing reliable and sufficient funding for needed long-term stewardship activities into the future.

- Developing mechanisms for the sustainability of long-term stewardship, focusing on vigilance of duty, adaptability for societal changes, and commitment to advances in science and technologies.

- Considering ways to minimize the need for eventual long-term stewardship in the planning and operation of new missions and facilities.

Because the *Study* is not a decision document, it does not attempt to describe how DOE will address stewardship issues in the future. Many of the decisions framing DOE's long-term stewardship will be site specific and depend on a variety of factors (e.g., future site missions, degree of hazard and potential consequence of lapses in stewardship, any unique state and local requirements that may apply, and the ability of federal and state agencies, local governments and communities, and Tribal nations to maintain future land use controls).

The Department has undertaken a number of interrelated initiatives to improve planning for and implementation of long-term stewardship. With regard to overall program direction, DOE's Office of Long Term Stewardship has formed the Long-term Stewardship Executive Steering Committee and the Long-term Stewardship Working Group to develop a strategic plan for long-term stewardship. More specifically, DOE has taken a number of steps to institutionalize sound decision-making within the Department with regard to its long-term stewardship responsibilities. These steps include:

- Assigning responsibility for long-term stewardship to program offices with landlord responsibilities at each site.

- Preparing guidance for sites to develop long-term stewardship plans, site-specific cost estimates, budget requests, and performance metrics for long-term stewardship activities.

- Revising DOE's Life Cycle Asset Management (LCAM) process and the related DOE LCAM Order to account for long-term stewardship.

- Providing training to DOE staff and contractors on long-term stewardship.

- Developing directives and/or guidance for compliance with stewardship requirements.

- Developing guidance to address long-term stewardship information management and coordinating land use planning between DOE and surrounding communities.

- Managing the Long-term Stewardship web-based information center available at: *http://lts.apps.em.doe.gov*.

The Department recognizes that long-term stewardship is important for ensuring continued protection of human health and the environment, and is considering additional steps to further develop policies, guidance, and procedures for planning and implementing long-term stewardship. This *Study* identifies a number of important issues and challenges that need to be addressed. Over the next several months, the Department will be conducting an assessment of the Environmental Management program. The *Study* provides a timely and important reference for that review because long-term stewardship issues are integral to our cleanup decisions and land use planning.

Table of Contents

Foreword i

Chapter 1: Introduction 1
1.1 Purpose 3
1.2 Organization of the *Study* 4

Chapter 2: Long-term Stewardship is Complex 5
2.1 Today's Cleanup Decisions Have Important Implications for the Future 7
2.2 Long-term Stewardship Activities are Subject to a Variety of Requirements 8
2.3 New Site Missions and Facilities May Affect Long-term Stewardship Needs 8
2.4 Land Transfers Challenge Implementation of Long-term Stewardship 8
2.5 The Public Needs Open Access to Information about Residual Hazards at DOE Sites 9
2.6 Reliable Funding is a Significant Concern to Stakeholders 9
2.7 Continued Partnerships with State, Local, and Tribal Governments is Essential 10
2.8 Long-term Stewardship Responsibilities Will Pass from Generation to Generation 10

Chapter 3: The Relationship Between Cleanup, End State, and Long-term Stewardship 13
3.1 Cleanup and Long-term Stewardship 13
3.2 Documenting Long-term Stewardship Needs During the Selection and Implementation of Cleanup Actions 17
3.3 Criteria for Evaluating Long-term Stewardship Needs During Remedy Selection 22

Chapter 4: DOE's Long-term Stewardship Activities 29
4.1 What are the Drivers for Long-term Stewardship? 29
4.2 How is Long-term Stewardship Currently Managed and Implemented by DOE? 33
4.2.1 Office of Long Term Stewardship 35
4.2.2 Implementation of Long-term Stewardship Activities 37
4.2.3 Entities External to DOE 40
4.2.4 Research & Development 43
4.3 How will Long-term Stewardship be Managed at Sites with Ongoing Missions other than Cleanup? 46

Chapter 5: Hazard Management 49
5.1 Engineered and Institutional Controls 49
5.2 Long-term Monitoring and Maintenance of Engineered Controls 51
5.3 Long-term Maintenance of Institutional Controls 53
5.4 Identifying Uncertainty and Contingency Planning 59
5.4.1 Contingency Planning and Emergency Response During Long-term Stewardship 60
5.4.2 Monitoring and Responding to Uncertainties During Long-term Stewardship 61

Chapter 6: Managing Real Property 65
6.1 Planning 66
6.1.1 Planning Pursuant to NEPA 67
6.1.2 Planning Pursuant to DOE Orders 68
6.1.3 Integrating Long-term Stewardship More Effectively Into Planning 70
6.2 Property Transfer 71
6.3 Post-Transfer Property Management 76

Chapter 7: Information Management 81
7.1 Current Responsibilities and Practices 81
7.2 Improving the Ability to Meet Long-term Stewardship Information Needs 84
7.3 Developing an Institutional Framework for Managing Critical Information 90

Chapter 8: Funding and Financial Management 93
8.1 Estimating Long-term Stewardship Costs 93
8.2 Potential Funding Mechanisms 98
8.3 Managing Available Funds 103

Chapter 9: Natural Resources, Cultural Resources, Socioeconomic Impacts, and Environmental Justice 107
9.1 Natural Resources 109
9.2 Cultural Resources 112
9.3 Socioeconomic Impacts 114
9.4 Environmental Justice 116

Chapter 10: Sustainability of Long-term Stewardship 119
10.1 What is Needed for Sustainability? 120
10.1.1 Ensuring Survival 121
10.1.2 Maintaining Focus 122
10.2 The "Rolling Stewardship" Strategy 123
10.2.1 Future Evaluations of Today's Decisions 125
10.2.2 Incorporating Science and Technology Changes into Long-term Stewardship Strategies 126

List of Acronyms 129

Glossary 131

Appendices

Appendix A: History of Long-term Stewardship and Events Leading to the *Study* A-1
Appendix B: How DOE Identified the Scope for the *Draft Study* B-1
Appendix C: The Public Comment Process for the *Final Study* C-1
Appendix D: Statutory, Regulatory, and Executive Order Requirements for Long-term Stewardship D-1
Appendix E: Long-term Stewardship Activities, Guidance, Reports, and Internet Web Sites E-1
Appendix F: Long-term Stewardship Points of Contact F-1
Appendix G: Using a Conceptual Site Model to Communicate End State G-1
Appendix H: Developing Uncertainty Matrices to Communicate Uncertain Conditions H-1
Appendix I: DOE Property Transfer Requirements I-1

List of Exhibits

Exhibit 1-1	Recent Documents Related to the Concept of Long-term Stewardship at DOE Sites	2
Exhibit 1-2	Legal Basis for the *Long-term Stewardship Study*	3
Exhibit 3-1	CERCLA Criteria for Evaluating and Selecting Remedies	15
Exhibit 3-2	Highlights of the CERCLA Remedial Action Process	17
Exhibit 3-3	Criteria Developed by DOE, EPA, and DoD for Evaluating Long-term Stewardship Needs During Remedy Selection and Implementation	23
Exhibit 3-4	Recommendations by Affected Parties for Considering Long-term Stewardship During Remedy Selection and Implementation	25
Exhibit 4-1	DOE's Grand Junction Office Expects to be Responsible for Long-term Stewardship at 28 or more Sites by 2003	38
Exhibit 4-2	Long-term Stewardship is Expected to Transfer to Site Landlords at 21 Sites	47
Exhibit 5-1	Categories of Institutional Controls	50
Exhibit 5-2	When Does Long-term Stewardship Begin?	54
Exhibit 5-3	Possible Obstacles to the Long-term Effectiveness of Common Institutional Controls	58
Exhibit 6-1	Life-Cycle of DOE Activities at a Site	66
Exhibit 6-2	Relationship Between DOE Planning Processes and the Life Cycle of DOE Mission Activities at a Site	67
Exhibit 7-1	Current Records Management Practices	83
Exhibit 7-2	Options for an Institutional Framework to Manage Critical Information	90
Exhibit 8-1	Limitations of the Activity-Based Cost Approach for Estimating Long-term Stewardship Costs	96
Exhibit 8-2	Use of Statistical Analysis to Establish Upper and Lower Bounds for Cleanup Cost Estimates	97
Exhibit 8-3	Potential Mechanisms for Funding Long-term Stewardship	100
Exhibit 8-4	Examples of Federal Trust Funds	104
Exhibit 8-5	State of Tennessee Perpetual Care Investment Fund	105
Exhibit 8-6	Lessons Learned on Contracting	106
Exhibit 9-1	Environmental and Economic Issues will Affect the Process of Developing and Implementing Long-term Stewardship	108
Exhibit 9-2	Statutes, Regulations, and Executive Orders Concerning Natural Resources	110
Exhibit 9-3	Statutes, Regulations, and Executive Orders Concerning Cultural Resources	113
Exhibit 10-1	The Four Principles of Intergenerational Equity	121
Exhibit 10-2	Changing Conditions at and near DOE Sites	125
Exhibit 10-3	The Dynamic Nature of Long-term Stewardship	127

Chapter 1: Introduction

During World War II and the Cold War, the federal government developed the "nuclear weapons complex," a vast network of industrial facilities for the research, production, and testing of nuclear weapons and nuclear devices. The production and testing of nuclear weapons and energy research activities left a legacy of radioactive and chemical waste, contamination, and hazardous facilities and materials. During the past decade, the U.S. Department of Energy (DOE) Office of Environmental Management (EM) has made significant progress in addressing this environmental legacy and has reduced the risks and costs associated with maintaining safe conditions across the DOE complex. Based on existing plans and agreements with regulators, with input from affected parties,[1] EM program cleanups will result in radioactive waste and other residual hazards at most sites.[2] The challenge facing DOE is how to ensure continued protection of human health and the environment after the cleanup projects are complete. Exhibit 1-1 provides an overview of recent documents that discuss DOE's long-term stewardship mission.

What is Long-term Stewardship?

There are many different perspectives on the definition and scope of long-term stewardship. The *Study* uses the following definition from the 1998 Settlement Agreement:

> "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."

The *Study* also considers issues related to several sites where cleanup was completed by parties other than DOE, but where DOE has been mandated to conduct long-term stewardship.

DOE, including the National Nuclear Security Administration (NNSA), has prepared this *Final Long-term Stewardship Study* to comply with the terms of a settlement agreement between DOE, the Natural Resources Defense Council, and 38 other plaintiffs.[3] The specific language pertaining to the *Study* is summarized in Exhibit 1-2 and presented in its entirety in Appendix A.

In accordance with the settlement agreement, DOE conducted a public scoping process to obtain input on what issues the Department should address, published a *Draft Study* in October 2000, conducted a public comment process for the *Draft Study*, and considered public comments in preparing this *Final Study* (see Exhibit 1-2). This *Final Study* considers information provided by other organizations that have considered long-term stewardship, including stakeholder groups at DOE sites, the Environmental Management Advisory Board, the State and Tribal Government Working Group, the National Research Council, the Energy Communities Alliance, the Environmental Law Institute, and Resources for the Future. Appendix B provides a description of the scoping process, a summary of the scoping comments received, and a summary of the

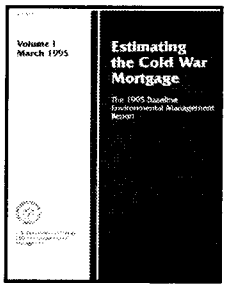
[1]The term "affected parties" refers to individuals and communities within the broad regional areas potentially impacted by DOE sites and includes Tribal nations, state governments, local governments, and private citizens.

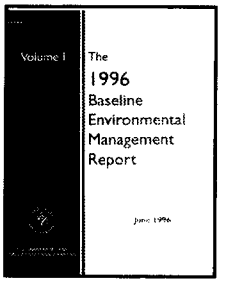
[2]*Status Report on Paths to Closure.* U.S. Department of Energy, Office of Environmental Management, March 2000 (DOE/EM-0526); *A Report to Congress on Long-term Stewardship*, U.S. Department of Energy, Office of Environmental Management, January 2001 (DOE/EM-0563).

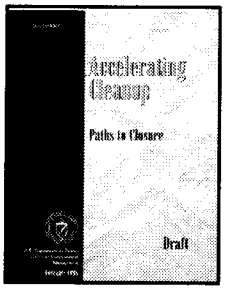
[3]*Natural Resources Defense Council, et al. v. Richardson, et al.*, Civ. No. 97-936 (SS) (D.D.C. Dec. 12, 1998).

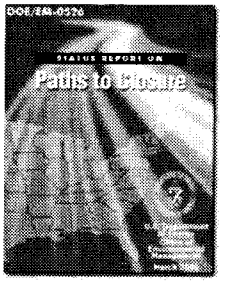
Exhibit 1-1. Recent Documents Related to the Concept of Long-term Stewardship at DOE Sites

The 1995 and 1996 Baseline Environmental Management Reports provided the first comprehensive scope and cost estimates for the cleanup of the nuclear weapons complex. The reports clearly identified that most of the contaminated areas at DOE sites would not be cleaned up to "green fields" or unrestricted use and that almost all DOE sites would require long-term surveillance and monitoring far into the future.



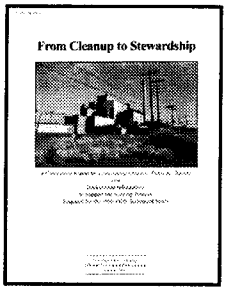






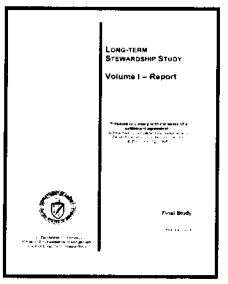
The Paths to Closure Reports reorganized the scope associated with the schedule and cost in the Baseline reports into formal projects. The 1998 report articulated the vision of reducing the overall program cost by accelerating cleanup, completing projects, and closing sites, with a goal of achieving as much as possible by 2006. The 2000 Status Report updates life-cycle cost and schedule estimates. The Department addressed the need for long-term stewardship in these national summaries, but in response to significant public comment, a more complete consideration was deferred to a companion document.

From Cleanup to Stewardship was published as a companion document to the 1998 Paths to Closure report and began to examine national policy issues, challenges, and barriers associated with the transition from cleanup to long-term stewardship.



From Cleanup to Stewardship also provided a summary of the nature and extent of DOE's long-term stewardship responsibilities for soils, facilities, groundwater, surface water, and engineered units.

The Long-term Stewardship Study (this report) describes and analyzes the issues associated with long-term stewardship in greater detail. Because it is not a NEPA or decision document, the *Study* does not attempt to describe how DOE intends to address these issues except where decisions already have been made. Where possible, it identifies options for addressing issues in order to promote information exchange and to inform the decision-making processes at the national level and individual sites. The *Study* does not address issues related to specific sites or national security issues such as stewardship of nuclear weapons and special nuclear materials.



The Report to Congress Long-term Stewardship Report identified sites or portions of sites where environmental restoration, waste disposal, and facility stabilization will be completed by 2006 but land use would be restricted. The *Report to Congress* described the necessary management and long-term stewardship responsibilities for these areas, including cost, scope, and schedule, at a much finer level of detail than in previous reports. The *Report to Congress* was released in January, 2001.

Copies of these documents can be obtained from the Center for Environmental Management Information (1-800-736-3282) or from the Internet at *http://lts.apps.em.doe.gov*

Exhibit 1-2. Legal Basis for the *Long-term Stewardship Study*

The Department is preparing this study pursuant to the terms of the Settlement Agreement between DOE, the Natural Resources Defense Council, and 38 other plaintiffs (see Appendix A). According to the Settlement Agreement:

> *"While DOE's study on long-term stewardship will not be a NEPA document or its functional equivalent, DOE will, nevertheless, follow the procedures set forth in the regulations of the President's Council on Environmental Quality (CEQ) for public scoping, 40 C.F.R. § 1501.7(a)(1)-(2)...."*

DOE followed the President's Council on Environmental Quality procedures for public scoping, 40 CFR Part 1501.7(a)(1)-(2), in preparing the *Draft Long-term Stewardship Study* that was issued on October 31, 2000. The scoping process provided DOE with input about the topics and issues that the commenters believed should be included in the study. DOE considered all relevant comments and suggestions in developing the scope of the study (see Appendix B).

As specified in the Settlement Agreement, the public review process for the *Draft Study* followed:

> *"the procedures set forth in DOE's NEPA regulations for public review of environmental impact statements, 10 C.F.R. § 1021.313, except that (a)...DOE (not EPA) will publish a Notice of Availability in the Federal Register, as set forth in 10 C.F.R. § 1021.313(a); and (b) DOE will not include any Statement of Findings as set forth in 10 C.F.R. § 1021.313(c)."*

This public review process included a 45-day public comment period (October 31-December 15, 2000), a public hearing in Washington, DC (November 30, 2000), and a public workshop in San Francisco, CA (December 14, 2000). The public review process was intended to allow comprehensive public comment on the *Draft Study*. DOE published a Notice of Availability in the Federal Register (65 FR 64934, October 31, 2000) announcing the availability of the *Draft Study* and describing the public review process for the *Draft Study*, including the public hearing. DOE used input from the public to complete this *Final Study*. Appendix C presents a summary of public comments. Volume II of this *Final Study* presents the comment letters along with DOE's responses to these public comments.

The full text of the Settlement Agreement, and copies of this *Study*, including Volume II, *Comment-Response*, can be found at ***http://lts.apps.em.doe.gov***

issues identified during the scoping process. Volume II to this *Final Study* provides a description of the public comment process and includes a copy of each public comment received on the *Draft Study* and the Department's response to these comments.

1.1 Purpose

The purpose of this *Study* is to identify programmatic and cross-cutting issues and information that DOE should consider while implementing its long-term stewardship activities. The Department's long-term stewardship needs are derived from DOE activities and programs resulting from many environmental, national security, and energy-based laws. Although not exclusively related to site cleanup, many long-term stewardship needs result from the fact that cleanup and waste management operations will not restore lands and structures to conditions that will permit unrestricted use. Rather, the property will be accessible for limited re-use where restrictions or conditions must be maintained to ensure public safety. In recognizing that the decisions regarding ultimate cleanup goals are best made on a site-specific basis, and hence many long-term stewardship needs cannot be defined programmatically, this *Study* summarizes

the issues that should be considered as these decisions develop. The *Study* also discusses various related activities being pursued by DOE.

1.2 Organization of the *Study*

- Chapter 2 describes the complexity of long-term stewardship and notes where critical issues are discussed in the *Study*.

- Chapter 3 describes the relationship between cleanup decisions and long-term stewardship obligations.

- Chapter 4 describes DOE's long-term stewardship activities and how long-term stewardship is being planned and implemented at DOE sites.

- Chapters 5 through 9 provide more detailed discussions of several key issues that have been identified by DOE and during the public scoping process:

  - Managing residual site hazards (Chapter 5);
  - Managing land and real property (Chapter 6);
  - Information management (Chapter 7);
  - Funding and financial management (Chapter 8); and
  - Environmental and socioeconomic issues, including public involvement (Chapter 9).

- Chapter 10 identifies and discusses some of the important challenges associated with maintaining the sustainability of long-term stewardship over multiple generations.

Chapter 2: Long-term Stewardship is Complex

The decisions framing DOE's long-term stewardship activities will be primarily site-specific and depend on a variety of factors such as potential or future site missions; unique state and local requirements and Tribal agreements; and the willingness and ability of affected parties to maintain future land use controls. However, many of these local issues can be discussed collectively in general terms. A better understanding of the challenges faced by DOE will allow individuals and organizations within and outside of the Department to make more informed decisions that will shape future long-term stewardship activities, both nationally and at individual sites.

APPLICABLE SCOPING COMMENTS AND ISSUES

Each subsequent chapter will include a box that highlights the public comments received by DOE during the scoping process for the *Draft Study* that apply to the issues being discussed in the chapter. The box also will identify which of the 27 issues identified during the scoping process are addressed in that chapter. Exhibit 2 in Appendix B summarizes all of the scoping comments and identifies where they are addressed in the *Study*. Exhibit 3 in Appendix B lists the 27 issues and identifies where they are addressed in the *Study*.

DOE is currently conducting long-term stewardship at many sites across the country, either as the sole activity at the site (e.g., monitoring a uranium mill tailings disposal cell), or for some portion of a site where remediation is complete (e.g., performing quarterly groundwater monitoring for a pump and treat system). At other sites, the decision-making processes that will ultimately determine long-term stewardship obligations are just now underway. The questions that remain, however, are numerous and complex. What type of framework will guide long-term stewardship activities? DOE currently is responsible for managing long-term stewardship at many sites – will this responsibility remain with DOE in the future? What approaches to long-term stewardship provide a reasonable expectation of success commensurate with the needs to protect human health and the environment? Can a graded approach be implemented that commits the resources to long-term stewardship consistent with public and environmental risk? What will happen if long-term stewardship fails? What are the implications for long-term stewardship of cleanup decisions that are made today? To address these and other questions, it is important that DOE and all affected parties fully understand the challenges ahead.

This chapter provides an overview of several issues that were identified during the research and public scoping for the *Study*. These issues will shape DOE's long-term stewardship activities and also highlight the complex nature of those activities. The chapter also identifies where these issues are discussed in the *Study*.

APPLICABLE PUBLIC COMMENTS

Chapters 2-10 include boxes that highlight comments received by DOE during the public comment process for the *Draft Study* that apply to a specific issue being discussed in the chapter. Commenters are identified by a number that identifies the specific commenter that raised the issue; Exhibit C-2 in Appendix C includes a numbered list of commenters. Volume II of this *Final Study, Comment Response*, contains the public comments on the *Draft Study* along with the Department's responses to these comments.

The Scope of Long-term Stewardship at DOE Sites

Long-term stewardship will be needed at more than 100 sites throughout the United States. There are several limitations and challenges that preclude remediating many DOE sites to levels that would permit residential use, including:

- Technical limitations – no complete remediation strategy exists because of technological limitations to effectively destroy and/or reduce the volume of contaminants.
- Economic limitations – the costs to employ existing remediation technologies are prohibitive.
- Worker health and safety challenges – use of existing remediation technologies for waste handling and removal poses high risks to remediation workers.
- Collateral ecological damage caused by remediation – use of existing remediation technologies would result in greater ecological damage than would occur by leaving the contamination undisturbed.

A variety of residual hazards will remain after DOE sites have been cleaned to agreed-upon levels, including:

- Engineered units – landfills and other land-based waste disposal units with engineered controls.
- Soil and buried waste – contaminants left in place in soils, and old burial grounds.
- Facilities – entombed reactors, processing "canyons," and other buildings with residual contamination.
- Water – residual contamination in groundwater or surface water sediments.

Although radionuclides are most frequently encountered, the need for long-term stewardship results from both the radioactive and chemical contaminants that will remain onsite and continue to pose some degree of risk for periods of time ranging from decades to the indefinite future. As a radionuclide decays over time, it changes into a different radionuclide, or "decay product," by the spontaneous emission of an alpha particle, beta particle, or gamma rays, or by electron capture. Radionuclides decay at a fixed rate, a "half life," which is the amount of time required for a given amount of radioactive material to decay to half the amount. Half lives vary from a fraction of a second to billions of years and are unaffected by factors such as temperature or pressure. Other contaminants of concern that will remain onsite include organic chemicals (e.g., polychlorinated biphenyls, chlorinated solvents, polynuclear aromatic hydrocarbons) and inorganic chemicals (e.g., mercury, arsenic, lead, cadmium, asbestos). Chemical contaminants do not have well-defined rates of decay and may persist for a short time (as with some chlorinated organic solvents exposed to sunlight) or in perpetuity (as with inorganic chemicals such as lead and asbestos).

Long-term stewardship involves a wide range of activities. The specific activities at a given site will depend on the nature of the site conditions and/or the residual hazards. Site-level activities may include operating, maintaining, and monitoring landfill caps, groundwater pump-and-treat systems, and other engineered systems used to prevent residual hazards from migrating and reaching human and environmental receptors. Site-level activities also may include ensuring the continued effectiveness of fences, ordinances, building permits, easements, and deed restrictions used to prevent human and environmental receptors from reaching residual hazards. Long-term stewardship also involves a variety of other tasks, which may not occur at a local site level, including: supporting, evaluating, and implementing new technologies; emergency response; compliance oversight; land management; natural and cultural resource management; information management; budget preparation and other administrative support; site re-development; and community liaison and planning.

Sources: *From Cleanup to Stewardship*, U.S. Department of Energy, Office of Environmental Management, October, 1999 (DOE-EM/-0466); *A Report to Congress on Long-term Stewardship*. U.S. Department of Energy, Office of Environmental Management, January, 2001 (DOE/EM-0563).

2.1 Today's Cleanup Decisions Have Important Implications for the Future

Decision-makers should take into account the cost and difficulty of long-term stewardship before selecting a cleanup[4] option. Cleanup decisions affect the "end state," or the physical condition reached when cleanup actions are complete. The end state, in turn, essentially determines how the residual hazards will need to be managed in the long-term, and thus establishes implicit or explicit long-term stewardship obligations. The end states and resulting long-term stewardship activities, in turn, are the basis for identifying needs and opportunities for new science and technology to improve protectiveness and/or lower costs. Because cleanup decisions are still being made at many sites, cleanup alternatives should include long-term stewardship activities to ensure that scope, schedule, and cost issues are adequately addressed.

Public Comments on the Definition of Long-term Stewardship
(see Exhibit 2 in Appendix C)

- The definition should include management of natural and manmade features and how this integrates with adjacent federal or state lands (4, 39)
- The distinction between the completion of remediation and the start of long-term stewardship is unclear – long-term stewardship begins when each remedy is implemented, not when a bureaucratic system changes the project title (8, 29)
- The definition should include past, present, and future resources and activities – not just cleanup (39)
- The definition should provide some quantitative perspective on the deep geologic time periods involved (34, 49)
- The definition should indicate that the standards for long-term stewardship at DOE sites will probably not be the same as the stewardship mandates for closure under CERCLA, RCRA, UMTRCA, etc. (49)
- The *Study* should clearly define "cleanup," "end state," and "closure" in words that the public will understand and trust (24, 30, 44, 48)
- Some of the assumptions upon which long-term stewardship is based may not be true (e.g., DOE does not have existing plans or agreements with all, or even most of the "affected parties" regarding cleanup standards) (49)
- The *Study* should include a summary explanation of how DOE arrived at the conclusion that large amounts of residual contamination will remain (49)
- The definition of long-term stewardship in the *Study* is different from the one provided in the *Report to Congress* (25)

At many sites, a number of options may be available to meet the cleanup goals established for a particular environmental problem. For example, options available for contaminated soil or groundwater may include removal, in-situ treatment, containment, or monitored natural attenuation. Each of these options has implications for long-term stewardship. Removal (i.e., relocation) or treatment to achieve unrestricted use[5] would result in no need for long-term stewardship beyond routine record-keeping at that site. However, when radioactive or other

[4]The term "cleanup" refers to the 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. This function encompasses a wide range of activities, such as stabilizing contaminated soil; treating groundwater; decommissioning process buildings, nuclear reactors, chemical separations plants, and many other facilities; and exhuming sludge and buried drums of waste. The term "remediation" is often used synonymously with cleanup.

[5]The term "unrestricted use" refers to conditions where people can live on a site and/or use site resources such as surface soils, subsurface soils, or groundwater without restrictions. Cleanup to unrestricted use levels does not imply that all future uses would be acceptable to DOE or affected parties (e.g., if the land is needed as a "buffer zone"). Residential use or other uses such as mineral extraction may be prohibited by zoning authorities for reasons unrelated to the former contamination (e.g., if the area is now a nature preserve).

hazardous materials are removed from one site and relocated to another, the need for long-term stewardship is merely transferred, not eliminated. The use of caps, barriers, or pumping to prevent additional migration of contaminants would result in a need to monitor, maintain, and periodically repair or replace the containment systems. Containment and monitored natural attenuation would likely require land use controls to retain protectiveness. For long-term stewardship to be successful, all controls used to contain or isolate residual hazards must remain effective until the residual hazards have diminished to the point that unrestricted use is allowed.

Chapter 3, *The Relationship Between Cleanup, End State, and Long-term Stewardship*, describes the relationship between cleanup decisions and long-term stewardship activities. Chapter 5, *Hazard Management*, discusses issues involved in managing residual hazards following cleanup.

2.2 Long-term Stewardship Activities are Subject to a Variety of Requirements

There are many applicable requirements that affect long-term stewardship activities, and the existing framework for DOE mission activities includes the concept of long-term stewardship. Each of these requirements addresses facets of long-term stewardship, but there currently is no single enforceable requirement that clearly and cohesively directs the planning and implementation of long-term stewardship.

Chapter 4, *DOE's Long-term Stewardship Activities*, describes the current regulatory framework and how DOE currently is implementing long-term stewardship at its sites.

2.3 New Site Missions and Facilities May Affect Long-term Stewardship Needs

New or expanded DOE missions and associated facilities may eventually lead to additional long-term stewardship challenges. Mission operations may generate long-lived wastes or surplus materials that may need long-term stewardship. After operations are completed, facilities may be entombed in place or decontaminated and decommissioned in such a manner that results in residual hazards requiring long-term stewardship. The life-cycle environmental and cost impacts of mission operations, including those that occur during long-term stewardship, may be more easily mitigated if they are taken into account early in the planning process.

Chapter 6 of this report, *Managing Real Property*, presents a full discussion of the current planning activities that exist at DOE sites.

2.4 Land Transfers Challenge Implementation of Long-term Stewardship

At the conclusion of cleanup activities, lands owned or controlled by DOE are likely to follow one of four disposition paths:

- *Retention indefinitely as federal lands managed by DOE or another federal agency.* This is the most likely path. It may be the only possibility for parcels of land needed for ongoing missions or for buffer zones to protect public health and safety and the environment; areas where federal and Tribal governments want to preserve natural resources or cultural resources; or land where risks associated with residual hazards are relatively high.

- *Transfer to the Secretary of the Interior, under the direct management of the Bureau of Indian Affairs, to be held in federal trust for Native American Tribes.* This could be used

where affected parties want to use lands for specific uses (e.g., treaty reserved use), and risks associated with residual hazards are consistent with these intended uses.

- *Transfer to non-federal government ownership and release for restricted or specific use.* This could be used where affected parties want to use lands for economic redevelopment or other specific uses, and risks associated with residual hazards are consistent with these anticipated uses.

- *Transfer to non-federal ownership and release for unrestricted use.* This is most likely for lands that are currently uncontaminated or where cleanup has been able to reduce risks to levels appropriate for unrestricted use.

The transfer of property that needs long-term stewardship to other entities presents challenges to long-term stewardship implementation. DOE needs to determine whether to retain active control of long-term stewardship activities, how to impose management or use restrictions on the property, how to oversee any restrictions or limits that are imposed, and how such activities will be funded. It may be difficult for DOE, other agencies, or regulators to enforce restrictions on land owned by someone else, particularly if ownership continues to change hands.

Chapter 6, *Managing Real Property*, presents a discussion of managing real property, the implications of property transfers on long-term stewardship needs, and the difficulties that property transfers may pose for long-term stewardship.

2.5 The Public Needs Open Access to Information about Residual Hazards at DOE Sites

Successful implementation of long-term stewardship will be aided by open public access to the specific information about the residual hazards at DOE sites, including how they were generated, what DOE has done to reduce or mitigate the risks they pose, what ongoing measures are needed, and, to the extent possible, how long such measures are needed. Continued protection of human health and the environment will depend on public awareness and information availability. For example, it may be difficult for people to accept restrictions on land and resource use unless they fully understand why such restrictions are necessary (and conversely what activities can be safely conducted on the land). This is a challenge in the near term, and because long-term stewardship obligations will be passed on from generation to generation, it becomes one of the most critical challenges to sustainability.

Chapter 7, *Information Management*, describes the types of information practices that will be necessary to support long-term stewardship and identifies how DOE has begun to develop such practices.

2.6 Reliable Funding is a Significant Concern to Stakeholders

One of the biggest stakeholder concerns is the source and nature of sustained funding for long-term stewardship. Long-term stewardship activities at DOE sites are currently funded largely through annual Congressional appropriations. Alternatives such as investment funds, mitigation funds, trust funds, commercial fees, and public-private partnerships may provide more stable sources of funding. A variety of issues are associated with each funding alternative, including in some cases the lack of clear legislative authority to implement the alternative.

Chapter 8, *Funding and Financial Management*, provides further detail on the challenges to estimating the costs for implementing stewardship and the types of funding mechanisms that could be used for long-term stewardship.

2.7 Continued Partnerships with State, Local, and Tribal Governments is Essential

Depending on specific site circumstances, successful implementation of long-term stewardship may need significant participation from states, local communities, and Tribal nations. Tribal nations have a unique legal and political relationship with the United States government. Entities other than DOE are likely to have some responsibility for certain long-term stewardship activities. For example, local and Tribal governments have traditionally conducted and enforced land use planning, certain land use restrictions (e.g., zoning) and certain types of record-keeping (e.g., deed registration). Local communities and Tribal governments also may need to be active participants in creating and maintaining institutions to transfer long-term stewardship information and responsibility from generation to generation.

Affected parties may have secondary long-term stewardship goals for a site. In some instances, secondary goals may conflict with one another. A secondary goal of maintaining a site as open space for cultural resource protection or aesthetic reasons might be in conflict with a secondary goal to develop the site to enhance the local economy. It is essential that existing partnerships between DOE and affected parties continue to be maintained during long-term stewardship.

Chapter 9, *Natural Resources, Cultural Resources, Socioeconomic Issues, and Environmental Justice*, identifies many of the concerns and competing priorities that may need to be balanced during long-term stewardship. The strong need for continued partnerships is also noted in several other chapters.

2.8 Long-term Stewardship Responsibilities Will Pass from Generation to Generation

How long will long-term stewardship be needed? There is no precise answer to this question, but many of the residual hazards at DOE sites are likely to persist for many generations:

- Chromium, lead, and other elemental metals do not degrade in the environment and may pose threats through bioaccumulation in the food chain.

- Many organic chemicals, such as trichloroethylene, are relatively stable in the environment and may persist for hundreds of years. Other organic chemicals (e.g., benzene) may degrade in the environment over periods of decades. Organic chemicals may be difficult to remove from contaminated media and thus may pose threats for continued migration.

- Entombed facilities, building foundations, and buried infrastructure left in place may present physical hazards that will persist far into the future.

- Many of the radionuclides present at DOE sites have half-lives[6] measuring hundreds, thousands, and even millions of years. While half-life *per se* does not necessarily indicate

[6]The half-life of a radionuclide is a physical characteristic specific to that radionuclide. A half-life is the time required for a given amount of radioactive material to decay to half that amount. Half-lives of radionuclides vary from a fraction of a second to billions of years.

either the hazards posed by the material or the length of time that long-term stewardship will be needed, it is clear that many of the long-lived residual hazards at DOE sites have the potential to persist far into the future.

Some of the residual hazards at DOE sites will almost certainly outlive any cleanup strategies that can be implemented using today's technologies (e.g., disposal in landfills). Therefore, unless advances in science and technology allow us to eliminate or otherwise reduce the hazards associated with these long-lived substances, long-term stewardship responsibilities will pass from generation to generation. However, as experience has shown, there are challenges inherent in such intergenerational transfer.

The threats posed by residual hazards, the ability to reduce or eliminate these threats, and the economic value placed on residual materials and contaminated areas are likely to change over time. However, the need to conduct long-term stewardship to protect human health and the environment will remain. Therefore, the approaches and strategies developed for long-term stewardship must also evolve over time. Residual hazards and strategies for managing these hazards should be re-evaluated periodically to take into account new science and technology. Periodic reviews also will allow stewards to evaluate current and future technologies for which long-term effectiveness has not been demonstrated.

Chapter 10, *Sustainability of Long-term Stewardship*, discusses these inter-generational issues in detail, including the importance of integrating science and technology effectively into long-term stewardship activities. Chapter 4, *DOE's Long-term Stewardship Activities*, also discusses science and technology development efforts within the Department.

Long-term Stewardship and Public Health

The primary purpose of long-term stewardship is the continued protection of human health and the environment. Continued protection of public health will need continued research on the health effects of residual contaminants, public availability of up-to-date health information about residual contaminants, and public availability of up-to-date monitoring information on residual contaminants. At some sites, it may be appropriate to conduct health monitoring in the surrounding communities.

Chapter 3: The Relationship Between Cleanup, End State, and Long-term Stewardship

Many of the specific long-term stewardship needs at a site will follow directly from the types of cleanup actions being performed today. Decisions such as what to do with contaminated soils or facilities, and the subsequent cleanup actions taken to implement these decisions, will result in a specific *end state* for each site.[7] 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 needs. 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 needs will depend directly on the cleanup strategy implemented, end state achieved, and desired future uses.

This chapter describes DOE's efforts to integrate consideration of long-term stewardship issues into cleanup decisions, discusses several challenges facing the Department, and identifies several criteria for evaluating the long-term stewardship implications of cleanup decisions and end states.

APPLICABLE SCOPING COMMENTS
(see Exhibit 2 in Appendix B)

- DOE should not use long-term stewardship as a substitute for cleanup; leaving contamination in place should not be a priority cleanup strategy (13, 14)
- Long-term stewardship should be instituted only after cleanup to remove the maximum amount of contamination has been undertaken (13)
- DOE's long-term stewardship obligations will be greater at a given site if on-site waste treatment and disposal facilities are used instead of off-site facilities (15)
- DOE should develop methods for accurately reflecting long-term stewardship commitments in decision documents or should identify any uncertainties related to these commitments (STGWG)
- Each remedial alternative considered should be evaluated with respect to the types of institutional controls required and how they will be implemented (1, STGWG)
- DOE should use life-cycle accounting to assess the complete costs, present and future, associated with cleanup decisions (1, 4)
- DOE needs to identify portions of sites that can be cleaned up to unrestricted use and portions that can never be cleaned up completely with available technologies (18)

APPLICABLE ISSUE
(see Exhibit 3 in Appendix B)

1. *Relationship of "Cleanup" Decision Process to Long-term Stewardship Needs*

3.1 Cleanup and Long-term Stewardship

During cleanup, it is important to consider long-term stewardship issues and obligations explicitly when examining remedial alternatives and implementing a final remedy.[8] Affected parties need to understand how the cleanup actions selected during remedy selection will be implemented over time. To the extent they are willing to have a role in implementing certain aspects of long-term stewardship (e.g., managing and disseminating monitoring data, maintaining and enforcing groundwater use restrictions), affected

[7] The "end state" of a site or portion of a site is the physical condition reached when cleanup actions are complete. Key components for long-term stewardship include the nature and extent of residual contamination; the location and condition of stored or disposed materials; the location, type and condition of all engineered control and monitoring systems, and the threats posed to affected parties.

[8] *Planning and Implementing RCRA/CERCLA Closure and Post-Closure Care When Wastes Remain Onsite.* U.S. Department of Energy, Office of Environmental Policy and Assistance, RCRA/CERCLA Information Brief. DOE/EH-413-9910, October 1999.

parties also need to understand the future resource obligations they may incur as a result of this role. Affected parties also should determine the value of long-term stewardship activities in terms of how they may effectively prevent a larger-scale problem from impacting their communities in the future.

The Atomic Energy Act (AEA) directs DOE to manage radioactive materials in a manner consistent with the protection of public health and safety. The AEA authorizes DOE to establish standards to protect human health and the environment from activities under DOE jurisdiction.[9] The Resource Conservation and Recovery Act (RCRA) requires DOE and all other federal agencies to comply with all federal, state, and local laws and regulations concerning solid and hazardous waste (including mixed waste). In addition to its own requirements, DOE relies upon regulations and procedures developed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), RCRA, the Uranium Mill Tailings Radiation Control Act (UMTRCA), similar state regulations, site-specific agreements, and, in some cases, Nuclear Regulatory Commission (NRC) regulations to carry out cleanup actions.[10] The cleanup authorities pursuant to AEA, CERCLA, RCRA, and UMTRCA set the initial parameters for engineered and institutional controls and long-term care of sites as the necessary follow-on tasks to cleanup actions that cannot achieve unrestricted use.

The processes for determining cleanup decisions involve (1) evaluating the site conditions (e.g., contaminants of concern and concentration levels, real or potential risk, future use); and (2) developing remediation goals consistent with a set of threshold (or performance) criteria and balancing criteria, identified in DOE Orders, the CERCLA National Contingency Plan, and RCRA guidance documents. These criteria include evaluating long-term effectiveness and permanence of the alternative, anticipated future use, and the degree of certainty that the alternative will prove successful (Exhibit 3-1).[11] Requirements of cleanup decisions under RCRA typically extend up to 30 years beyond completion of cleanup, with provisions to extend monitoring and maintenance activities beyond that period if necessary.

Cleanup vs. Long-term Stewardship

- Long-term stewardship is not a substitute for cleanup
- Cleanup levels should be determined within the proper context of:
  - Technical feasibility
  - Worker health and safety
  - Collateral ecological damage
  - Cost
- A key driver for long-term stewardship is the extent to which cleanup achieves unrestricted use

[9]For example, DOE has developed Orders such as Order 5400.1, *General Environmental Protection Program*; Order 5400.5, *Radiation Protection of the Public and the Environment*; and Order 435.1, *Radioactive Waste Management*, in order to establish and maintain conditions that are protective of human health and the environment. DOE Orders are internal policies that are not enforceable by external parties.

[10]Activities under the jurisdiction of DOE generally are exempt from licensing requirements of the Nuclear Regulatory Commission (NRC), with limited exceptions. For example, DOE conducts long-term stewardship at inactive uranium milling sites under site licenses issued by the NRC in accordance with requirements in 10 CFR Parts 40.27 and 40.28.

[11]*Development of Remediation Goals under CERCLA*, U.S. Department of Energy, Office of Environmental Policy and Assistance, CERCLA Information Brief. DOE/EH-413/9711, August 1997; *RCRA Closure and Post-Closure Plans*, U.S. Department of Energy, Office of Environmental Guidance, RCRA Information Brief. DOE/EH-231-009/1291, December 1991.

Exhibit 3-1. CERCLA Criteria for Evaluating and Selecting Remedies*

Overall 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.

Compliance with Applicable and Relevant and Appropriate Requirements (ARARs). Each alternative must comply with chemical-specific, action-specific and location-specific ARARs. If an alternative cannot achieve compliance, justification for a waiver of the ARAR must be developed.

Long-term effectiveness and permanence. This evaluation assesses the residual risk posed by 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.

Reduction of toxicity, mobility, and volume of contamination. 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.

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. Each alternative is evaluated to determine the degree of protection afforded the surrounding community during the remedial action, the degree of the risk posed to workers during implementation, the adverse environmental impacts arising from construction and implementation, and the time required to achieve the remedial action objectives.

Implementability. This assesses both the technical and administrative feasibility of implementing each remedial alternative. Included in this assessment are: (1) consideration of the availability of the necessary resources to construct and implement the remedy; (2) an assessment of the reliability of the technology; and (3) the ease of undertaking other remedial actions at the site once the alternative is implemented. Another aspect of this assessment is the determination of the needs for interaction with other federal, state or local agencies. For example, this assessment may include determining any necessary permits for offsite activities.

Cost-effectiveness. This evaluation includes direct and indirect capital costs, as well as the 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.

State and community acceptance. After the state and stakeholders have had an opportunity to review the proposed remedial and corrective action alternatives and supporting documentation, their comments can lead to modification of DOE's preferred alternative [note that CERCLA regulations list state and community acceptance as two separate criteria].

*RCRA requirements for remedy selection are similar.

Cleanup standards and long-term stewardship requirements for UMTRCA sites are established directly by UMTRCA, NRC regulations, and EPA regulations. A long-term surveillance and maintenance plan is required for each UMTRCA site, including the monitoring and maintenance of engineered controls and provisions for emergency measures needed to protect public health and safety. Under the AEA, once site cleanups are completed,[12] the NRC will license the long-term maintenance and monitoring of UMTRCA sites in perpetuity. According to NRC regulations,[13] there is no termination of the general license issued by the NRC for custody and long-term care of residual radioactive material disposal sites.

The remedy selection and implementation process essentially determines how any residual hazards at a site will be managed for the long-term and thus establishes implicit or explicit long-

[12]DOE is responsible for the cleanup of Title I sites; the licensee is responsible for the cleanup of Title II sites.

[13]10 CFR Part 40.27(b) [Title I] and 10 CFR Part 40.28(b) [Title II].

term stewardship needs. For example, a remedy that incorporates an assumption about anticipated future land use establishes the long-term stewardship need to ensure that actual land uses remain consistent with this assumption. Similarly, a remedy that involves construction of a cap over a landfill establishes the long-term stewardship need to perform surveillance and maintenance of the cap and perform monitoring around and below the landfill. Similar long-term stewardship needs apply to private-sector and municipal landfills.

With respect to remedial actions conducted at DOE sites, if complete treatment or removal of the source(s) and resulting contaminated media is technically and economically feasible, the affected area should be suitable for unrestricted use (unless the area is needed for security or safety reasons). In these cases, where residual hazards have been eliminated, information management (e.g., routine record-keeping) will be the only long-term stewardship activity needed.

Closure of Beatty Low-level Radioactive Waste Disposal Site

On December 30, 1997, the State of Nevada assumed long-term stewardship responsibility for a commercial low-level waste disposal site in Beatty, NV. The disposal site was established in 1962 as a commercial site that was located on state property. The site closed in 1992, and the owner conducted closure and post-closure activities pursuant to the requirements in 10 CFR Part 61. The site was always state property, and the terms of the original site license called for the State of Nevada to accept permanent custody of the disposal site after closure. Because the license was agreed upon prior to the promulgation of 10 CFR Part 61, only some of the requirements of the regulation are applicable (for example, financial assurance was not applicable). The Beatty site was the first low-level radioactive commercial waste disposal site to complete all closure activities.

Sources: *Beatty facility closure complete, state takes over*. Nuclear News, February 1998, p. 67; Telephone conversation with the State of Nevada Health Division, June 26, 2000.

DOE typically conducts cleanups to achieve levels of residual hazards that are consistent with site land use plans. At sites where it is not technically or economically feasible to remediate to levels consistent with unrestricted use, the AEA, CERCLA, RCRA, UMTRCA, and other statutes require the use of long-term controls and/or operations as part of the remedy. A remedy consistent with an industrial land use plan would thus need appropriate institutional controls to protect worker health and safety. AEA, CERCLA, RCRA, and UMTRCA also require the monitoring of remedies to ensure their efficacy. The implementation of monitoring and institutional controls becomes a major part of long-term stewardship (see Chapter 5).

The processes for evaluating remedial alternatives and selecting, designing, and implementing remedies should consider the full life-cycle of each alternative, including any needed long-term stewardship activities associated with the remedial alternatives. DOE has developed initial guidance for evaluating long-term stewardship activities during these processes,[14] and NRC has developed specific regulations for long-term stewardship of UMTRCA sites (10 CFR Part 40 Appendix A). However, certain challenges remain, particularly for RCRA and CERCLA cleanup actions. In particular, it is not clear what documents are most appropriate for recording the long-term stewardship activities and obligations associated with each decision, and what

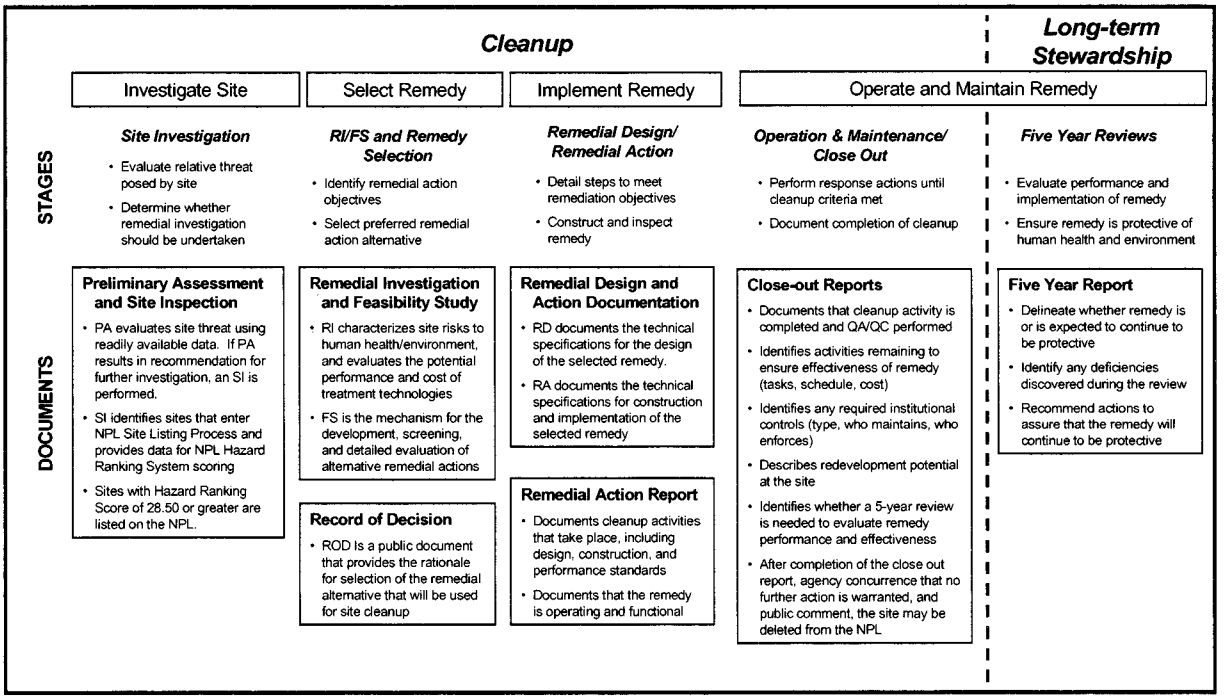
[14] *Using Remedy Monitoring Plans to Ensure Remedy Effectiveness and Appropriate Modifications*. U.S. Department of Energy, Office of Environmental Policy and Assistance, RCRA/CERCLA Information Brief. DOE/EH-413/9809, July 1998. *Assessment of Short-term and Long-term Risks for Remedy Selection*. U.S. Department of Energy, Office of Environmental Policy and Assistance, CERCLA Information Brief. DOE/EH-413/9708, August 1997. These documents are available at *http://tis.eh.doe.gov/portal/ksmlinkReg.htm*.

criteria are appropriate for evaluating the long-term stewardship implications of remedial decisions. These challenges are discussed below.

3.2 Documenting Long-term Stewardship Needs During the Selection and Implementation of Cleanup Actions

Some observers have expressed concerns that decision documents (e.g., Records of Decision under CERCLA) do not explicitly identify all of the long-term stewardship activities associated with the selected remedy. Records of Decision (RODs) are developed relatively early in the overall cleanup process (Exhibit 3-2), at a time when many details of the final remedy are not always known. Preliminary and Final Close-out Reports and other documents developed later in the cleanup process provide more specific information about the constructed remedy and needs for operation, maintenance, and monitoring of the remedy.

Exhibit 3-2. Highlights of the CERCLA Remedial Action Process*



*The cleanup process under RCRA is similar but uses different terminology.

Although documents such as Close-out Reports identify the types of institutional controls needed for a specific cleanup action, institutional controls needed for a number of individual cleanup actions are addressed through area- or site-wide land use plans (see Chapter 5). Most Regional Offices of the U.S. Environmental Protection Agency (EPA) have developed institutional controls policies that direct federal sites to develop and maintain Land Use Control Assurance Plans or their equivalent. For remedies that depend upon land use controls for protectiveness, EPA Region 4 Federal Facilities Branch has issued a policy memorandum on land use controls at

Public Comments for Considering Long-term Stewardship During the Remedy Selection Process (see Exhibit 2 in Appendix C)

- There should be a high likelihood that cleanups will remain effective as long as the residual hazards remain dangerous (1)
- The use of proven engineered barriers should be preferred over the use of institutional controls (1)
- Reliance on anticipated land use to establish cleanup levels leaves the remedy vulnerable to future land use changes (1)
- Clean up to unrestricted use levels, which would avoid the need for long-term stewardship, whenever possible (1, 4, 6, 11, 13, 15, 17, 19, 20, 24, 28, 29, 30, 32, 34, 35, 44, 45)
- Consider how to plan establish, maintain, and fund long-term stewardship (6, 11, 16, 20, 32, 34, 35, 45)
- Evaluate who benefits from and who pays for different remedial alternatives (29)
- Cost-effectiveness should not be as important as reliability (30)
- Evaluate the costs of long-term storage and different levels of cleanup (37)
- Try to minimize the overall physical "footprint" of each site (37)
- Manage and dispose of waste in a manner that preserves future long-term management options (e.g., segregate waste and use location controls within each disposal cell) (37)
- Consider how to reconcile past decisions that did not adequately account for public input and the cost, difficulty, and uncertainty of long-term stewardship (41)
- Clearly integrate the concept of permanence (1, 47)
- The current approach DOE has taken to limit cleanup and reduce engineered protection of buried wastes does not ensure adequate compliance and protection for future generations (49)
- The *Draft Study* assumes cleanup has been defined or characterized in a manner acceptable to all stakeholders; but end states have not been fully examined or decided upon to the satisfaction of those who will eventually be responsible for long-term stewardship (e.g., Tribes, states, local governments) (49)
- Mitigation and restoration plans should be incorporated into waste site remediation efforts (27)
- It is unclear who will decide what is an acceptable level of cleanup at DOE sites and what level would be the national standard (44)
- Seismic concerns must be evaluated (45)
- Avoid transferring hazardous substances; this necessitates the complication of transportation and site reclamation (6, 11, 32, 34, 45)
- "Unrestricted Use" must be clearly and consistently defined (46)
- A well defined remediation objective in the ROD will clarify long-term stewardship needs (29)
- Uniform long-term stewardship criteria for remediation should be identified with stakeholder participation (1, 19)
- The inclusion of long-term stewardship controls in the remedy selection process is an important factor in the acceptance of institutional controls (50)
- The overwhelming driver for leaving contamination at most DOE sites is cost rather than technical feasibility or community values (29)
- Without some certainty about long-term stewardship, there may be a decline in support (47)
- Long-term stewardship evolved from environmental cleanup (47)
- It is optimistic to think that the remedy selection process essentially determines how any residual hazards at a site will be managed for the long-term and therefore establishes implicit or explicit long-term stewardship requirements (4)
- DOE should make every effort to delineate alternative possible future courses of action as clearly as possible in the *Study* and provide objective analyses of the various pros and cons of each alternative (7)
- The highest level goal for long-term stewardship is the remedy objective established in the remedy selection process (29)
- DOE should develop Contingency Plans at the time cleanup decisions are made (20)

Federal Facilities.[15] Region 4 policy is to require, as a precondition to concurrence on any remedial action that relies on land use controls for the protectiveness of the remedy, that the lead federal agency seeking EPA concurrence commit itself to implementing a detailed written Land Use Control Assurance Plan (LUCAP) designed to assure the effectiveness and reliability of the land use controls for as long as they are needed to maintain the protectiveness of the remedy. A LUCAP may be documented in a Memorandum of Agreement, Federal Facility Agreement, or Record of Decision.

According to DOE guidance,[16] documentation for the proposed and final remedy should describe the criteria used to evaluate each remedial alternative with respect to long-term stewardship and how long-term stewardship was considered in the decision making process. For example:

> *The potentially feasible institutional controls will be bounded by:*
>
> - *Short and long term land-use expectations (e.g., current industrial, future residential, future recreational green space);*
> - *Availability of enforcement mechanisms (e.g., property owner controls, third parties, local government, state government); and*
> - *Community acceptance of the response action.*[17]

The documentation also should describe how each remedial alternative and its associated long-term stewardship activities are related to the anticipated future land use, and particularly should describe systems and procedures that will be implemented to maintain that anticipated land use. The Department is currently evaluating whether it may be appropriate to consider supplemental documentation for older decisions that do not fully describe long-term stewardship issues.

CERCLA RODs and other decision documents should clearly identify the problems being remedied, the remedial objectives, and the long-term stewardship implications to the extent feasible. CERCLA RODs are enforceable federal requirements developed with well-defined public involvement processes; and they are highly visible public documents. Including long-term stewardship needs in CERCLA RODs would ensure that these needs are considered early in the remedy selection process. Well-defined objectives will allow definition of long-term needs, even if the specifics of implementation are not resolved until later in the cleanup process.

CERCLA RODs are not the only appropriate documents for recording long-term stewardship needs. Many cleanups are conducted pursuant to other, non-CERCLA authorities (e.g., AEA, state laws) which may differ in the need to consider remedial alternatives. Moreover, many removal actions under CERCLA are not based on RODs, and decision documents often cover only part of an overall long-term stewardship problem (e.g., they cover one operable unit at a large site, or there may be separate ROD for groundwater and soil contamination). In addition,

---

[15] *Assuring Land Use Controls at Federal Facilities*. U.S. Environmental Protection Agency, Region 4, Federal Facilities Branch, Memorandum 4WD-FFB, April 1998.

[16] *Institutional Controls in RCRA and CERCLA Response Actions*. U.S. Department of Energy, Office of Environmental Policy and Guidance, RCRA/CERCLA Division, August 2000 (DOE/EH-413-0004); *Planning and Implementing RCRA/CERCLA Closure and Post-Closure Care when Wastes Will Remain On Site*. U.S. Department of Energy, Office of Environmental Policy and Assistance, October 1999 (DOE/EH-413-9910); *The Long-term Control of Property: Overview of Requirements and Orders DOE 5400.1 & DOE 5400.5*, U.S. Department of Energy, Office of Environmental Policy and Assistance, October 1999 (EH-412-0014/1099).

[17] *Institutional Controls in RCRA and CERCLA Response Actions*, page 29.

remedies may need to be adjusted based on information that becomes available during design and implementation stage.

Public Comments with Suggestions for Public Involvement During Remedy Implementation and Long-term Stewardship (see Exhibit 2 in Appendix C)

- DOE must speak candidly about the nature of persisting hazards (24)
- DOE should identify the public involvement processes for preliminary and final Close-out Reports, Remedy Monitoring Plans, site long-term stewardship plans, CERCLA Five Year reviews, and other periodic re-evaluations (1, 25, 30, 35)
- The public, both local and regional, affected states, Tribes, local universities and private institutions, local communities and others should be consulted and involved in decision-making at the beginning and throughout long-term stewardship, including periodic re-evaluations, monitoring updates, and funding options and every final decision. DOE should plan for uncertainties in coordination between the agency and other parties (1, 5, 6, 11, 13, 15, 17, 20, 21, 23, 29, 30, 32, 34, 36, 44, 45, 47)
- DOE should make special efforts to involve Tribes, members of minority and low-income populations, residential neighborhoods around the site, communities in the broad geographic region affected by the site, and citizens not on advisory boards (30, 44, 45, 47)
- Open dialogue, access to information, candid discussions, and trust will be very important (24, 30)
- Public involvement should include providing accurate, complete information (historical and ongoing), good communication, and regular meetings and hearings with affected parties (5, 23, 26, 30, 34)
- DOE should provide support to local communities in the form of independent technical expertise, retention of the SSABs during long-term stewardship, funding of a system of community boards, funding for active and ongoing public education, funding for community-led studies, and training members of the public to find and interpret monitoring data (3, 17, 20, 22, 23, 24, 30, 31)
- There should be better long-term stewardship coverage in proposed plans and RODs; a post-ROD document, to which the public has no required input, is no place to define high-level goals for long-term stewardship (3, 22)
- All cleanups that fall under the long-term stewardship program should use the CERCLA regulatory framework (6, 11, 32, 34, 45)
- Should discussions at the site or field office level which examine future Long-term stewardship include local universities and private institutions who may have an interest? (36)
- Principle drivers for long-term stewardship should include public and state concern (25)
- The *Study* should identify the many ways DOE benefits from public involvement (1, 28, 44)
- Long-term stewardship should include residential neighborhoods around the facilities (45)
- Soon, community boards connected to a national board should help guide long-term stewardship activities. DOE should fund but not direct these boards (24)
- The history and background of long-term stewardship decisions must be made available to the public and these details should be required to be included in final decision documents. (34)
- Any DOE claim that "national security" is a legitimate excuse for withholding information is a relic of the Cold War and should be discarded immediately (49)
- Exhibit 3-2 should discuss points for public involvement in the CERCLA process (1)
- A joint effort, involving all stakeholders, is needed to ensure the provisions of a stewardship plan (25)
- The primary concern of some Tribal and local representatives is figuring how to make long-term stewardship work. Since DOE is not going to spend trillions of dollars to clean up to background levels, long-term stewardship has to work (47)
- DOE should reinforce its commitment to meaningful public involvement by adding appropriate language in several sections of the *Study* (7)

Documents developed subsequent to CERCLA RODs or their equivalent should be used to provide more specific details about long-term stewardship needs. Such documents may include Close-out Reports, Five Year Reviews, and/or Remedy Monitoring Plans (RMPs). These documents can reflect adjustments to the remedy that occur during design and implementation of the remedy and subsequently during long-term stewardship. However, CERCLA and other existing laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the selection of the remedy (e.g., the CERCLA ROD). At the same time, the Department recognizes that the ultimate success of long-term stewardship will depend, in part, on the meaningful involvement of affected parties. It is therefore important for DOE, states, Tribes, communities, and all other affected parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities.

Remedy Monitoring Plans

DOE guidance recommends the development of a remedy monitoring plan (RMP) to identify the objectives, schedules, information, procedures, technologies, and personnel necessary to monitor and ensure the continued effectiveness of a remedy. The plans would include evaluation of the compliance of the remedy with applicable standards; continued performance of the design, operation, and maintenance of the remedy; and continued maintenance of the land use upon which the remedy selection was based. The RMP also should include provisions for modifying the RMP and/or the remedy itself to respond to changes in land use, advances in technology, changes in remedy performance, or changes in site characteristics. The RMP should be established as part of the decision document for the remedy. To the extent feasible, a preliminary draft RMP should be developed for each remedy being considered in the remedy selection process to identify the long-term stewardship needs for each alternative. In cases where RMPs for individual remedial actions are impractical (e.g., many separate areas of concern within a larger area or site), it may be possible to extend the concept of the RMP to an entire site or major portions of a site.

Source: Using Remedy Monitoring Plans to Ensure Remedy Effectiveness and Appropriate Modifications. U.S. Department of Energy, Office of Environmental Policy and Assistance, RCRA/CERCLA Information Brief, DOE/EH-413-9809, July 1998.

There is no direct regulatory driver for a long-term stewardship RMP. However, DOE Orders, and CERCLA and other environmental laws and regulations, require remedies to be monitored for effectiveness. The enhanced RMP could apply either to a specific cleanup project or to a site/area in general. It would provide a formal basis for developing and evaluating long-term stewardship plans and needs, while at the same time preserving the flexibility to modify approaches as new information becomes available. The RMP also could be used for self-regulated DOE activities (e.g., facility disposition, on-site disposal of low-level waste), although any such plans would need to incorporate the performance assessment (PA) and composite analysis (CA) directed by DOE Order 435.1 for each low-level waste disposal facility (see Section 5.2).

3.3 Criteria for Evaluating Long-term Stewardship Needs During Remedy Selection

Several criteria and recommendations for evaluating long-term stewardship needs during remedy selection have been suggested in guidance developed by DOE, EPA, and the Department of Defense (DoD) and in recommendations forwarded to the Department by stakeholders and throughout the public scoping process. These criteria and recommendations and their citations are highlighted in Exhibits 3-3 and 3-4 and summarized below.

- **Ability to demonstrate the long-term effectiveness of institutional controls**. The evaluation of each remedial alternative should include the identification, description, and assessment of existing systems for implementing, enforcing, and funding institutional controls within the site-specific context of affected parties. An alternative that relies upon affected parties to enforce land use controls but does not identify specific mechanisms by which affected parties can enforce these controls should be given less consideration than an alternative for which oversight and enforcement authorities and mechanisms have been clearly identified.

Public Comments Providing Recommendations on Criteria for Evaluating Long-term Stewardship Needs During Remedy Selection (see Exhibit 2 in Appendix C)

- The *Study* should include a specific set of tasks that DOE will perform, with stakeholder participation, to establish uniform long-term stewardship criteria that can be used in the remedy selection process (19)
- DOE should provide an opportunity for the public to challenge cleanup choices if there is overwhelming concern in the community for the impacts of cleanup technologies (45)
- DOE should use a layered approach where greater weight is given to inputs from those who live near or may be directly impacted by a site (46)
- Discussions of cleanup and long-term stewardship must include an analysis of how Natural Resource Damage Assessments fit into the scheme (49)

- **Ability to monitor, maintain, and replace engineered controls**. The evaluation of each alternative should include the identification, description, and assessment of the technologies for maintaining, refurbishing, and replacing any needed engineered controls at the end of their functional design life. An alternative for which there is no technologically feasible methodology for replacing the engineered control at the end of its functional design life should be given less consideration than an alternative for which periodic replacement is feasible. Similarly, an alternative for which maintenance procedures are difficult to design and implement, or for which data to monitor remedy effectiveness would be difficult to interpret, should be given less consideration than an alternative for which monitoring and maintenance are relatively straightforward.

- **Ability to identify uncertainties and develop contingency plans**. The evaluation of each alternative should include the identification, description, and assessment of uncertainties related to long-term stewardship needs. An alternative for which there is considerable uncertainty concerning the functional design life of an engineered control, or the ability to detect and mitigate potential failures, should be given less consideration than an alternative for which there is less uncertainty and clear contingency plans for addressing potential failures.

Exhibit 3-3. Criteria Developed by DOE, EPA, and DoD for Evaluating Long-term Stewardship Needs During Remedy Selection and Implementation

Department of Energy	
Long-term Effectiveness of Institutional Controls • Institutional controls (ICs) must be effective for both current and future conditions. Effectiveness criteria should include durability, monitoring of remedy, and ability to modify controls.[1] • Remedy selection process should assess capacity to identify, implement, and enforce ICs, including existence of the legal authorities.[1] • DOE should investigate the practicability and cost of ICs as thoroughly as the proposed treatment technology during the remedy selection process.[2] • DOE should evaluate the long-term risks of remedial alternatives during the feasibility study phase of the remedy selection process to ensure that the "long-term effectiveness and permanence" of each alternative is considered.[3] **Monitoring and Maintenance of Engineered Units** • DOE guidance recognizes that many containment-in-place remedies need monitoring through the use of discrete monitoring points; however, discrete points often only indicate data trends and cannot demonstrate that the remedy is functioning properly.[4] • DOE should develop remedy monitoring plans to screen each alternative remedy for effectiveness, cost, and implementability. Remedy monitoring plans should be designed to gauge performance of the remedy design, operation, and maintenance and detect engineered or institutional control failures.[4,5]	**Uncertainty Management/Contingency Planning** • DOE can use Conceptual Site Models to evaluate uncertainties associated with remedial alternatives. • Remedy monitoring plans should specify under what conditions contingencies must be implemented.[4] • DOE can use uncertainty matrices to identify impacts of uncertainties associated with engineered and institutional controls, assess uncertainties that may affect performance, and identify contingencies to mitigate potential impacts.[1,6] • Effectiveness of ICs can be enhanced if the ICs are managed as rolling rather than static systems. IC monitoring plans should allow for systematic reassessment of the need for effectiveness of ICs.[1] **Remedy Life-cycle Cost Analysis** • Evaluation of ICs needs consideration of life-cycle costs that will be incurred over the length of time the controls need to be effective. Remedy evaluations should consider life-cycle costs of ICs, including maintenance of physical control measures, monitoring, and enforcement.[1] • Some IC life-cycle costs will be incurred by entities other than the federal government. These costs must also be considered in the life-cycle cost analysis.[1] • The DOE Offices of Site Closure and Long Term Stewardship will ensure that sites create Long-term Surveillance and Maintenance (LTSM) programs that will estimate continuous and intermittent costs.[7]
Environmental Protection Agency	
Long-term Effectiveness of Institutional Controls • EPA remedy selection criteria used to evaluate the long-term effectiveness of ICs also can be used to evaluate the potential for failure of the controls.[8] • In evaluating remedies, EPA should determine the existence of the authority, ability, and resolve of the implementing entity to implement controls.[8,9,10] • EPA should evaluate ICs as rigorously as proposed engineered controls and should evaluate long-term effectiveness and permanence of the ICs.[8,10,11,12] • A remedy that relies on ICs should be selected only if the ICs will be effective and enforceable against both current and potential future property owners.[8] • DOE facilities should develop and implement land use control assurance plans that identify procedures to ensure ICs remain effective, prior to agency approval of the remedy.[12]	**Uncertainty Management/Contingency Planning** • Institutional Control Plans developed for selected remedies should identify and establish contingencies to be implemented in the event of control failures.[8] **Remedy Life-Cycle Cost Analysis** • Cost estimates developed for remedial alternatives should incorporate remedy capital costs and lifetime operation and maintenance costs.[13] • The remedy selection process should include a comparison of long-term risks and costs of leaving a residual hazard in place versus permanent remedies that do not need ICs. Long-term costs of leaving residual hazards in place include cost to implement and maintain engineered controls and cost to implement contingencies for control failures.[8]

Exhibit 3-3 (continued)

Department of Defense	
Long-term Effectiveness of Institutional Controls • DoD reserves the right to enforce ICs and include enforcement language in land transfer documents.[14] • DoD should consider the pros and cons of establishing and maintaining ICs in the remedy process.[16] • DoD guidance recommends that, to the extent allowable by state and local laws, ICs should "run with the land" and be enforceable by all prior owners of property and other third parties.[16] **Monitoring and Maintenance of Engineered Units** • DoD advocates establishment of ongoing long-term monitoring optimization programs to maintain the maximum effectiveness for monitoring engineered and institutional controls. Monitoring programs should be reviewed and updated periodically.[15]	• Property transfer agreements will include provisions for continued access to DoD to conduct Five Year Reviews and effectiveness monitoring.[17] **Remedy Life-cycle Cost Analysis** • Feasibility studies for remedial alternatives should analyze the relative cost of implementation and monitoring of ICs.[15] • To ensure effectiveness of ICs, stakeholders may need to coordinate long-term responsibilities for implementation among federal and local entities and determine resources that are needed and/or available to implement controls.[15] • DoD recommends periodic cost analysis review of long-term monitoring systems. DoD's Remedial Actions Cost Engineering and Requirements tool facilitates comparison of long-term monitoring program costs.[18]

1. Institutional Controls in RCRA and CERCLA Response Actions. U.S. Department of Energy, Office of Environmental Policy and Guidance, RCRA/CERCLA Division, DOE/EH-413-0004, August 2000.
2. Effects of Future Land Use Assumptions on Environmental Restoration Decision Making. U.S. Department of Energy, Office of Environmental Policy and Assistance, RCRA/CERCLA Information Brief, DOE/EH-413/9810, July 1998.
3. Assessment of Short-Term and Long-Term Risks for Remedy Selection. U.S. Department of Energy, Office of Environmental Policy and Assistance, CERCLA Information Brief, DOE/EH-413/9708, August 1997.
4. Planning and Implementing RCRA/CERCLA Closure and Post-Closure Care when Wastes Will Remain On Site. U.S. Department of Energy, Office of Environmental Policy and Assistance, DOE/EH-413-9910, October 1999.
5. Using Remedy Monitoring Plans to Ensure Remedy Effectiveness and Appropriate Modifications. U.S. Department of Energy, Office of Environmental Policy and Assistance, RCRA/CERCLA Information Brief, DOE/EH-413-9809, July 1998.
6. Uncertainty Management: Expediting Cleanup through Contingency Planning. U.S. Department of Energy, Office of Environmental Management and Office of Environmental Safety and Health, DOE/EH/(CERCLA)-002, February 1997.
7. Self-Assessment of Business Close-Out Activities. U.S. Department of Energy, Office of Site Closure, March 15, 2000.
8. Use of Institutional Controls in the RCRA Corrective Action Program. U.S. Environmental Protection Agency, Region 5, Waste, Pesticides, and Toxics Division, March 2000.
9. Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, and Office of Radiation and Indoor Air, OSWER No. 9200-4.18, August 22, 1997.
10. Land Use in the CERCLA Remedy Selection Process. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, EPA OSWER Directive No. 9355.7-04, May 1995.
11. Region X Final Policy on the Use of Institutional Controls at Federal Facilities. U.S. Environmental Protection Agency, Region 10, Office of Environmental Cleanup Memorandum, May 1999.
12. Assuring Land Use Controls at Federal Facilities. U.S. Environmental Protection Agency, Region 4, Federal Facilities Branch, Memorandum 4WD-FFB, April 1998.
13. The Role of Cost in the Superfund Remedy Selection Process. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Publication 9200-3-23FS, EPA 540/F-96/018, September 1996.
14. DoD Responsibility for Additional Environmental Cleanup After Transfer of Real Property. U.S. Department of Defense, located at *www.dtic.mil/envirodoc/brac.flu.html* July 25, 1997.
15. The Environmental Site Closeout Process Guide. U.S. Department of Defense, Air Force Base Conversion Agency, September 1999.
16. A Guide to Establishing Institutional Controls at Closing Military Installations. U.S. Department of Defense, February 1998.
17. DoD Guidance on the Environmental Review Process to Reach a Finding of Suitability to Transfer for Property where Release or Disposal has Occurred. U.S. Department of Defense, located at *http://emmisary.acq.osd.mil/bccr/brim*, June 1, 1994.
18. Long-Term Monitoring Optimization Guide. U.S. Department of Defense, Air Force Center for Environmental Excellence, located at *http://www/afbca.hq.af.mil/closeout/*.

Exhibit 3-4. Recommendations by Affected Parties for Considering Long-term Stewardship During Remedy Selection and Implementation

Long-term Effectiveness of Institutional Controls
• The goals of institutional controls, the types of controls required, and control implementation and maintenance should be evaluated for each alternative in the remedy selection process.[1] • DOE should retain ownership of land requiring institutional controls unless affected state or Tribal governments certify that adequate institutions and legal mechanisms exist to implement and enforce such controls.[1] • DOE sites need to prepare site stewardship plans that address the legal authority and enforcement of institutional controls, as well as the effects of property transfers to other agencies or non-federal owners.[6] • The Assistant Secretary should evaluate the applicability and reliability of available non-physical institutional controls, with particular attention to their effectiveness, enforceability, and permanence. The evaluation should consider controls on lands held in federal ownership and lands leased or sold to private individuals or entities.[7] • The Assistant Secretary should evaluate the capabilities of relevant public and private institutions to effectively implement and administer institutional controls over time; and should ensure that remediation and institutional controls have overlapping and/or redundant requirements.[7]
Monitoring/Maintenance of Engineered Units/Verification of Remedy Monitoring Data
• DOE should identify for each engineered control remedy the expected design life of the remedy and associated repair or replacement costs that can be expected to be incurred by future generations.[2] • DOE should establish a stewardship research program designed to understand the ecological and social impacts of residual hazards and to devise new and improved long-term remediation methods and technologies.[2] • DOE sites need to prepare site stewardship plans that address monitoring and maintenance of facilities and physical controls.[6] • The Assistant Secretary should require periodic review of all sites to evaluate the effectiveness of remediation decisions and institutional and physical controls with regard to technological developments, changing environmental and contamination conditions, and costs .[7]
Information Management
• DOE should establish mechanisms for the collection, retrieval, and storage of site data and information necessary for long-term stewardship and preservation of cultural and historic resources.[1,6] • DOE should collect, preserve, and integrate all information needed for long-term stewardship into its information management system, and incorporate stewardship activities into a project management and tracking system to track the progress of and provide stewards with timely notification of stewardship activities.[2] • DOE should implement effective procedures for managing contaminated land notices to ensure that they are found in property title searches, and incorporate information on land use restrictions in state, county, and city information systems.[2] • DOE should jointly manage and link databases of land use information with local land use agencies, and consider establishing cooperative planning entities with local and state planning agencies.[5] • DOE should immediately suspend the operation of protocols that require the routine destruction of relevant records. DOE should coordinate its information activities with the work of the Secretary's Openness Committee to identify and provide for the management of records relevant to long-term stewardship.[6] • DOE should create a geographically based or other type of database for stewardship information. The database should be a means to informing decisions, and any form that the database takes should be durable.[6] • DOE should identify its "stewardship baseline" – the specific items of information that are necessary to plan and carry out long-term stewardship.[6] • The Assistant Secretary should create a publicly available information system that identifies waste sites, location, characteristics, controls, and contingency plans; and should develop options for maintaining remediation and institutional control records at several government levels (local, state, tribal, national).[7]

Exhibit 3-4 (continued)

Uncertainty Management and Contingency Planning
• For decisions that include long-term institutional controls or monitoring and maintenance of engineered controls, DOE should develop methods for accurately reflecting such commitments in the decision process or identify and emphasize uncertainties surrounding such commitments.[1] • DOE sites should prepare stewardship plans that include contingency planning for potential identification of new contamination or potential remedy failures.[6] • The Assistant Secretary should develop contingency plans for reasonably forseeable failures of remediation and/or physical and institutional controls .[7]
Remedy Life-cycle Cost Analysis and Funding Mechanisms
• DOE's current method of costing long-term institutional controls does not accurately reflect the relative cost of long-term stewardship activities. If present worth values are used to compare the cost of remedial alternatives, annual costs associated with the use of institutional controls become negligible beyond a few decades. DOE should more fully explain and quantify the required long-term cost and funding commitment required for long-term institutional controls and develop plans to ensure availability of adequate funding for such controls.[1] • DOE should formally acknowledge that remedy decisions requiring long-term institutional controls will not be considered final until DOE can implement an acceptable stewardship program that includes an acceptable funding mechanism.[1] • For new facilities and missions, DOE should address the closure and long-term stewardship commitments associated with the facility or mission in the initial approval decision and make provisions for funding of the closure and post-closure operations of the new facility or mission.[1] • DOE should promote mechanisms for funding stewardship that do not depend upon annual appropriations, with trust funds being the preferred approach. At a minimum, an adequate principal should be set aside to produce sufficient income to fund long-term monitoring of residual hazards.[2] • Congress should establish a fund that will generate the required annual budget for stewardship. Until such an independent funding mechanism is established DOE should request stewardship funding as a specific line item in its annual appropriations process.[3] • DOE should estimate the cost, time frames, and types of activities that will be needed for long-term stewardship at DOE sites.[4] • DOE should define responsibilities for long-term stewardship, including early involvement of local governments and adequate long-term support to local agencies charged with stewardship responsibilities.[5] • The Assistant Secretary should require full consideration of the estimated life-cycle costs of remediation and long-term institutional controls in order to evaluate the tradeoffs between cleanup and stewardship.[7]

1. Closure for the Seventh Generation: A Report from the Stewardship Committee of the State and Tribal Government Working Group. National Conference of State Legislatures, Washington D.C., February 1999.
2. The Oak Ridge Reservation Stakeholder Report on Stewardship, Vol. 2. Oak Ridge Reservation Stewardship Working Group, December 1999.
3. The Oak Ridge Reservation Stakeholder Report on Stewardship, Vol. 1. Oak Ridge Reservation Stewardship Working Group, July 1998.
4. Probst, K. N., and McGovern, M. H. Long-Term Stewardship and the Nuclear Weapons Complex: The Challenge Ahead. Center for Risk Management, Resources for the Future, Washington D.C., June 1998.
5. Lowrie, K. Local Land Use Planning and Future Use of U.S. DOE Sites: Communication, Coordination, and Commitment, Report 32. Consortium for Risk Evaluation with Stakeholder Participation, September 1999.
6. Bodde, D., Environmental Management Advisory Board Long-term Stewardship Committee Report and Recommendations. October 8, 1998.
7. Bodde, D., and Bennett, Joel. Resolution on Institutional Controls on DOE Properties. Environmental Management Advisory Board, April 17, 2000.

- **Full life-cycle cost accounting**. The evaluation of each alternative should include an estimate of its full life-cycle cost, including costs for surveillance, maintenance or replacement of engineered controls, costs for the implementation and enforcement of institutional controls, and potential natural resource damages implications and liabilities. Although the annual long-term stewardship cost of an alternative may represent only a small fraction of the capital cost to implement the alternative, the long-term stewardship costs may be incurred for hundreds or thousands of years. Although engineered controls that are designed to last a long time and be easy to maintain may have large up-front costs, they may be less expensive in the long-term than controls that cost less to build initially but are not expected to last as long. The Department recognizes that it may be difficult to estimate life-cycle costs, particularly early in the remedy evaluation process. DOE also recognizes that existing cost methodologies (e.g., net present worth value) may not always be appropriate for comparisons. Where considerable uncertainty exists, it may be appropriate to develop a range of life-cycle cost estimates based on upper and lower bound design life scenarios to compare one alternative to others (see Chapter 8).

Chapter 4: DOE's Long-term Stewardship Activities

The Department established the Office of Long Term Stewardship in 1999 to help coordinate and communicate long-term stewardship efforts within the Office of Environmental Management (EM). Coordination is needed because the majority of long-term stewardship activities are conducted at individual DOE sites and managed by a variety of programmatic offices at headquarters and in the field. This ensures that DOE conducts its missions in a manner that protects human health and the environment.

This chapter describes how long-term stewardship is being planned, managed, and implemented at DOE sites.

APPLICABLE SCOPING COMMENTS
(see Exhibit 2 in Appendix B)

- The Assistant Secretary should ensure that the Office of Long Term Stewardship at headquarters has the responsibility and authority for directing policy for long-term stewardship, and for ensuring implementation and accountability in the field (4)
- DOE should create a specific long-term stewardship program office not limited to EM (STGWG)
- DOE should continue to work with stakeholders, regulators, and Tribes to develop an acceptable long-term stewardship program (3, 4, STGWG)
- DOE should discuss long-term stewardship responsibilities at multi-program sites (14)
- DOE should evaluate the pros and cons of different federal agencies performing long-term stewardship activities especially at sites with significant natural resources or historic preservation value (1)
- DOE should continue research and development activities to minimize residual contamination and reduce future long-term stewardship costs (4)
- DOE sites should each develop a long-term stewardship plan that defines costs, constituents, and implementation mechanisms (2)
- The *Study* should examine DOE's existing legislative mandates for maintaining institutional controls over contaminated sites and alternatives for sharing regulatory responsibilities with other federal agencies (6)
- The *Study* should examine alternative internal organizational and programmatic strategies needed to maintain long-term stewardship programs (6)

APPLICABLE ISSUES
(see Exhibit 3 in Appendix B)

4. *Regulatory Drivers, Negotiated Agreements, and Legislative Barriers*
7. *Science and Technology Development*
14. *Stewardship Responsibilities at Non-EM Facilities with Continuing Operations and Multi-Purpose Sites*
20. *Enforcement*
23. *Tie National Policy to Stewardship Legislative Mandate*

4.1 What are the Drivers for Long-term Stewardship?

The principal drivers for existing long-term stewardship at DOE sites are: (1) the responsibility of DOE to protect human health and safety pursuant to the AEA; (2) CERCLA, RCRA, UMTRCA, other environmental statutes, and implementing requirements (including Consent Decrees, Federal Facility Agreements, licenses, and permits); (3) Executive Orders; and (4) applicable Treaty obligations pertaining to Tribal governments.[18] Many of these requirements were developed for other purposes, not specifically for long-term stewardship. Specific requirements for long-term stewardship that apply to DOE include:

[18]The *Executive Memorandum for the Heads of Executive Departments and Agencies on the Government-to-Government Relations with Native American Tribal Governments* (April 29, 1994) enumerates the federal government's responsibility to operate within a government-to-government relationship with federally-recognized Native American tribes.

- Ensuring compliance through routine surveillance and monitoring under AEA and DOE Order 5400.1, *General Environmental Protection Program*, and DOE Order 5400.5, *Radiation Protection of the Public and the Environment*, for sites contaminated with radioactive materials.

- Implementing the long-term surveillance and maintenance requirements established by Titles I and II of the Uranium Mill Tailings Radiation Control Act (UMTRCA) (10 CFR Part 40.27-28).

- Where contaminants are left in place, conducting five-year performance reviews for sites remediated pursuant to CERCLA (40 CFR Part 300.430).

- Implementing post-closure maintenance and monitoring and periodic performance reviews for sites remediated pursuant to RCRA, which requires a minimum of 30 years of post-closure care (40 CFR Part 264.117).

- Ensuring compliance with long-term monitoring, maintenance, and institutional controls requirements for the Waste Isolation Pilot Plant (WIPP) in New Mexico established by the WIPP Land Withdrawal Act (Public Law 102-579) and regulations promulgated under this statute (40 CFR Parts 191 and 194).

Public Comments Providing Recommendations on Regulatory Requirements (see Exhibit 2 in Appendix C)

- DOE needs to ensure adequate oversight and enforcement of long-term stewardship requirements, especially with respect to self-regulation (19, 29)
- DOE should establish external regulation (e.g., NRC licensing or regulation, CERCLA) for long-term stewardship (1, 4, 11, 28, 44)
- DOE should assist state and local government agencies in developing the legislation required for the maintenance of long-term stewardship (41)
- Periodic updates of legal and regulatory citations, summaries of specific concepts, examples, and other material would be helpful (4)
- Congressional legislation may be required for long-term stewardship directives (49)
- Site cleanups under LTS program should use CERCLA as it provides the most opportunity for community involvements (6, 11, 32, 34, 35)
- Federal, state, and local regulations that do not significantly contribute to doing or completing LTS should be revised or eliminated (8)
- A list of bibliographic and textural documentation of legal and regulatory requirements should be compiled (43)
- All major sites should complete EIS's under NEPA with LTS considerations included (45)
- There has been no definitive discussion with states to describe their roles or how they will be financially supported (25)
- Guidance is often ignored or slighted unless external pressure is exerted (29)
- The *Study* does not mention the DOE and NRC's requirements for cleanup to "as low as reasonably achievable" or ALARA (29)

- Ensuring compliance with applicable statutory and regulatory requirements and Executive Orders protecting natural resources and cultural resources (see Chapter 9).

- Ensuring compliance with DOE Order 1230.2, *American Indian Tribal Government Policy*, and ensuring that obligations under the Federal Indian Trust Responsibility (Seminole Nation v. United States, 1942) and treaty obligations are met.[19]

[19]Tribal governments have a special and unique legal and political relationship with the US Government, defined by history, treaties, statutes, court decisions, and the US Constitution. The United States has entered into more than 600 treaties and agreements with American Indian Tribes. These treaties and agreements create a variety of legal responsibilities for the United States toward Tribes and provide the basis for a government-to-government relationship. Although the Department of the Interior, through the Bureau of Indian Affairs, has the principal responsibility for upholding obligations of the federal government to American Indians, this responsibility extends to

- Ensuring compliance with DOE Orders on facility and land use planning (430 Series).
- Ensuring compliance with DOE Order 435.1, *Radioactive Waste Management*, for designing and maintaining low-level waste disposal cells.

The concept of long-term stewardship is driven by CERCLA, RCRA, DOE Orders, NRC regulations, state laws, and supporting regulations and guidelines.[20] However, differences in requirements and standards in existing regulations, as well as the unique circumstances for each site, could lead to a patchwork of different regulatory requirements for similar long-term stewardship activities. The resulting patchwork of regulatory requirements could make it difficult to manage long-term stewardship activities. The Department is reviewing options for developing additional policy and guidance to clarify the requirements pertaining to long-term stewardship.

Advisory Groups' Recommendations for Establishing a Long-term Stewardship Program within DOE

DOE should create a specific program office to manage stewardship responsibilities. This is needed because stewardship at DOE sites is not limited only to Environmental Management (EM) programs. Stewardship may be required during cleanup or closure and during operation of related facilities with continuing missions.

Source: Closure for the Seventh Generation: A Report from the Stewardship Committee of the State and Tribal Government Working Group. National Conference of State Legislatures, Denver CO, February 1999.

The Environmental Management Advisory Board recommends that the Assistant Secretary take the following steps in the coming months to assure that long-term stewardship remains a major focus of the EM program:

- *Promulgate a formal policy (that is, DOE Order or similar document) that requires the sites to plan for and implement long-term stewardship.*
- *Establish a distinct budget for long-term stewardship at Headquarters, Operations, and site levels.*
- *Ensure that the Long Term Stewardship Office in Headquarters has the responsibility and authority for directing policy for long-term stewardship, and for ensuring implementation and accountability in the field.*
- *Assure that relevant state, tribal, and local governments are fully informed of information resources and DOE activities relating to long-term stewardship.*
- *Provide the general public with ready access to long-term stewardship information and activities to facilitate public participation in decisions regarding long-term stewardship.*

Source: Letter from Dr. David L. Bodde and Joel H. Bennett, Co-Chairs, Environmental Management Advisory Board, April 17, 2000.

As long as DOE retains ownership or control of sites, long-term stewardship requirements established in site specific compliance agreements and in laws, regulations, and treaties that apply to DOE will remain applicable and enforceable. If ownership of a site is transferred to a non-federal entity (e.g., states, Tribes, local governments, private entities), it may be more difficult to ensure the effectiveness of long-term implementation of existing requirements and

---

all federal agencies, including DOE. *Source*: DOE Order 1230.2 *American Indian Tribal Government Policy,* April 8, 1992.

[20] *The Long-Term Control of Property: Overview of Requirements in Orders DOE 5400.12 & DOE 5400.5.* U.S. Department of Energy, Office of Environmental Policy and Assistance, Information Brief. EH-412-0014/1099, October 1999.

associated compliance oversight.[21] DOE has not traditionally established specific monitoring or oversight provisions for property transfers and other activities that rely upon local institutional control mechanisms.[22]

ASTM Standards for Environmental Site Assessments

The American Society for Testing and Materials (ASTM) has developed standard practices for conducting environmental site assessments for commercial real estate. The standards were developed to assist purchasers of the property in qualifying for the "innocent landowner" defense to CERCLA liability; i.e., they had conducted "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined in 42 U.S.C. §9601(35)(B). The standards include practices and procedures for the identification and documentation of the presence or likely presence of any CERCLA hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release into structures on the property or into the ground, groundwater, or surface water of the property.

Source: ASTM Standard E1527-97 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process; ASTM Standard E1903-97 Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process.

The Department of Defense (DoD) has faced similar issues associated with property transfers under the Base Realignment and Closure (BRAC) process. Congress originally authorized BRAC under Public Law 100-526, the Defense Authorization Amendments and Base Closure and Realignment Act for FY 1988, and has modified the process in subsequent legislation, primarily through provisions contained in the National Defense Authorization Acts for FY 1992 through FY 1997. Since 1988, DoD has successfully transferred ownership of many former military installations for economic re-use or natural resource conservation under the BRAC program. Some of these installations need long-term stewardship after property transfer. Such long-term stewardship activities generally are conducted by DoD but may also be conducted by the property owner, local government, or other entities. When appropriate, DoD retains access rights to transferred BRAC properties for the purposes of conducting long-term stewardship and additional cleanup activities (if needed) under the provisions of the land transfer agreements.

DoD currently requires that an environmental baseline survey be conducted for all DoD property that is under consideration for transfer by lease or deed to any non-federal government entity. Environmental baseline surveys are used to support Finding of Suitability for Lease (FOSL) and Finding of Suitability for Transfer (FOST) determinations, and are incorporated into property transfer documents. ASTM also has developed a standard classification of environmental condition of property for DoD BRAC facilities that is used to support the DoD environmental baseline survey and FOSL/FOST process.[23]

---

[21] *Cross-Cut Guidance on Environmental Requirements for DOE Real Property Transfers*, U.S. Department of Energy, Office of Environmental Policy and Assistance. DOE/EH-413/97/2, October 1997; *CERCLA Requirements Associated with Real Property Transfers*, U.S. Department of Energy, Office of Environmental Policy and Assistance, CERCLA Information Brief. EH-413-9808, April 1998.

[22] Specific monitoring or oversight provisions will be needed to ensure remedy protectiveness of human health and the environment when DOE transfers land to a non-federal entity (see the example of groundwater use restrictions at the Oak Ridge Reservation in Section 5.3) or leases on-site facilities to non-federal entities (see the example of site institutional controls at the Mound Environmental Management Project in Section 6.2).

[23] ASTM Standard D5746-98 Standard Classification of Environmental Condition of Property Area Types for Defense Base Closure and Realignment Facilities.

Five Key Principles for Effective Long-term Stewardship

The National Research Council recently recommended that DOE commit the time and funding needed to develop and implement effective institutional management plans devoted to five key principles:

1. *Plan for uncertainty* by anticipating a range of possible outcomes of cleanup strategies and post remediation institutional management strategies and adding uncertainty by applying uncertainty ranges.

2. *Plan for fallibility* in cleanup strategies and post remediation institutional management strategies by selected site uses that are less likely to be subject to frequent change, and that assure that information about contaminated sites is preserved and communicated effectively to future site users.

3. *Develop appropriate and substantive incentive structures*, including stable long-term funding structures, access to needed resources, and encourage active citizen oversight of long-term institutional management.

4. *Undertake scientific, technical, and social research and development*, including research and development for contaminant reduction, contaminant isolation, and stewardship measures.

5. *Plan to maximize follow-through* by implementing an iterative, long-term institutional management strategy that allows for adaptation to changing conditions or unexpected outcomes and allows for follow through on successive phases of the institutional management plan.

Source: Long-Term Institutional Management of U.S. Department of Energy Legacy Waste Sites. National Academy of Sciences, National Research Council, August 2000

4.2 How is Long-term Stewardship Currently Managed and Implemented by DOE?

As with other Departmental activities, DOE's long-term stewardship responsibilities are divided among headquarters and field offices. Appendix E identifies the Department's major long-term stewardship activities, guidance, reports, and internet sites. DOE headquarters offices are responsible for developing policy, guidance, and DOE Orders; providing programmatic oversight; providing funding advocacy; and communicating with representatives of national stakeholder and Tribal organizations. The DOE field offices are responsible for implementing long-term stewardship through planning, developing budgets, and managing the projects that include long-term stewardship activities. Most of the Department's long-term stewardship activities are being conducted or coordinated by five organizations:

- The Office of Long Term Stewardship is responsible for long-term stewardship policy, planning, and interagency coordination. DOE has established procedures for the involvement and coordination among DOE Principal Secretarial Offices (PSOs) and Deputy Administrators (within the NNSA) in the development of policies, guidance, and DOE Orders. The Office has the lead for long-term stewardship policy implementation and guidance development and works in coordination with the Office of Environment, Safety, and Health (EH) to ensure that policy and guidance pertaining to long-term stewardship is consistent with existing Departmental policies and guidance.

Public Comments with Recommendations for How DOE Should Manage Long-term Stewardship as a Program (see Exhibit 2 in Appendix C)

- Preserve one Office of Long Term Stewardship at DOE headquarters with the authority to coordinate long-term stewardship activities, draft national policy, coordinate research, manage information, and provide guidance; the office should be isolated from the politics surrounding nuclear weapons production and the current cleanup program (5, 7, 24, 26, 36, 41)
- Establish a centralized responsibility for implementing long-term stewardship requirements (e.g., monitoring, maintenance, research and development, negotiations related to land transfer) in a single, special-purpose organization or agency (1, 12, 16, 24, 28, 36, 40, 44)
- DOE needs to ensure that long-term stewardship is fully institutionalized as a clearly identifiable, strong, national DOE program (7, 8, 19, 23, 24, 39)
- Each site should have a strong office focusing on long-term stewardship (24)
- Focus on day-to-day activities (39)
- Long-term stewardship planning and implementation should be decentralized to account for the different long-term needs and community structures at each site (33)
- The *Study* should discuss the potential organizational structures to manage long-term stewardship – what the system might look like, its characteristics, and the associated issues (48)
- DOE should not have the principal responsibility for implementing long-term stewardship (4, 49)
- The federal government should take a strong role in partnering with state and local entities (25)
- DOE should learn from the examples of other federal agencies already implementing stewardship (23)
- DOE and the *Study* should clearly delineate long-term stewardship responsibilities (7, 28, 43, 44)
- The EM program should be responsible for long-term stewardship at all DOE sites (5, 6, 11, 32, 34, 45)
- The long-term stewardship program should maximize the personnel assigned to field work and minimize administrative staff (8)
- Research should be coordinated from DOE headquarters, not Idaho. DOE should also establish site-level programs (24)
- Headquarters should mandate a structure for LTS decisions and implementation at sites then monitor compliance to make LTS nationally consistent. Local decisions would still reflect public and stakeholder input and thus funding would be more assured (26)
- DOE should continue the work that has been identified in this *Study* (13)
- Other agencies or non-profit entities may be best suited to give stewards incentives to manage their sites well (i.e., to prevent the spread of contamination) by including income-producing resources, which in turn support stewardship (4)

- The Long-term Stewardship Executive Steering Committee was established in May 2001 to provide senior management coordination, strategic planning, and policy development. The Committee includes senior managers from each DOE field office and major headquarters Program Secretarial Offices. The Executive Steering Committee is currently drafting a Strategic Plan for long-term stewardship which will be the basis for establishing specific roles and responsibilities and performance objectives for the Department.

- The Grand Junction Office, which reports to the Idaho Operations Office, has project management responsibility over the majority of the projects currently in the long-term stewardship phase (see Section 4.2.2). As cleanup actions are completed at a given site, the DOE organization with landlord responsibilities at the site will assume responsibility for long-term stewardship (see Section 4.3).

- The Idaho National Engineering and Environmental Laboratory (INEEL) is the lead laboratory for coordinating science and technology development related to long-term stewardship.

4.2.1 Office of Long Term Stewardship

The Office of Long Term Stewardship provides support and coordination among the other EM program offices, EH, and other PSOs. The Office has a major role in identifying policy and guidance needs, working with other offices within DOE – including the NNSA – to develop and implement policies and communicate with national stakeholder and Tribal organizations, and coordinating with research and development (R&D) organizations internal and external to DOE. To meet these responsibilities, the Office performs several functions:

- **Drafting policy:** The Office works with other DOE offices to draft policies for implementing and managing long-term stewardship activities at DOE sites. The Office also sponsors independent research on specific long-term stewardship policy issues and ensures integration with existing DOE policies.

- **Coordination and communication:** The Office coordinates the DOE Working Group on long-term stewardship, prepares reports such as this *Study* and the *Report to Congress on Long-term Stewardship*, maintains information systems such as the long-term stewardship web page (*http://lts.apps.em.doe.gov*), and provides liaison to national stakeholder and Tribal organizations involved in long-term stewardship.

Public Comments Providing Recommendations for Development of Long-term Stewardship Policy (see Exhibit 2 in Appendix C)

- DOE should establish the broad range of procedures, processes, mechanisms, and strategies necessary for effective long-term stewardship (17)
- DOE should establish a timeline for the resolution of critical issues identified in this document (36)
- The Conference of Radiation Control Program Directors should be included in the development of long-term stewardship policies and procedures (46)

- **Drafting guidance:** Although long-term stewardship activities at a site will be driven by site-specific factors and needs, some practices are addressed consistently across sites. The Office works with EH, other EM program offices, and other PSOs to draft guidance for issues such as contracting strategies, negotiated agreements, and development of site-specific implementation plans. Guidance for long-term stewardship is developed using administrative processes already established within DOE.

- **Developing performance measures:** The Office is working with other EM program offices to develop performance measures to evaluate whether long-term stewardship functions are being performed adequately and cost effectively and to determine whether needed research and development is being performed or given sufficient priority.

- **Managing data:** The Office coordinates with the DOE Chief Information Officer to develop and support policies that ensure the collection, preservation, and accessibility of the information necessary to support long-term stewardship activities.

DOE Long-term Stewardship Working Group

In 1998, DOE convened the Long-term Stewardship Working Group to provide a forum for field and headquarters personnel to coordinate and facilitate long-term stewardship planning and implementation.

- The initial objective was to ensure that personnel involved in cleanup and post-cleanup activities are informed of ongoing and planned research, planning, and implementation activities related to long-term stewardship. This improved opportunities for leveraging expertise and resources to efficiently address long-term stewardship issues and concerns.

- The near-term objective is to begin to address the many challenges associated with long-term stewardship in a coordinated fashion and to establish an understanding of how expertise within the Department (e.g., at Grand Junction Office and headquarters programs) can be applied to these issues and concerns.

- The longer-term objective is to develop an understanding of what will be needed to maintain a viable commitment to long-term stewardship over multiple generations and to define appropriate roles for headquarters and field elements in meeting that commitment.

In May 2001, the Working Group identified the six most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee:

- Developing a common, consistent understanding of the definition and scope of long-term stewardship
- Articulating a corporate vision for how the Department will protect human health and the environment
- Developing mechanisms for the transfer of long-term stewardship responsibilities at a site from the EM program to another authority
- Developing a clear understanding of what long-term stewardship activities are occurring and what they cost
- Developing expectations and mechanisms for public involvement in long-term stewardship decisions
- Identifying the circumstances under which periodic reviews of the selected remedy may in the future result in returning land to unrestricted use

Appendix F provides a listing of the current principal Working Group Members and the areas they represent. The list will be updated on the long-term stewardship information center web site: (***http//lts.apps.em.doe.gov***)

- **Identifying needs of science and technology for long-term stewardship:** The Office coordinates with organizations within the EM program responsible for planning and implementing long-term stewardship and EM program organizations responsible for science and technology development to identify new science and technology needed to enhance protectiveness and reduce costs during long-term stewardship and identify strategies for meeting these needs.

- **Incorporating research and development in science and technology:** To ensure that developments in science, technology, and other areas of knowledge are incorporated into long-term stewardship strategies at sites, the Office provides information to sites on strategies, science, and technologies that are available at other DOE sites, at other federal agencies, and in the private sector. The Office also performs analyses to re-evaluate and, in concert with other federal regulators, modify as necessary national long-term stewardship strategies based on new science and technology.

- **Supporting and reviewing proposed EM funding for long-term stewardship:** The Office reviews proposed budgets and plans for long-term stewardship and provides advocacy for long-term stewardship funding in the annual budget process. The Office also evaluates alternative funding mechanisms as appropriate.

4.2.2 Implementation of Long-term Stewardship Activities

Long-term stewardship activities at the site level include RCRA post-closure monitoring, CERCLA five-year reviews, and long-term monitoring and maintenance activities pursuant to AEA, DOE Orders, NRC license requirements (e.g., at uranium mill tailings sites) and site-specific needs. DOE field offices also have begun to issue long-term stewardship guidance. For example, the Ohio Field Office has issued guiding principles for long-term stewardship that address stakeholder and regulator involvement, institutional controls, funding, review of cleanup remedies, technology development and implementation, communication, and conservation of resources.[24]

Long-term stewardship is budgeted and managed in different ways at different sites across the DOE complex. Some sites have established long-term stewardship as a specific project with a distinct budget. Other sites include long-term stewardship as part of each cleanup project. Many long-term stewardship activities (e.g., records management, site security) are included as part of the overall infrastructure maintenance activities. When long-term stewardship activities are budgeted within site overhead accounts, it is difficult to attribute costs to the precise areas undergoing long-term stewardship and identify the overall scope of long-term stewardship activities currently underway. This information should be most complete at sites where cleanup and closure are the sole mission, particularly where closure is expected before 2006. To better understand long-term stewardship activities and costs, many DOE sites will have an independent post-closure Project Baseline Summary (ledger for tracking cost and progress in support of the EM annual budget) for long-term stewardship by Fiscal Year 2003.[25] As noted in Chapter 1, the *Report to Congress on Long-term Stewardship* identifies sites or portions of sites where cleanup is complete or expected to be complete by 2006 and the scope of long-term stewardship activities anticipated for these areas.

The Grand Junction Office (GJO) in Colorado is currently responsible for long-term stewardship at 26 sites where cleanup is complete (Exhibit 4-1). Sites assigned to GJO include 21 disposal cells that contain encapsulated uranium mill tailings and associated contaminated material, entombed reactors in Nebraska and Ohio, and the Pinellas Site in Florida. Some of the sites that are anticipated to be transferred to DOE in the future are presently owned by private parties and regulated under NRC license (i.e., UMTRCA Title II sites).[26] Site-specific long-term stewardship plans are required by law for UMTRCA sites and must be approved by NRC. The Department also requests the development of a site-specific long-term stewardship plan before accepting long-term stewardship responsibilities for any site.[27] This plan should explain how to provide effective long-term stewardship for the site, including:

---

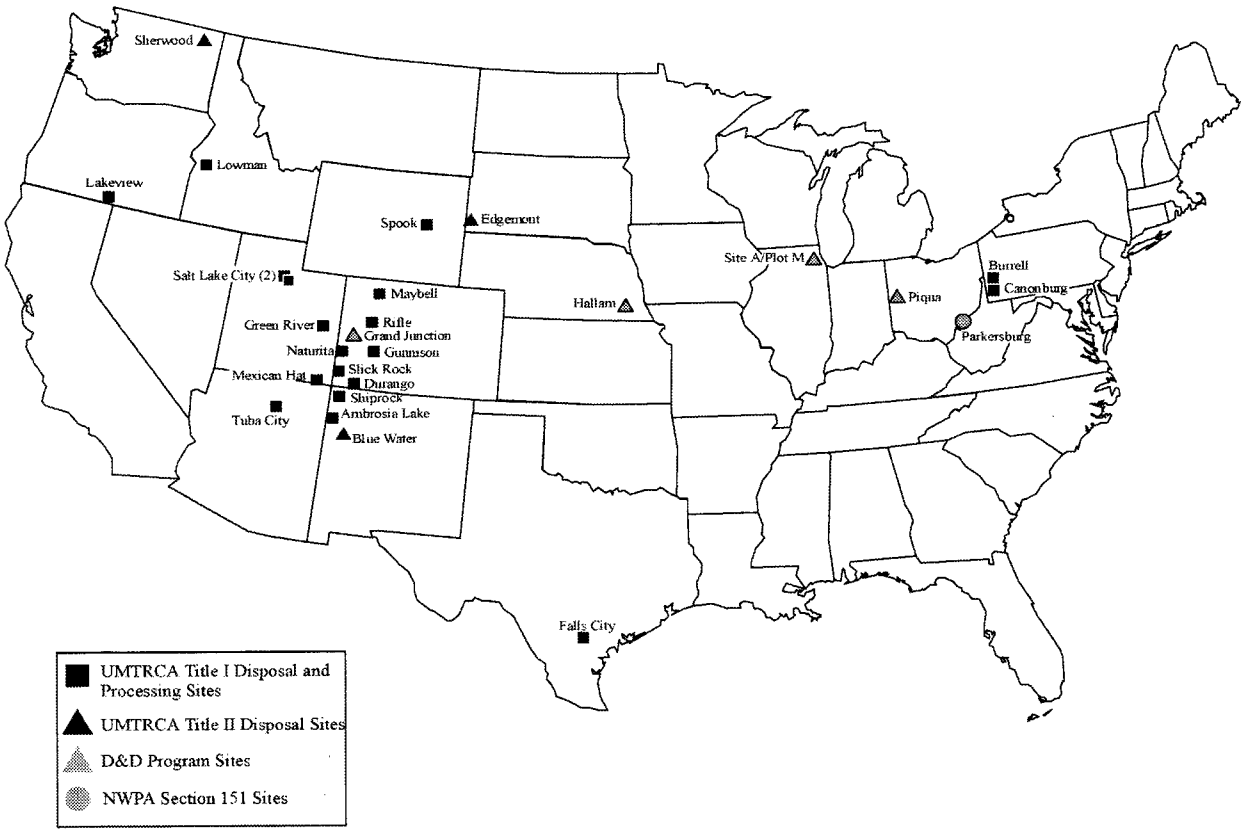
[24] *Guiding Principles for Long-Term Stewardship.* U.S. Department of Energy, Ohio Field Office, Miamisburg, OH, March 27, 2000.

[25] This applies to sites with EM program funding.

[26] *1999 Long-Term Surveillance and Maintenance Program Report.* U.S. Department of Energy, Grand Junction Office, Grand Junction, Colorado, March 2000.

[27] *Guidance for Implementation of Long-Term Surveillance and Maintenance at DOE Sites in Long-Term Stewardship.* U.S. Department of Energy, Grand Junction Office, Grand Junction, Colorado, December 30, 1999.

Exhibit 4-1. DOE's Grand Junction Office is Responsible for Long-term Stewardship Activities at 26 Sites



- Legal, regulatory, and other long-term stewardship needs.
- Institutional controls to be implemented.
- Physical and baseline conditions at the site when long-term stewardship begins.
- History of site operations and cleanup activities.
- Planned surveillance, monitoring, and maintenance activities.
- Emergency response provisions.
- Records management and public information.
- Cost and schedule.

At sites where it has programmatic responsibilities, the Office of Site Closure within EM has initiated a process to evaluate business close-out activities to assist sites in developing management plans to expedite and monitor progress toward the

Future Site Transfers May Increase DOE's Long-term Stewardship Activities

At most sites, long-term stewardship needs stem from the decisions made jointly by DOE, EPA, and state and Tribal governments, with input from the public during the cleanup process. At other sites where cleanup is not completed by DOE, Congress has authorized the transfer of long-term stewardship responsibility to DOE after cleanup is complete.

- Title II of the Uranium Mill Tailings Radiation Control Act (UMTRCA) requires the transfer of uranium processing sites that were under active NRC agreement state licence when the Act was passed to the host state or the federal government. If the state declines, then DOE becomes the site steward; to date no states have expressed an interest in permanent custody and long-term stewardship.
- Section 151(b) of the Nuclear Waste Policy Act allows certain NRC licensed, privately owned sites with low-level radioactive waste (and the land on which such waste is disposed of) to be transferred to DOE for long-term custody and care; but only if DOE accepts these sites.

completion of EM program projects and the transition to long-term stewardship.[28] The self-assessment will use a framework which includes 13 defined activities related to site close-out:

- Establishing contract incentives to maximize contractor efforts to complete EM projects.
- Planning to ensure that an early determination is made regarding the post-DOE use(s) of sites and that detailed planning for eventual re-use or disposition is developed and executed.
- Identifying post-contract benefit liabilities, including pension, medical and life insurance, and post-employment benefits such as severance pay.
- Developing and implementing plans for the disposition of site records (e.g., contaminated, electronic, and classified records) and the post-closure custodianship of these records.
- Mitigating the effect of any ongoing lawsuits on meeting the schedule for site closure.
- Ensuring that transition plans maximize, to the extent possible, employee options for re-employment or retirement and retain the appropriate labor skill mix.
- Ensuring the development of schedules and approaches for personal property disposal.
- Planning and implementing the re-industrialization or leasing of sites as appropriate.
- Identifying DOE Orders which are no longer necessary to maintain health and safety.
- Documenting effective site closure experiences.
- Providing assistance, as needed, to ensure that the specific needs of the communities near closure sites are being considered and addressed appropriately.
- Developing memoranda of agreement between EM and other DOE PSOs to establish responsibilities for conducting long-term stewardship activities.
- Identifying site-specific long-term stewardship responsibilities.

As the EM mission at a site is completed, current plans call for the EM program and the site landlord (if different from EM) to develop a long-term stewardship baseline for each site. The baseline will describe the scope of applicable long-term stewardship requirements, the technical activities and the projected schedule to meet these requirements, and expected costs.[29]

---

[28] *Self Assessment of Business Close-out Activities.* Memorandum from James J. Fiore, Deputy Assistant Secretary for Site Closure, Office of Environmental Management, March 15, 2000. The Draft Plans were completed by June 30, 2000.

[29] *Long-term Stewardship Transition to Site Landlord.* Memorandum from T.J. Glauthier, Deputy Secretary of Energy, to All Departmental Elements, December 15, 2000.

Public Comments Providing Recommendations for Site Long-term Stewardship Plans (see Exhibit 2 in Appendix C)

- Include the point at which the decision is made to extend [RCRA] monitoring beyond 30 years (1)
- Identify how the public will be involved in the decision making processes during long-term stewardship (1, 4, 7)
- Include the Department of Defense requirement for an environmental baseline survey (4)
- Develop contingency plans at the time of cleanup and periodically re-evaluate contingency plans (6, 11, 20, 30, 32, 34, 45)
- Plan for uncertainties in coordination between DOE and other parties, including Tribal nations (44)
- Include a funding mechanism (25)
- Include biological monitoring (27)
- Define how residual radioactive waste and radiologically contaminated material will be managed (29)
- Include the reduction in hazard over time as the result of radioactive decay and chemical degradation (33)
- Align land use planning with approaches used by state, local, and county governments (39)
- Expand or reference the Project Baseline Summary discussion to provide information on organizational structure, the current baseline planning window, and land use assumptions (41)
- Include an effective Conceptual Site Model, which could be in the form of a "cartoon" or a flow diagram (41)
- Evaluate the need for greater technical consistency and appropriate scope and scale of risk assessments (41)
- Integrate with other site management documents, including tribal site-specific roles (44)
- Manage long-term stewardship in small intervals of time (e.g., 20 years or a generation) (48)
- All sites should be mandated to establish long-term stewardship plans and ensure these plans are incorporated into the Site Comprehensive Plans (9)
- Place greater stress on ensuring that DOE sites already closed or currently undergoing cleanup develop the same types of long-term stewardship plans as "new" sites (12)
- Long-term stewardship plans should include optimal levels of cleanup and their associated impacts (37)
- Integrate management of DOE lands with adjacent federal or state lands for ecosystem management (4)
- The multiple layers of the planning process should be open to external input (4)
- Avoid transferring hazardous substances. Compensate local governments for LTS activities when contaminants are left in place (15)
- Address the lack of integrated LTS planning with regard to former assessments and decisions on the nature and extent of residual contamination (41)
- Long-term stewardship is critical to preventing off-site migration of contamination (25)

4.2.3 Entities External to DOE

EPA, NRC, state regulatory agencies, and Tribal governments have expressed a strong interest in long-term stewardship. Their role(s) in planning, implementing, and providing oversight of long-term stewardship activities varies among sites. At many sites, EPA, states, and Tribal governments currently provide oversight of DOE cleanup activities conducted pursuant to CERCLA, RCRA, and/or site-specific agreements. Although land use planning in the United States typically is conducted primarily at the local level, certain state and Tribal governments also have regulations pertaining to land use.[30] Depending on site-specific situations, local and Tribal governments may play a primary role in the operation of processes that support

[30]Certain states (e.g., Tennessee, Washington) have state regulations pertaining to land use planning. Tribal nations also have regulations governing land use and planning. For example, the Yakama Nation has promulgated regulations to encourage appropriate use of the land; to protect the social and economic stability of residential, agricultural, commercial, industrial, forest, reserved, and other areas within the reservation; to assure orderly development of such areas; and to otherwise promote the public health, safety, morals, and general welfare in accordance with the rights by the Yakama Indian Nation in the 1855 *Treaty with the Yakamas* (12 Stat. 951).

institutional controls through land and resource use permits, zoning, deed restrictions, easements, and other similar mechanisms (see Chapter 5).

Environmental Law Institute and Energy Communities Alliance Study
Recommendations for Improved Coordination with Local Governments

- DOE should work directly with local governments on long-term stewardship issues that affect them
- 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
- 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, 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
- 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
- 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
- DOE Operations or field offices should determine the specific information needs of their affected local governments and meet those needs with inforamtion in the form of maps, databases, or other formats most useful to the local government
- DOE should provide funding to local governments to pay for activities associated with long-term stewardship at DOE sites
- DOE should work with local governments to develop training in how to adapt their expertise to the new situations of contaminated property

Source: *The Role of Local Governments in Long-Term Stewardship at DOE Facilities*. Environmental Law Institute and Energy Communities Alliance, 2001. ELI Project #977206, ELI ISBN #1-58576-015-3, Document #D10.10.

As DOE moves forward with long-term stewardship, DOE needs to continue to build upon its existing partnerships with other federal agencies, Tribes, states, and local governments. All parties should share a common understanding of the nature of the residual hazards at DOE sites, the need for continued implementation of long-term stewardship activities, and the need for continued restrictions on land and resource use. These partnerships will need continuing open communication, information exchange, and coordinated planning to develop solutions. Coordinated planning is particularly important for land use controls, because state and local land use regulations are not applicable at federally owned sites (see Chapter 5).

Role of State Governments in Long-term Stewardship

The roles and responsibilities of state governments in implementing and overseeing long-term stewardship activities will vary depending upon the specific activities to be conducted, the legal authorities for such activities, and site characteristics. At many sites, the division of authority and responsibility among DOE, EPA and state regulatory agencies for remedy selection and implementation, including long-term stewardship, is specified in an Interagency Agreement.[1] For example, EPA and the Washington Department of Ecology oversee long-term stewardship activities associated with remedies for the Hanford Site under the terms of the Hanford Tri-Party Agreement.[2] Many states (referred to as "agreement states") regulate the handling and storage of radioactive material through state regulations pursuant to an agreement with NRC. States also may regulate long-term stewardship pursuant to state hazardous waste laws. States generally retain ownership of groundwater and surface waters, and many states retain authority for land use planning (and have delegated this authority to local governments). State governments are likely to be responsible for the enforcement of at least some institutional controls (e.g., deed restrictions). State governments may also need to establish their own long-term stewardship programs to address non-DOE sites. For example, states may need to establish programs for the long-term care of municipal landfills, and states currently are responsible for long-term surveillance and monitoring at Superfund "fund-lead' NPL sites (sites where the Superfund pays for remedial actions). State governments also may assume a more prominent role in managing long-term stewardship information and in promoting education and training to ensure the continuity of long-term stewardship across multiple generations. Such efforts could include developing educational curricula, providing funding support for museums and historical societies, and training local land use planners. The draft long-term stewardship plan for the Weldon Spring Site in Missouri[3] identifies the State of Missouri as an "oversight steward" for the site. The draft plan also identifies specific roles and responsibilities for the state government, including overseeing access agreements for long-term stewardship activities conducted by DOE on state-owned lands adjacent to the site and providing oversight of long-term stewardship activities required by state regulations as applicable. However, there is no final agreement between DOE and the State of Missouri concerning roles and responsibilities.

[1] *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents*. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 540-R-98-031, OSWER 9200.1-23P, July 1999.

[2] *Hanford Federal Facility Agreement and Consent Order*. U.S. Department of Energy, Richland Operations Office; Washington State Department of Ecology; U.S. Environmental Protection Agency, Region 10. EPA Docket Number: 1089-03-04-120, Ecology Docket Number: 89-54, May 15, 1989.

[3] *Stewardship Plan for the Weldon Spring Site, Revision A, April 1999*. Weldon Spring Site Remedial Action Project. DOE/OR/21548-771, April 1999.

Examples of Management Agreements between DOE and Other Federal Agencies

- *Argonne National Laboratory-East* – DOE is coordinating with state and local governments and the Department of Agriculture to manage the site deer herd.

- *Hanford Site* – The U.S. Fish and Wildlife Service has managed the Saddle Mountain National Wildlife Refuge (recently designated as the Hanford Reach National Monument) since 1971and the Fitzner/Eberhardt Arid Lands Ecology Reserve since 1987.

- *Idaho National Engineering and Environmental Laboratory (INEEL)* – The Bureau of Land Management is responsible for the administration of grazing permits and granting of utility rights of way on portions of the site. More than 300,000 acres are used for cattle and sheep grazing each year.

- *Savannah River Site* – The U.S. Forest Service has managed natural resources at the Savannah River Site since 1952, and responsibilities now include developing land management and ecosystem plans for wildlife and forest resource management, engineering support for soil erosion and watershed management, threatened and endangered species recovery and management, fire control, wetland restoration, and support for site-wide planning. Agricultural and timber land acquired for the site in 1952 was heavily degraded at the time, and the land has since been restored to provide both a sustainable crop of timber and enhanced habitat for endangered species.

- *Several sites* – DOE, in partnership with state and Tribal governments and other federal agencies, is creating land reserves from parts of DOE sites. For example, on June 24, 1999, DOE Secretary Richardson designated 10,000 acres of the Department's Savannah River Site as a biological and wildlife refuge, thereby creating the Crackerneck Wildlife Management Area. Similar preservation activities have been implemented at INEEL, Oak Ridge, Los Alamos National Laboratory, Lawrence Livermore National Laboratory, and Rocky Flats. State wildlife agencies or other federal agencies (e.g., the Bureau of Land Management) are responsible for management of areas to protect the unique habitat. DOE controls custody of the property and maintain responsibility for access controls.

Sources: Conference call with Chicago Operations Office, November 1, 1999; *Hanford Comprehensive Land-Use Plan Environmental Impact Statement* (HCP EIS). DOE/EIS-02222-F, September 1999; *INEEL Comprehensive Facility and Land Use Plan*, 1997; *Http://www.srs.gov/general/srenviro/srfs/srfs.htm*. U. S. Forest Service, Savannah River Operations Office, April 6, 2000; *Land Reserves Created at Departmental Sites*, DOE This Month, August 1999.

4.2.4 Research & Development

The need for long-term stewardship reflects the costs and limitations of existing cleanup technologies. For example, the National Research Council noted that "although considerable effort has been invested in groundwater and soil cleanup, the technologies available for these cleanups are relatively rudimentary,"[31] and recently reaffirmed its support for greater investment in science and technology.[32] In addition, a recent audit report by the DOE Office of Inspector General found that:

> "The Department's groundwater monitoring activities were not being conducted as economically as they could have been since some sites had not adopted

[31] *Innovation in Ground Water and Soil Clean up: From Concept to Commercialization.* National Research Council, Washington, D.C. National Academy Press, 1997.

[32] *Natural Attenuation in Ground Water. Re-dedication and Research Needs in Subsurface Science.* National Research Council, Washington, D.C. National Academy Press, March 2000.

innovative technologies and approaches to well installation, sampling operations, and laboratory analysis. This occurred in part because innovative groundwater monitoring techniques adopted by some sites had not been effectively disseminated, evaluated for applicability at other sites, and implemented."[33]

In response, the Secretary of Energy directed EH to be the lead office to improve the consistency and quality of ground water monitoring and reporting.[34]

The majority of the EM program's current science and technology development effort is focused on supporting near- and mid-term objectives, not long-term stewardship. Given the number of sites expected to need long-term stewardship by DOE, initial estimates suggest the annual cost of long-term stewardship will be approximately $65 million in FY 2006 (see Chapter 8). Environmental sampling and analysis is anticipated to be a significant long-term stewardship cost. For example, analysis of a single groundwater sample for volatile and semivolatile organic compounds and metals may cost $1,000 or more. Therefore, the Department invests in science and technology in order to improve the permanence of the cleanup remedies and reduce the monitoring and maintenance costs while maintaining or improving protection of human health and the environment.

DOE has initiated an effort to make investments in science and technology that may result in significant reductions in the risk, cost, and duration of long-term stewardship. In 2000, DOE identified the Idaho National Engineering and Environmental Laboratory (INEEL) as the lead laboratory for coordinating science and technology development related to long-term stewardship, but the Department expects significant participation from the other national laboratories, industry, and academic centers currently involved in EM science and technology development efforts. DOE is developing planning documentation for a long-term stewardship science and technology "roadmap" that will (1) identify new science and technology needs specific to long-term stewardship; (2) identify existing capabilities to meet these needs both within and external to DOE; (3) determine critical research and development priorities; and (4) direct specific efforts to meet these needs. A preliminary roadmap was developed in September, 2000; however, the Department intends to use an iterative process to identify and address science and technology needs as the scope of long-term stewardship becomes more certain.

Scope of Long-term Surveillance and Monitoring at DOE Sites

Current estimates indicate that approximately 548,000 acres of land currently are or eventually are expected to need long-term stewardship by DOE. DOE's long-term stewardship activities will include maintaining controls and/or monitoring for:

- Contaminated groundwater at 80 sites.
- Vaults, tank farms, and/or radioactive, hazardous, or sanitary landfills at 63 sites.
- Contaminated soils at 25 sites.
- Contaminated facilities at 13 sites.
- Contaminated surface water or sediment at nine sites.

[33] *Groundwater Monitoring Activities at Department of Energy Facilities.* U.S. Department of Energy, Office of Inspector General, Office of Audit Services. DOE/IG-0461, February 2000.

[34] Memo: Departmental Position on the Office of Inspector General Report IG-0461, "Ground Water Monitoring Activities at Department of Energy Facilities." To: Phillip L. Holbrook, Deputy Inspector General for Audit Services.

Public Comments Providing Recommendations for Science and Technology Development (see Exhibit 2 in Appendix C)

- DOE should periodically re-evaluate remedies to reflect changes in health and environmental standards, technology, and performance of the remedy (20, 24)
- The goals should be to reduce the cost of long-term stewardship and to minimize or eliminate the need for continued long-term stewardship by eventually achieving cleanup to unrestricted use (6, 11, 13, 20, 23, 24, 30, 31, 32, 34, 45)
- DOE should look outside of DOE and the National Laboratories (e.g., other federal agencies, the private sector) for new science and technology (4, 23, 26)
- Other federal agencies, Tribes, state and local governments, and private entities will have stewardship responsibilities at other contaminated sites and should be advocates of and clients for new science and technology (4)
- DOE should clarify its schedule and products, which should include (1, 2, 4, 19, 24, 30, 31):
  - Improved water treatment technologies
  - Research on subsurface barriers (e.g., functional life, failure modes) to validate assumptions
  - Research on ecosystems, physical environment, and transport processes
  - Engineering and architecture
  - Information management technologies
  - Monitoring and sampling techniques
  - Engineered and institutional controls
  - Health effects
- DOE needs to complete the "roadmap" that establishes a baseline of science and technology needs and direct investments to meet the highest priority needs (19, 24)
- DOE should immediately provide a list of all current research and development efforts that pertain to long-term stewardship and describe what problem they address (24)
- DOE can build an R&D program before sites finish active remediation (24)
- Adequate funding mechanisms are needed for research and development (30)
- An active, long-term research program is essential (31)
- DOE should not be too reliant on its Focus Areas; it needs to develop a coherent research program, and then work with the Focus Areas to ensure it is carried out (26)
- DOE and other agencies involved in stewardship should invest more time and resources into studying the history of engineering and archeology (4)

Initial activities are focused on identifying current needs and capabilities, performing gap analyses, and developing an approach for meeting high priority needs. Because many science and technology investments that already have been made (e.g., more durable caps and covers, real-time monitoring equipment) can be deployed now to support long-term stewardship activities today, adapting available technologies to long-term stewardship is a high priority. Some long-term stewardship needs (e.g., information management) are not addressed within existing DOE research and development efforts. Over time, it will be necessary to continually re-assess science and technology needs as the longer-term EM projects begin to reach completion and additional information is collected at sites.

The EM program, and DOE itself, will not be the only source of new science and technology for long-term stewardship. The science and technology "roadmapping" effort noted above has explicitly assumed that other federal agencies, academia, and the private sector are potential sources that can be evaluated and integrated with ongoing and future DOE efforts. The initial roadmap assumes, for example, that the private sector will be the overwhelming source for new information technologies. As part of its science and technology development efforts, DOE needs to develop processes for informing external entities of long-term stewardship needs, identifying and evaluating potential new scientific findings and technologies developed by external sources,

determining when it is effective to implement new technologies, and determining how to integrate new scientific information into ongoing long-term stewardship strategies.

Science and Technology Investments for Long-term Stewardship

Two types of information will facilitate the understanding of long-term stewardship science and technology needs: (1) the end states to be achieved by EM projects; and (2) the resulting technical baselines for long-term stewardship, including the scope of activities, schedule, and cost estimates. Once the end states and baselines are known, it is then possible to identify opportunities for new science and technology to improve reliability and reduce costs. Based on current understanding, DOE has developed a preliminary list of science and technology opportunities:

- Information about durability of materials, and more durable materials - capping/barrier materials (e.g., clay, geotextile, plastic, rock), waste containers, and waste forms.
- Knowledge of fate and transport mechanisms and predictive capabilities.
- Monitoring and surveillance methods (e.g., methods of detection, analysis, remote sensing and data transmission).
- Information management - methods for identifying, recording, storing, archiving, and accessing relevant and necessary information for future site stewards and land/facility users.
- Support systems - renewable energy systems (e.g., geothermal heat pumps, solar photovoltaic systems) that can reduce the costs and improve the reliability of pump-and-treat and monitoring systems.
- Improved systems engineering and design to ensure that before new facilities are built and operated, decommissioning and waste disposition are considered carefully.

Although this preliminary list provides a starting point for science and technology development efforts, a reliable list awaits completion of more long-term stewardship baselines and plans. Many items on this list are already highly developed.

4.3 How will Long-term Stewardship be Managed at Sites with Ongoing Missions other than Cleanup?

DOE has organized its mission areas into the following categories: national security, science and technology, energy resources, and environmental quality. Some DOE sites have multiple ongoing missions, are being cleaned up by EM, and are performing long-term stewardship in portions of the site. DOE also has begun to promote private redevelopment at certain sites (e.g., Mound, Hanford, Oak Ridge). At sites where there will be continuing DOE missions other than cleanup, current plans call for the landlord PSO to be responsible for long-term stewardship after EM cleanup projects are complete (Exhibit 4-2).

Exhibit 4-2. Long-term Stewardship is Expected to Transfer to Site Landlords at 21 Sites

The Department has identified 21 sites where responsibilities for long-term stewardship is expected to transfer to a landlord PSO other than EM following completion of EM cleanup:

National Nuclear Security Administration Office of Defense Programs
- Kansas City Plant
- Los Alamos National Laboratory
- Lawrence Livermore National Laboratory – Main Site
- Lawrence Livermore National Laboratory – Site 300
- Nevada Test Site
- Pantex Plant
- Sandia National Laboratory – California
- Sandia National Laboratory – New Mexico
- Savannah River Site[1]
- Y-12 Plant (Oak Ridge Reservation)

Office of Nuclear Energy, Science, and Technology
- Argonne National Laboratory – West

Office of Science
- Ames Laboratory
- Argonne National Laboratory – East
- Brookhaven National Laboratory
- Fermi National Accelerator Laboratory
- Lawrence Berkeley National Laboratory
- Oak Ridge Institute for Science and Education
- Oak Ridge National Laboratory
- Princeton Plasma Physics Laboratory
- Pacific Northwest National Laboratory
- Stanford Linear Accelerator

[1]The EM Program is the current landlord at the Savannah River Site

Source: *Long-term Stewardship Transition to Site Landlord.* Memorandum from T.J. Glauthier, Deputy Secretary of Energy, to All Departmental Elements, December 15, 2000.

Chapter 5: Hazard Management

A key element of long-term stewardship will involve containing and preventing access to residual site hazards. Hazard management will involve the operation, maintenance, and periodic replacement of active and passive control mechanisms (e.g., treatment systems, access restrictions, warning signs) as well as contingency systems for addressing unexpected failures of control mechanisms or newly discovered environmental problems.[35] This chapter describes the types of active and passive controls that are used to manage residual hazards. This chapter also discusses how long-term stewardship is affected by current practices and presents alternatives for addressing uncertainty and contingency planning during long-term stewardship.

APPLICABLE SCOPING COMMENTS
(see Exhibit 2 in Appendix B)

- DOE should evaluate the reliability of institutional controls over extended periods of time, adopt redundant, overlapping functions to ensure efficacy of control measures, and recommend methods to prevent or minimize future failures (1, 4, 10)
- Every long-term stewardship plan should have an emergency response contingency plan to address potential failures of controls (7)
- The *Study* should address the relative roles of active vs. passive controls with guidance on determining the length of time of active controls (2, 8)
- Long-term stewardship should be expected to fail. DOE should plan for and consider the consequences of failure (18)

APPLICABLE ISSUES
(see Exhibit 3 in Appendix B)

2. *Development of Site-specific Long-term Stewardship Plans*
8. *Institutional Controls*
12. *Risk Management*
25. *Minimize Risks/Hazards and Plan for Failures*

5.1 Engineered and Institutional Controls

At sites where cleanup to levels appropriate for unrestricted use cannot be achieved, two general types of long-term controls are used to protect human health and the environment: engineered controls and institutional controls.[36] As noted in Chapter 3, these controls are established during the site cleanup process. Both types of controls are intended to block exposure pathways.

- ***Engineered controls*** include actions implemented to stabilize and/or physically contain or isolate waste, contamination, or other residual hazards. They include in-situ stabilization, caps on residual contamination, and vaults, repositories, or engineered landfills designed to isolate waste or materials.

[35] *RCRA Closure and Post-Closure Plans*, U.S. Department of Energy, Office of Environmental Guidance, RCRA Information Brief. DOE/EH -231-009/1291, December 1991; *Planning and Implementing RCRA/CERCLA Closure and Post-Closure Care When Wastes Remain Onsite*. U.S. Department of Energy, Office of Environmental Policy and Assistance, RCRA/CERCLA Information Brief. DOE/EH-413-9910, October 1999.

[36] Other terminology has been used to describe the types of controls involved in long-term stewardship. For example, EPA regulations (40 CFR Part 191) define the term "institutional controls" to broadly encompass all long-term stewardship activities, and divide activities into 'active' vs. 'passive' controls.

- ***Institutional controls*** are legal and other measures intended to affect human activities in such a way as to prevent receptors from reaching residual hazards. Institutional controls include land and resource management, deed restrictions, well-drilling prohibitions, building permits, hunting licenses or permits, physical measures such as markers, and facility security. For purposes of this *Study*, they may be divided into nine categories (Exhibit 5-1).

Exhibit 5-1. Categories of Institutional Controls

- *Easement* – A legal mechanism creating a limited interest in land belonging to another person (a positive easement), such as an easement granting access to conduct groundwater monitoring; or a limitation on the rights of the owner of the land (a negative easement), such as a prohibition on construction of housing.
- *Deed Notification* – A description in a property deed that conveys information about the property to future buyers (e.g., a notice that hazardous materials have been placed in a landfill on the property).
- *Deed Restriction* – A provision in a deed prohibiting certain uses of the property (e.g., a covenant that the property may never be used for housing). Certain deed restrictions may be enforceable through *reversion clauses*, which allow the former property owner (i.e., the federal government) to take back ownership of the property if terms of the deed restrictions are not followed.
- *Lease* – A document that outlines and restricts the conditions for temporary use of a property.
- *Covenant* – A promise by one landowner to another made in connection with a conveyance of property to use or refrain from using the property in a certain manner. Generally, covenants may be binding on subsequent landowners (i.e., "run with the land") if: (1) notice is given to the subsequent landowner; (2) there is a clear statement of intent to bind future owners; (3) the agreement "touches and concerns" the land; and (4) there is vertical and horizontal privity between the parties.
- *Permit* – A document that authorizes or prohibits certain land use activities (e.g., a building permit or a permit to withdraw groundwater) through approval by the appropriate federal, local, or state government entity.
- *Zoning* – Police power used by local governments to regulate or control the use of property by specifying zones or districts within which only specified uses or types of construction may occur as a means to implement a master plan.
- *Sign* – A marker that conveys messages regarding property and its use restrictions.
- *Fence* – A fixed structure used as a boundary or barrier to physical access.

For long-term stewardship to be successful, both engineered and institutional controls should remain effective until the residual hazards either have diminished to the point that unrestricted use is permitted or are no longer a concern to society. The National Contingency Plan under CERCLA, RCRA regulations, and NRC regulations all consider the use of institutional controls as a supplement to the use of engineered controls as appropriate for short- and long-term management to prevent or limit exposure to residual hazards.[37]

[37]CERCLA: 40 CFR Part 300.430 (a)(1)(iii)(D)6; RCRA: 61 FR 19448 (May 1, 1996); NRC: 10 CFR Part 20.1402.

Institutional Controls Terminology

Other terminology has been used to describe institutional controls for DOE sites. For example, EPA regulations (40 CFR 191) define the term "institutional controls" to encompass both of the following:

Active institutional control
- Controlling or cleaning up releases from a site;
- Performing maintenance operations or remedial actions at a site;
- Monitoring parameters related to disposal system performance; or
- Controlling access to a disposal site by any means other than passive institutional controls.

Passive institutional control
- Permanent markers placed at a disposal site;
- Government ownership and regulations regarding land or resource use;
- Public records and archives; or
- Other methods of preserving knowledge about the location, design, and contents of a disposal system.

5.2 Long-term Monitoring and Maintenance of Engineered Controls

Most engineered control systems will need inspection and periodic maintenance to ensure continued performance.[38] Engineered control systems, such as surface covers, subsurface barriers, and landfill caps and their components, have finite design lives. These systems are expected to fail at some point in time – although the effective design life of an engineered control can be extended with long-term inspection and routine maintenance[39] – and DOE sites are directed to develop a maintenance plan for DOE nuclear facilities, including all engineered controls.[40]

The effective design life of an engineered control, and the associated inspection and maintenance needs, depend upon the characteristics of the system, such as:

- A groundwater pumping system is designed to prevent migration of contaminated groundwater. It will need operation of groundwater pumps and possibly a groundwater treatment system. Such a system, involving powered equipment having moving parts and exposed to weather, will need frequent inspection and maintenance in order to guard against events such as power failure, clogging of system piping, blockage of wells, frost damage, corrosion, and other pump failure mechanisms. Active systems must be maintained on a regular basis to avoid risk of failure. Even with rigorous routine inspection and maintenance, powered equipment such as groundwater pumps are not expected to last for many years without requiring repair or replacement.

- A subsurface engineered barrier is designed to prevent migration of subsurface contamination. It is a static system that does not need direct human intervention to function.

---

[38]For example, the UMTRCA disposal cell at Lakeview, OR has needed maintenance to correct potential erosion problems from animal activities adjacent to the cell. There also is some indication that the rock used in the disposal cell cover is deteriorating and may need to be replaced (letter from the State of Oregon to DOE, December 4, 2000 – Public comment letter no. 1).

[39]*Evaluation of Subsurface Engineered Barriers at Waste Sites*. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington D.C. EPA 542-R-98-005, August 1998, page 18.

[40]DOE Order 433.1 (0601/01), *Maintenance Management Program for DOE Nuclear Facilities*. Note that the Order does not explicitly require a "replacement plan" for property such as engineered controls, although such a need may be inferred.

However, a subsurface barrier system needs periodic monitoring to ensure that it continues to function as designed, and needs maintenance or replacement if and when its performance degrades. A recent study of 36 subsurface engineered barrier systems found few data available to assess their actual functional life and failure modes.[41] In contrast to active pumping systems, where groundwater monitoring data are typically collected quarterly or monthly to ensure that residual hazards are contained, essentially no post-construction monitoring is being performed on these systems to identify long-term environmental degradation mechanisms.[42] In addition, the industry baseline standard for subsurface barrier systems is that no post-construction monitoring is performed.[43]

- High Density Polyethylene (HDPE) is used in the construction of landfill liners and subsurface vertical barriers. The long-term durability of HDPE is not known, as the material has only been in use in liner and barrier system applications for several decades. HDPE is anticipated to have a design life in excess of 300 years based on available information, but the factors that may influence HDPE degradation are still being studied.[44]

- Surface covers for byproduct material and other radioactive waste (e.g., uranium mill tailings cell caps) are required by regulation to be designed to last for at least 200 to more than 1,000 years. Such performance requirements are unprecedented and there are no direct methods of predicting surface cover performance over such time frames. Potential surface cover failure mechanisms include human intrusion, water infiltration, frost penetration, erosion, and plant and animal intrusion.[45]

Long-term stewardship of uranium mill tailings surface covers, including surveillance and maintenance, is currently being conducted by DOE to assess, prevent, and mitigate effects of potential failures such as erosion and biological intrusion. Even assuming rigorous long-term surveillance and maintenance is conducted, performance of these surface covers over the time frames they are required can only be predicted, not demonstrated.

To address the uncertainties in surface cover performance over long periods of time, DOE Order 435.1, *Radioactive Waste Management*, directs DOE to develop a performance assessment (PA) and composite analysis (CA) for each low-level waste disposal facility.[46] The PA is an analysis of the expected future radiological exposure resulting from the waste disposed in the facility. The CA is a similar analysis that accounts for not only the radioactivity in the disposal facility,

---

[41] *Evaluation of Subsurface Engineered Barriers at Waste Sites,* U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington D.C., EPA 542-R-98-005, August 1998, page 78.

[42] *Ibid*, page 12.

[43] *Ibid*, page 55.

[44] *Subsurface Containment and Monitoring Systems: Barriers and Beyond - Overview Report.* U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Technology Innovation Office, Washington D.C., March 1999, page 18.

[45] Waugh, W.J. et. al., 1995. Natural Analogs of the Long-term Performance of Engineered Covers. *Thirty-Third Hanford Symposium on Health and the Environment. In Situ Remediation: Scientific Basis for Current and Future Technologies, Part I.*; Waugh, W.J., and Richardson, G. N., 1995b. Ecology, Design, and Long-term Performance of Waste-Site Covers: Applications at a Uranium Mill Tailings Site. *National Academy of Sciences Workshop on Barriers for Long-term Isolation, Denver Colorado,* August 13, 1995.

[46] DOE Order 435.1, *Radioactive Waste Management*, July 9, 1999. Available at: *http//www.explorer.doe.gov:1776/htmls/currentdir.html.*

but all other sources of radioactivity at the site that could contribute to an overall exposure should a failure occur.

The distinction between operation and maintenance during cleanup and long-term stewardship is not clearly defined. Many activities that are considered part of an ongoing cleanup project could be classified as part of long-term stewardship (see Exhibit 5-2).

5.3 Long-term Maintenance of Institutional Controls

DOE and its predecessor agencies have been maintaining institutional controls over site hazards for decades. However, many institutional controls assumed continued federal ownership of the property in perpetuity. While government ownership and control is a central component of the legislation creating the Waste Isolation Pilot Plant (WIPP) repository[47] (i.e., the WIPP Land Withdrawal Act), DOE planning at some sites must now consider the possibility that the site will no longer have an ongoing mission other than long-term stewardship, and parcels of the site not needed as a part of a protective buffer zone may not need to remain federal property (see Chapter 4). In addition, DOE is now conducting cleanup and long-term stewardship at sites not owned or controlled by the Department. State, local, and Tribal governments already have a primary role in the maintenance of many institutional controls, and this role may grow if parcels of land are

Affected Parties Are Critical Long-term Stewardship Partners

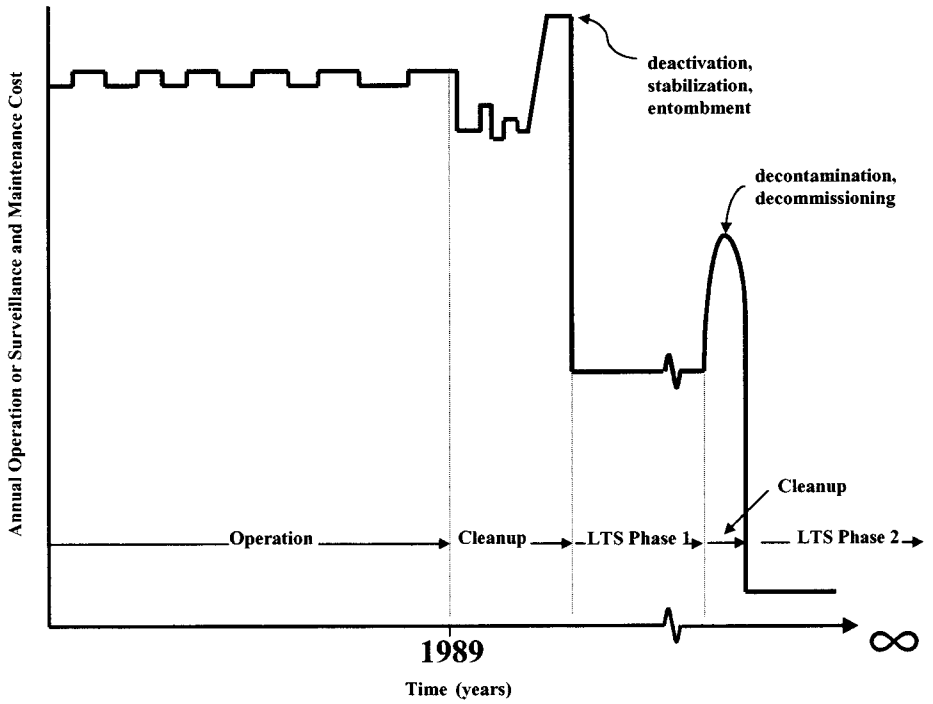
At most sites, the roles and responsibilities of local governments for implementing and overseeing long-term stewardship activities are not defined explicitly. Local governments already have a primary role in the maintenance of many institutional controls, including preserving easements, deed restrictions, and parcel maps; implementing groundwater use controls; and issuing zoning approvals and building permits. Local governments also have primary responsibility for land use planning and also maintain emergency response capabilities (e.g., fire, rescue). Where parcels of land have been transferred or leased to local governments (e.g., Hanford, Mound, Pinellas), local governments have assumed additional responsibilities such as ensuring that re-use of site facilities and infrastructure is consistent with restrictions necessary to protect human health and the environment. Local governments also may assume a more prominent role in managing long-term stewardship information and in promoting education and training to ensure the continuity of long-term stewardship across multiple generations. For example, the long-term stewardship plan for the Weldon Spring Site in Missouri[1] identifies the local government as an "oversight steward" for the site. The plan also identifies specific roles and responsibilities for the local government, including a primary role in permitting, zoning, and enforcing institutional controls such as easements. There is no final agreement between DOE and the State of Missouri concerning roles and responsibilities.

[1] *Weldon Spring Site, Stewardship Document for Operation and Maintenance.* Weldon Spring Site Remedial Action Project. DOE/OR/21548-771, August 2000.

[47] The Waste Isolation Pilot Plant (WIPP) is the world's first underground repository licensed to safely and permanently dispose of transuranic radioactive waste left from the research and production of nuclear weapons. After more than 20 years of scientific study, public input, and activities to obtain regulatory approvals, WIPP began operations on March 26, 1999. Located in the remote Chihuahuan Desert of Southeastern New Mexico, project facilities include disposal rooms mined 2,150 feet underground in a 2,000-foot thick salt formation that has been stable for more than 200 million years. Transuranic waste is currently stored at 27 locations nationwide. Over the next 35 years, WIPP is expected to receive about 37,000 shipments. *Source: http://www.wipp.carlsbad.nm.us/*

Exhibit 5-2. When Does Long-term Stewardship Begin?

Long-term stewardship generally begins when active cleanup, stabilization, or disposal has been completed in accordance with an applicable regulatory requirement or management plan. In some cases, particularly at the large, complex sites, the cleanup plan addresses an entire geographic site; in other cases, long-term stewardship may occur at a portion of a site long before cleanup of the entire site is completed. For many sites and facilities, there also are two phases to performing long-term stewardship. In most cases, "terminal" long-term stewardship begins when cleanup of a site or portion of a site has been cleaned up to the agreed-upon end state. For some



facilities – particularly reactors and large processing canyons – an initial "interim" phase of long-term stewardship is needed after a facility has been stabilized, but where further remedial action or decontamination and decommissioning is not expected to occur for a significant period of time after the stabilization is completed. The above exhibit illustrates the relative timing of the two phases of long-term stewardship. The exhibit illustrates a hypothetical cost profile for a large facility that operated for several years, underwent initial deactivation and stabilization, and was entombed for several decades while a final disposition strategy was determined (e.g., original reactors and the PUREX Plant at Hanford). After several decades, the facility underwent final decontamination and decommissioning. The activities that occurred during the period of entombment could be defined as the interim phase (phase 1) of long-term stewardship. Once decontamination and decommissioning are complete, the facility would be considered in the terminal phase (phase 2) of long-term stewardship. The interim phase of long-term stewardship was identified specifically in the FY 2000 National Defense Authorization Act report language that requested the *Report to Congress on Long-term Stewardship*:

> *"The report shall ... identify the long-term stewardship responsibilities (for example, longer than 30 years) ... for ... portions of sites for which ... facility stabilization is expected to be completed by the end of calendar year 2006."*

transferred from federal control. Over time, a given parcel of land may cycle again and again between multiple missions and, if federal control is not maintained, may change ownership many times, creating additional challenges for the maintenance of institutional controls.

Public Comments Providing Recommendations Related to Institutional Controls (see Exhibit 2 in Appendix C)

- Layering and redundancy are critical and must include multiple oversight or enforcement mechanisms and cooperative relationships with state and local governments (4, 41, 46)
- The steward must be able to respond to both failures and long-term changes in values and site conditions; it is not clear that the steward should determine when action is warranted (4)
- DOE should request a written opinion from the state Attorney General to determine whether proposed institutional controls are legally enforceable against subsequent landowners (16, 19)
- DOE should be required to monitor and enforce compliance with institutional controls; this may require an ongoing presence at the site (6, 11, 29, 32, 34, 45)
- DOE needs to intensively review the maintenance and effectiveness of engineered and institutional controls (3, 22, 43, 44)
- DOE should compensate local governments for protective equipment, emergency preparedness, and record-keeping (15)
- DOE needs to establish a comprehensive and consistent approach to long-term monitoring, including (1) developing a risk-based process for identifying needs; (2) selecting the right systems for each site; (3) establishing a research and development program to fill gaps; (4) developing a monitoring tracking program; and (5) establishing a web-based system for public access to monitoring data (26)
- It is not clear that DOE should be the primary enforcer of institutional controls on transferred properties (4)
- DOE appears to have changed the EPA regulatory terms – "active" controls are now "engineered," and only "passive" controls retain the "institutional" label (49)
- The *Study* should recognize that states will be among the primary enforcers of institutional controls (16, 19)
- The *Study* should recognize that deed restrictions are applicable to federal lands because proprietary controls may be necessary to ensure that institutional controls are enforceable against private entities granted easements on federal lands (16)
- The historic use of institutional controls has been problematic. DOE, states, tribes, and stakeholders will need to develop new tools to ensure controls remain effective (50)
- Engineering controls and their maintenance will be more important than institutional controls at DOE sites (3, 22)

Both DOE and EPA Regions have developed guidance on the selection and enforcement of institutional controls when residual hazards remain onsite.[48] DOE also has enforced easements and other restrictions in the course of mission-related activities. For example, Oak Ridge Operations Office transferred land to a local community with deed restrictions that included a prohibition on the use of groundwater because DOE did not know whether a contaminant plume might eventually migrate to the area. DOE did not conduct regular monitoring to ensure the deed restriction was being enforced and accidentally discovered that the community later drilled groundwater wells to irrigate a golf course. DOE met with the community, mandated immediate removal of the wells, and threatened to revert the land to DOE; the community complied.[49] Other sites have obtained easements for access to off-site property to conduct monitoring activities or to build and maintain utility rights of way or infrastructure. DOE also has experience maintaining institutional controls after real property transfer (see Chapter 6).

---

[48] *RCRA Closure and Post-Closure Plans*, U.S. Department of Energy, Office of Environmental Guidance, RCRA Information Brief. DOE/E -231-009/1291, December 1991. *Planning and Implementing RCRA/CERCLA Closure and Post-Closure Care When Wastes Remain Onsite.* U.S. Department of Energy, Office of Environmental Policy and Assistance, RCRA/CERCLA Information Brief. DOE/EH-413-9910, October 1999. *Use of Institutional Controls in the RCRA Corrective Action Program*, U.S. Environmental Protection Agency, Region 5, March 2000.

[49] *DOE Long-term Stewardship -- Real Estate Issues*, U.S. Department of Energy, Office of Environmental Management, Office of Long Term Stewardship, January 10, 2000.

Institutional controls can be used individually or in combination (referred to as "layering"), depending on the legal status of the property and the nature and extent of residual hazards on the property. EPA and other federal agencies managing sites containing residual hazards have recommended the layering of multiple institutional control mechanisms to increase protectiveness.[50] All types of institutional controls may be used on any DOE property; however zoning is only relevant for sites where the federal government (e.g., DOE) will *not* retain ownership of the land (such as when land is transferred to non-federal entities pursuant to CERCLA §120(h)).[51] Deed restrictions and similar proprietary controls may be necessary on sites where DOE retains ownership. Federal agencies may grant easements to private parties over land that remains in federal ownership; therefore proprietary institutional controls may be necessary to ensure that the controls will be binding on the holder of any such easement. Under some circumstances, it may be important to consider the use of institutional controls for off-site areas adjacent to DOE sites (e.g., as buffer zones for residual hazards onsite).

"Layering" of Institutional Controls at Department of Defense Sites

The U.S. Air Force and EPA have agreed to use layering of notices, deed restrictions, permit approvals, and access rights to limit subsurface use at former Minuteman Missile Silo sites in North Dakota, South Dakota, Missouri, and Minnesota. The concrete silos were dismantled by imploding the structures and capturing contamination within the concrete structures. Each structure was capped with three feet of soil and a plastic liner, and the landscape was contoured with an additional seven feet above the buried structure. The silo site properties may be transferred to non-federal entities under CERCLA §120(h). The agreement calls for the General Services Administration (GSA) to be involved in any property disposal and for GSA to notify federal and state regulators when the property is transferred. GSA is also to provide prior notice of and obtain approval of federal and state regulators for any construction or other activity on the sites that would affect buried structures or groundwater monitoring wells. GSA also is required to place restrictions in the deed of conveyance to prohibit future property owners from installing water wells or otherwise penetrating the surface of the site to a depth of more than two feet. Both the U.S. Air Force and federal and state regulators retain rights of access to the sites under any transfer agreement.

Source: *Institutional Controls: What They Are and How They Are Used.* U.S. Department of Defense, Office of the Deputy Under Secretary of Defense, Environmental Security, Base Realignment and Closure (BRAC) Environmental Program Fact Sheet. Spring, 1997.

The temporary failure of institutional controls at Oak Ridge noted above suggests that enforcement of institutional controls for the extended periods of time involved in long-term stewardship will need new oversight systems, especially procedures for monitoring compliance with institutional controls after land transfers have occurred. If such a failure can occur at an active site, where affected parties are exceptionally knowledgeable about site hazards, EM program activities, and long-term stewardship issues, it is reasonable to anticipate similar failures at other sites if monitoring and oversight are not maintained. DOE has in place formal procedures and directives that establish programmatic responsibilities to enforce institutional controls, and the Office of Long Term Stewardship will work with other programs to develop and implement "layering" strategies and contingency plans to address potential or actual failures.

---

[50] *A Guide to Establishing Institutional Controls at Closing Military Installations*, U.S. Department of Defense, February 1998.

[51] A land transfer from the federal government to a non-federal entity is necessary to create the deed restriction in the first place, because transfers within the federal government would not result in the creation of a deed. Local governments cannot enforce zoning restrictions on the federal government.

The long-term effectiveness of institutional controls is a much-debated topic, although there is little historical precedent or empirical information upon which judgments can be based. Consistent enforcement of easements and other deed restrictions by the owner that originated the restrictions appears to be essential.[52] Some studies have estimated the probability of human intrusion into waste disposal cells under different scenarios.[53] There are inherent obstacles to the long-term effectiveness of every common type of institutional control (Exhibit 5-3). Over time, the sustainability of institutional controls may be affected by changes in real property law, which already varies from state to state, socioeconomic developments affecting land use, and the potential information loss that could accompany multiple changes in land ownership. DOE may need to expand its focus beyond enforcing land use restrictions and other institutional controls within site boundaries. Where property transfers or leases have occurred, it may be necessary for DOE to actively monitor compliance with existing institutional controls and take steps to enforce, extend, or replace them when necessary. This may need new procedures, funding, and authority. For transfers within the federal government, DOE may need to enter into specific agreements with the receiving agency to ensure continued enforcement of institutional controls.

Public Comments Concerning Public Health (see Exhibit 2 in Appendix C)

- The primary purpose of long-term stewardship is to provide maximum, long-term protection of public health and the environment (5, 25, 32, 35, 47)
- Long-term stewardship activities at each site should include distribution of health information to the public and a health monitoring plan (5, 6, 11, 32, 34, 45)
- DOE-EH should work with other federal, state Tribal and local health agencies to develop health monitoring plans (5)
- Health information should include possible disease outcomes and should be targeted at physicians and public health providers (5, 6, 11, 32, 34, 45)
- When failures of long-term stewardship lead to disease, the federal government should provide adequate care and compensation (5)
- The Study should include damage estimates from tritiated groundwater (31)

It is likely that entities other than DOE will have significant roles in monitoring and enforcing institutional controls. Institutional controls are likely to be imposed in cleanup decisions reached among DOE and federal and state regulators. The ability of DOE (or the state) to enforce the same institutional control against subsequent property owners may vary from state to state. Consultation with the appropriate state authorities prior to establishing an institutional control will be useful in determining whether such a control is, in fact, enforceable in that state.

[52]English, M., Feldman, D, Inerfeld, R. and Lumley, J, "Institutional Controls at Superfund Sites: A Preliminary Assessment of Their Efficacy and Public Acceptability." July 1997. This report summarizes much of the recent research on institutional controls. The Environmental Law Institute is conducting extensive case studies on the topic at numerous sites, including DOE sites.

[53]Black, P., et al. A Common-Sense Probabilistic Approach to Assessing Inadvertent Human Intrusion into Low-level Radioactive Waste at the Nevada Test Site. *Paper presented at Waste Management 2000*, Tucson AZ.

Exhibit 5-3. Possible Obstacles to the Long-term Effectiveness of Common Institutional Controls

Deed Notices	• Over time, deed records may be destroyed, lost, or corrupted • New property owners may not search the deed records adequately or may miss the deed notice • New owners who receive property by gift or inheritance may not review the deed records • Transfers of land among federal agencies may not generate deeds on which to place notices • New deeds that do not include the restriction may be created legally after certain transfers • Some states have enacted statutes that extinguish deed notices if the deed is not re-recorded after a certain period of time
Deed Restrictions	• Enforceability of deed restrictions is being eroded by changes in state laws • Deed restrictions frequently cannot be enforced by anyone except landowners who share a chain of title with the restricted parcel • Deed restrictions frequently cannot be enforced against anyone who does not have legal notice of the restriction
Negative Easements	• Prohibitions on the use of property, such as negative easements for lesser requirements, are disfavored and may be overturned by courts or legislatures • State laws allowing negative easements for conservation or historic preservation need to be broadly interpreted to cover long-term stewardship needs • DOE, as the transferor of real property covered by an easement, would be the only party that could enforce the easement; enforcement could not be transferred or delegated to a Tribal, state, local, or private party
Zoning	• Local zoning ordinances are probably not enforceable against federal agencies if the agency asserts sovereign immunity • State law creating local zoning authority may change over time • Local zoning ordinances may be amended or repealed • Local governments may not enforce zoning restrictions

Source: Applegate, J.S., and Dycus, S. Institutional Controls or Emperor's Clothes? Long-term Stewardship of the Nuclear Weapons Complex. *Environmental Law Reporter*, November 1998; Pendergas, J., Use of Institutional Controls as Part of a Superfund Remedy: Lessons from Other Programs. *Environmental Law Reporter*, March 1996.

Although DOE and other federal agencies take steps to ensure that institutional controls will not be *inadvertently* breached, it is not possible to fully protect against *intentional* breaching. An example from the Bureau of Land Management (BLM) illustrates the serious consequences that may result from intentional breaching of institutional controls. BLM implements institutional controls such as warning signs, fences and steel gratings to protect people from risks associated with abandoned mine sites under its jurisdiction, but these institutional controls are sometimes intentionally breached. BLM reported in a recent internal agency advisory that two men in Virginia City, Nevada breached a fence in order to explore a closed mine. The men were later discovered within 75 feet of the mine entrance, asphyxiated as a result of carbon dioxide poisoning.[54]

[54]U.S. Department of Interior, Bureau of Land Management, BLM Internal Advisory, Nevada *http://www.blm.gov/narsc/aml/hazards2.htm#top*

A report by the International City/County Management Association, based on a survey of state and local government officials, points out the importance of working closely with local governments and the need to increase their level of expertise with respect to institutional controls. The study concludes that nearly 75 percent of local government respondents presently do not have experience implementing institutional controls at former hazardous waste sites (probably the closest analog to DOE sites released for restricted use). The respondents reported minimal efforts to enforce controls and reliance on institutional memory, citizen complaints, and informal inspections as triggers for the majority of enforcement efforts. The study also notes that over 60 percent of respondents believed that it was "likely" or "highly likely" that institutional controls could be breached without the knowledge of the implementing local government.[55] According to a recent case study, if the public perceives a substantial residual risk, there is increased public acceptance of institutional controls and greater public cooperation in implementing the controls.[56] These studies emphasize the importance of continuing to maintain and enhance partnerships between DOE and local communities to maintain the continued effectiveness of institutional controls.

Consequences of Lapses in Stewardship

A number of commenters on the draft study addressed issues pertaining to the potential for lapses in stewardship. The proper maintenance of stewardship functions and systems is important wherever contamination remains in place, but, it is recognized that the potential consequences from such lapses vary considerably between different sites and facilities. Furthermore, the consequences and likelihood of lapses depend on factors such as the residual concentrations of hazardous and radiological constituents, the physical and administrative barriers put in place, the form of the material and site-specific factors like weather, natural resources, geology, and regional demographics. Historically, stewardship measures have been successfully employed in a graded manner commensurate with the risks posed by the site and the likelihood of intrusion. Conservation of the factors that an affect the magnitude of risk and potential lapses in institutional or engineered controls is an essential element of stewardship decision-making. Given the wide variation in site-specific factors found across the DOE complex, not every site will have or require the same level or type of institutional or engineered controls, and, as a result, the resources needed to implement appropriate stewardship measures to maintain protection and avert lapses in control will vary accordingly.

Given the uncertainty associated with the long-term effectiveness of institutional controls, DOE may need to investigate new approaches for ensuring the protectiveness and effectiveness of institutional controls. This research would be in addition to existing efforts to develop new science and technology to increase the protectiveness and effectiveness of engineered controls.

5.4 Identifying Uncertainty and Contingency Planning

DOE currently considers the long-term implications of each proposed remedy during the remedy selection process and has developed guidance on the use of conceptual site models and

[55]Gaspar, C. and VanBurik, D., *Local Government Use of Institutional Controls at Contaminated Sites.* International City/County Management Association, April 1998. Of particular interest is the fact that although the respondents reported that traditional zoning (56%) and groundwater restrictions (26%), both of which are generally implemented by local governments, were the most common controls, they also reported low levels of enforcement and high likelihood the controls would be breached.

[56]*Institutional Controls Case Study: Grand Junction.* Environmental Law Institute, Research Report, 1999.

uncertainty management matrices to assist with contingency planning during cleanup.[57] However, uncertainties exist for long-term performance of cleanup remedies, and it is not possible to fully understand their long-term viability or reliability.[58] Engineered and institutional controls are selected and implemented based on an understanding of current site conditions.[59] However, site conditions, as well as changes in social and economic values, regulatory standards, etc., may differ from those assumed or may change with time. Major deviation from expected site conditions could result in unacceptable risks to human health and the environment. Therefore, DOE needs to develop the capability to identify, plan for, and respond to potential changes in site conditions and possible failures of engineered or institutional controls. DOE needs a dual capability to (a) identify and rapidly respond to actual or threatened failures of controls, and (b) monitor and respond to more gradual changes in regulations, site conditions, values, etc. to ensure the continued protectiveness of remedies. Many of these issues have been addressed in the development of regulations governing radioactive waste disposal. These examples should be considered for application to cleanup activities.

5.4.1 Contingency Planning and Emergency Response During Long-term Stewardship

Monitoring during long-term stewardship may identify conditions that indicate deterioration of the performance of the remedy or changes in site conditions that need corrective measures. Ideally, the long-term monitoring plan for a site should be designed to identify changing conditions at an early stage, before the protectiveness of the remedy is compromised. The monitoring plan should also include contingency plans to respond to the changes in conditions in order to maintain protectiveness. However, site stewards also need to recognize the need for emergency response when necessary. Emergency response activities may involve fire and rescue responses, responding to spills and other chemical or radionuclide releases, or responding to natural disasters such as earthquakes or tornados. Emergencies may directly involve residual hazards onsite (e.g., discovery of new contamination) or may involve such hazards indirectly (e.g., a fire may sweep across onsite areas containing radioactive or chemical hazards).

Many affected parties maintain emergency response capabilities; therefore, site stewards should coordinate emergency response training and contingency planning with appropriate state, local, and Tribal governments. It will be important to identify clear roles and responsibilities for specific responses (e.g., what actions are needed, who does each action) and to conduct joint exercises to practice responses. Such coordination also should include coordinated special training for emergency response personnel to ensure they have the knowledge to respond to anticipated emergencies as well as avoid unnecessary risks from potential exposure to residual hazards. Emergency preparedness personnel also will need appropriate up-to-date information about residual site hazards (e.g., fire fighters responding to a brush fire onsite would need to

---

[57] *Assessment of Short-term and Long-term Risks for Remedy Selection.* U.S. Department of Energy, Office of Environmental Policy and Assistance, CERCLA Information Brief. DOE/EH-413/9708, August 1997; *Uncertainty Management: Expediting Cleanup Through Contingency Planning* U.S. Department of Energy, Office of Environmental Management and Office of Environment, Safety and Health, U.S. Environmental Protection Agency, DOE/EH/(CERCLA)-002, February 1997; *Planning and Implementing RCRA/CERCLA Closure and Post-Closure Care When Wastes Remain Onsite.* U.S. Department of Energy, Office of Environmental Policy and Assistance, RCRA/CERCLA Information Brief. DOE/EH-413-9910, October 1999.

[58] *Standards for Remedial Actions at Inactive Uranium Processing Sites.* 48 FR 590, 597, January 5, 1983.

[59] *Development of Remediation Goals under CERCLA*, U.S. Department of Energy, Office of Environmental Policy and Assistance, CERCLA Information Brief. DOE/EH-413/9711, August 1997.

know the location(s) of residual site hazards and what types of personal protective equipment is necessary).

DOE Orders, CERCLA, and RCRA require DOE to respond to actual or threatened releases of hazardous substances that present an imminent and substantial threat to human health or the environment,[60] even for sites where remediation has been completed. Although monitoring the performance of remedies will be an important element of long-term stewardship, unexpected deviations or failures can be expected to occur. For example, engineered controls may fail to contain contaminants or waste, or unknown sources of contamination may be discovered. Therefore, DOE needs to retain the capability to detect and respond to unexpected conditions, preferably before a release occurs.

5.4.2 Monitoring and Responding to Uncertainties During Long-term Stewardship

Environmental remediation is a relatively new field. There is little information on remedy performance over a 30-50 year time frame, and no information on remedy performance over very long periods of time (e.g., centuries). There also are no examples of past environmental remediation projects to provide a basis for evaluating uncertainties over very long periods of time (e.g., how land use changes have impacted remedies over the last two hundred years, or how accurate life-cycle cost estimating methodologies are). Hence, protectiveness may not be borne out over even moderate periods of time without continued monitoring of site conditions and remedy performance. An integral part of long-term stewardship activities, whether performed by DOE or other entities, is the need to improve knowledge and understanding related to:

- **The reliability, long-term effectiveness, and permanence of remedial actions**. One reason that monitoring is needed is to ensure that implemented remedies are functioning as intended.

- **Natural processes and their interactions with hazards and remedies**. The natural processes at a site, and therefore geochemical interactions with residual hazards, may change over time. For example, climate changes can affect the performance of surface covers and other engineered structures. The understanding of these processes is not complete at this, as demonstrated by the recent affirmation by the National Academy of Sciences of the benefits of better science and technology with respect to natural attenuation processes.[61]

- **Exact extent and level of contamination**. The understanding of the extent and level of contamination is based on sampling and monitoring. Sampling presents an approximation of site characteristics. More sampling or continuous monitoring may provide better estimates of site characteristics over time. However, economic factors often limit the amount of sampling that can be conducted, and even unlimited sampling does not eliminate all uncertainties.

- **Land use**. Many remedial approaches rely upon restricted land use to ensure protection of human health and the environment. While it is feasible for decisionmakers to assume a

---

[60] 42 U.S.C. §6973(a), RCRA §7000(a).

[61] *Natural Attenuation in Ground Water. Re-dedication and Research Needs in Subsurface Science.* National Research Council, Washington, D.C. National Academy Press, March 2000.

particular land use in the near future, the long-term effectiveness of land use restrictions is uncertain (see above).

If adapted to long-term stewardship, two of DOE's existing tools for managing uncertainty during environmental cleanups – conceptual site models and uncertainty management matrices – could provide critical information needed for successful contingency planning.

- **Using Conceptual Site Models During Long-term Stewardship**. Conceptual Site Models (CSMs) are used during cleanup actions to depict the relationship among existing hazards, environmental transport mechanisms, exposure pathways, and ultimate human and ecological receptors.[62] CSMs can also be used to distinguish between known and unknown site conditions (e.g., the existence of fractured bedrock or preferential pathways for groundwater flow). While CSMs have traditionally been used for individual Operable Units or Areas of Concern, it may be possible to develop a long-term stewardship CSM for broader areas of a site (encompassing multiple Operable Units or Areas of Concern). A long-term stewardship CSM, however, may be difficult to develop or impractical to apply at large, complex sites. Functional equivalents could include management plans specific to particular biological resources or area management plans.

  Long-term stewardship CSMs could be used to illustrate the characteristics of a site and its residual hazards, how hazards have been contained, how exposure pathways have been blocked, and the uncertainties that may affect the performance of engineered and institutional controls. Where significant uncertainties exist, a CSM could identify the range of scenarios that are probable or otherwise indicate the importance of the uncertainties. The resulting model could serve as the basis for evaluating the likelihood and consequences of events such as barrier failures, identifying how stewards can plan to mitigate these events, and predicting the ability of future generations to ensure protectiveness based on improved technology and increased understanding of science. A CSM also could serve as a tool for communicating with local governments and stakeholders. An example of a long-term stewardship conceptual site model is presented in Appendix G. The Department also has considerable experience in modeling associated with the performance assessment and composite analysis process required pursuant to DOE Order 435.1. These may be useful tools to help address these cleanup issues.

- **Developing Uncertainty Matrices to Communicate Uncertain Conditions**. Uncertainty matrices can be used to describe the expected condition and performance of an engineered or institutional control, the likelihood of potential failures, expected impacts, monitoring strategies to prevent or detect failures, and contingency plans to mitigate failures. Uncertainty matrices also can be used to evaluate the relative need for "layering" of controls. Greater "layering" (e.g., multiple engineered and institutional controls, more frequent monitoring and reporting) will be needed if there are many uncertainties, uncertainty is very large, and/or the consequences of potential failures are very high. Appendix H presents an example of an uncertainty matrix.

[62]For Example, DOE's Office of Environment, Safety, and Health has developed the Site Conceptual Exposure Model (SCEM) Builder, a computer graphics tool that generates SCEMs. The SCEM Builder and User Manual can be downloaded from: *http://www.tis.eh.doe.gov/oepa/programs/scem.cfm*.

Long-term Stewardship at Maralinga, Australia

The British government, with the agreement and support of Australia, carried out nuclear tests between 1952 and 1963 at three sites in Australia. Maralinga in South Australia was the most used site, and hosted two major and several hundred minor trials, as well as various assessment tests and experimental programs. The trial resulted in the dispersal of roughly 24 kilograms of Plutonium-239 in the area of Maralinga. The site was officially closed in 1967 following the cleanup effort termed *Operation Brumby*.

Maralinga was Tjarutga Aboriginal land prior to the testing. The Tjarutga were displaced in 1953, and were allowed to return to their land in 1984. Between 1984 and 1996, the Australian Radiation Protection and Nuclear Safety Agency assessed the extent, quantities, and physical characteristics of plutonium that remains and conducted dose assessment studies. In cooperation with the Tjarutga, the Agency agreed to remove surface soil from the most contaminated areas and to restrict the use of another 120 square kilometers of land to transitory activities such as hunting and travel. Planned institutional controls include:

- A buffer zone surrounding the contaminated land.
- Removal of regular travel tracks and paths through the contaminated area.
- Construction of alternative tracks and paths outside the contaminated area and buffer zone.
- Installation of boundary markers and signs.
- Construction of a fence around the perimeter of the contaminated area and buffer zone.

Sources: Australian Radiation Protection and Nuclear Safety Agency website (*http://www.arpansa.gov.au/er_mrp.htm*); Australian Department of Primary Industries and Energy internet website (*http://webserver.dpie.gov.au*)

Chapter 6: Managing Real Property

DOE conducts cleanup of real property (land and facilities) owned by the federal government, states, and private parties. DOE real property – primarily land – is a key focus of long-term stewardship. It will be difficult if not impossible to ensure long-term protection of human health and the environment without the ability to maintain appropriate controls on the use of real property. Real property includes land and structures on the land such as buildings, mission-related infrastructure, waste disposal facilities, and other waste management units. Long-term stewardship must also address issues associated with groundwater, surface water, natural resources, and cultural resources. However, rights to water and mineral resources may be managed differently than surface property rights. At Rocky Flats, for example, DOE owns the land but only a small part of the mineral rights beneath the land.

APPLICABLE SCOPING COMMENTS
(see Exhibit 2 in Appendix B)

- Long-term stewardship commitments associated with proposed new missions and new facilities should be identified in approval decision documents for the facility (15, STGWG)
- When starting new projects, DOE should be required to provide a technical and financial plan to clean up and maintain any resulting waste (18)
- DOE should retain ownership and control of lands for which institutional controls are necessary unless adequate legal mechanisms and institutions exist to enforce such controls against future landowners (STGWG)
- DOE needs to make distinctions between parts of sites that are very contaminated and parts of sites that are clean (18)
- DOE should explicitly show how liability will be transferred in the event of the failure of a subsequent landholder to perform long-term stewardship adequately (e.g., bankruptcy) (16)
- The *Study* should discuss the approaches to long-term stewardship and land use control used by other federal agencies and other nations (2)
- DOE should ensure effectiveness of mechanisms for restricting future land use (10)
- The *Study* should carefully review, document, and provide recommendations on the transfer of cleanup and long-term stewardship liability for properties that are sold into the private sector or to other governmental agencies (16)

APPLICABLE ISSUES
(see Exhibit 3 in Appendix B)

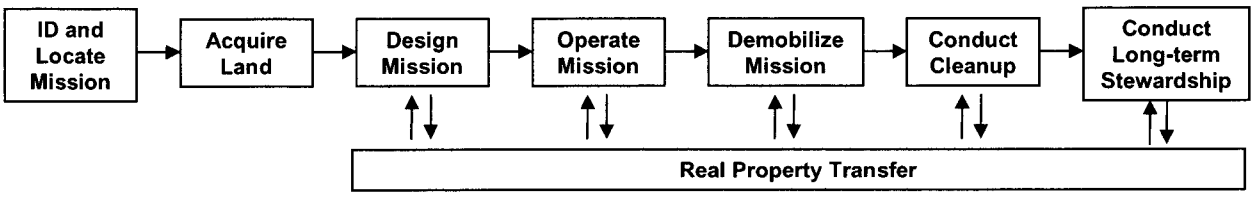
6. *Relationship of Facility Development Planning to Long-term Stewardship Needs*
10. *Property Transfer Policies and Procedures*

DOE currently has an inventory of about 2.4 million acres of land. Much of this property once supported weapons production and energy research activities or was used as buffer zones, and DOE retains ownership or control of nearly 90 percent of the land acquired for these missions since 1942. This chapter describes how DOE currently plans the development and use of the real property it controls; how land and other real property is managed, how property is transferred out of DOE, and how DOE may maintain certain control over property for long-term stewardship purposes after the property has been transferred. This chapter also describes some of the challenges associated with integrating long-term stewardship concerns into current planning practices and presents alternatives for addressing these challenges. Appendix I provides a more detailed discussion of the technical and legal aspects of real property management and transfer.

6.1 Planning

The life-cycle of DOE mission activities at a site may include up to seven stages (Exhibit 6-1). Each of the initial stages of the mission life-cycle, and several of the later stages, are covered by planning processes that are mandated by a variety of laws, regulations, and internal DOE directives. Different authorities, including statutes and internal DOE directives, create land use planning needs.[63] Statutes establishing the requirements for cleanup, particularly CERCLA and RCRA, also can play a prominent role in planning at different points in the life-cycle of DOE activities at a site.[64] In principle, reviews under the NEPA process and DOE Orders such as DOE Order 430.1A, *Life Cycle Asset Management* (LCAM), cover the entire mission life-cycle. In practice, it has been difficult to cover the entire life-cycle within a single planning activity such as preparation of an Environmental Impact Statement (see Exhibit 6-2).

Exhibit 6-1. Life-Cycle of DOE Activities at a Site

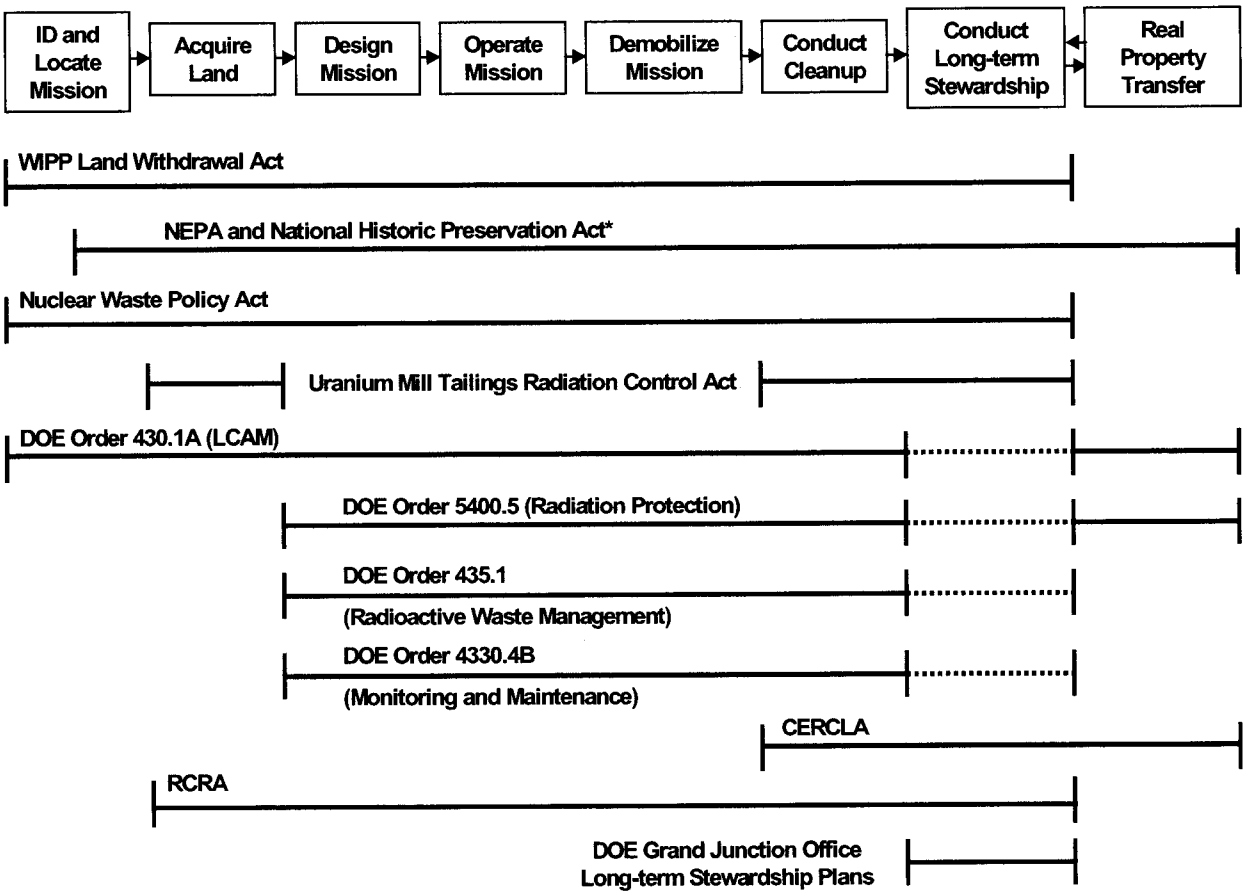


The mission life-cycle begins when DOE identifies and selects a site for the mission. DOE then must acquire the land, with appropriate buffer areas for safety and security, to support the mission. In the mission design stage, DOE must design and build the facilities, infrastructure, and other assets needed to support the mission. During operation, DOE performs the mission in accordance with applicable laws and regulations. After operation, DOE demobilizes the mission. During and after operation, DOE completes needed decontamination and decommissioning, waste management, environmental restoration, and material disposition. In some cases, site missions other than long-term stewardship also continue beyond cleanup. When cleanup is complete, DOE conducts appropriate long-term stewardship. If the property is no longer needed for a DOE mission or for buffer zones to protect public health and safety and the environment, DOE may transfer it to other federal or non-federal entities if DOE environmental; health, safety, and security; and other requirements are met.

[63]For example, the National Defense Authorization Act for Fiscal Year 1997 requires the Secretary of Energy to create future land use plans for the Hanford Site, INEEL, the Rocky Flats Site, and the Savannah River Site.

[64]Four federal statutes enact special planning activities for three particular categories of DOE sites. The Waste Isolation Pilot Plant (WIPP) Land Withdrawal Amendment Act (Public Law 104-201, as amended) places specific planning requirements on DOE for WIPP. UMTRCA addresses uranium milling sites. The Nuclear Waste Policy Act addresses high-level waste disposal facilities. Section 632 of the Departments of Commerce, Justice, and State, the Judiciary, and Related Agencies Appropriations Act for Fiscal Year 1998 required DOE to transfer particular parcels of land at or in the vicinity of Los Alamos National Laboratory to local governments.

Exhibit 6-2. Relationship Between DOE Planning Processes and the Life Cycle of DOE Mission Activities at a Site



*36 CFR Part 800, Advisory Council on Historic Preservation (Protection of Historic Properties; December 12, 2000) directs federal agencies to coordinate compliance with NEPA and the requirements of the National Historic Preservation Act (NHPA) and to consider NHPA requirements as early as possible in the NEPA process (36 CFR Part 800.8).

Planning processes under a variety of federal laws and DOE directives collectively cover the full life-cycle of DOE mission activities at a site, but no single law or directive has been used to cover the full life-cycle. The solid lines indicate the stages of DOE mission activities that have been covered by each specific statute or directive. For example, the Uranium Mill Tailings Radiation Control Act requires DOE to take ownership of certain Title II sites after cleanup (solid line on the left) and to conduct cleanup and long-term stewardship at Title I sites (solid line on the right). However, the Act does not address the possibility of property transfer from DOE ownership and control. A dotted line indicates where a specific directive applies to all DOE activities but does not specifically identify long-term stewardship (or its functional equivalent) as an activity. For example, DOE Order 435.1 directs DOE to manage radioactive waste but does not specifically direct DOE to conduct long-term stewardship for residual radioactive contamination.

6.1.1 Planning Pursuant to NEPA

Although many DOE sites were established before its enactment, NEPA now plays an important role in site planning. NEPA and its implementing regulations require DOE and other federal agencies to evaluate the environmental impacts of proposed actions that may have significant environmental effects (e.g., a major change in the structures or operation of an existing facility; decontamination, decommissioning, and disposition of an existing facility; the siting, construction, operation, decontamination and decommissioning (D&D), and disposition of a new facility). However, documents produced under NEPA at early stages in the planning process are not always able to fully consider the complete life-cycle of a proposed action. For example,

potential impacts of decontamination and decommissioning activities on future land use for a proposed action may be considered too speculative for analysis at the beginning of a project (i.e., during the initial planning process), although NEPA requires a reasonable effort to obtain such information.[65]

Because information related to the "back end" of the life-cycle of a proposed action tends to be difficult to quantify during the planning process, initial NEPA analyses are limited in their ability to consider the longer-term environmental impacts of the various alternatives for the proposed action. This makes it necessary to periodically review more complete information about long-term stewardship as it becomes available to see whether decisions should be revisited or if an earlier NEPA review should be supplemented. For example, it may become apparent that DOE has selected an alternative that will result in significant long-term stewardship liabilities, when another alternative also capable of meeting the mission objective would result in fewer or less costly long-term stewardship needs.

6.1.2 Planning Pursuant to DOE Orders

DOE's internal operating procedures and directives include planning needs. Land use planning at DOE sites historically has focused on developing facilities and infrastructure to support DOE missions (including cleanup), often assuming that these missions would continue indefinitely.[66] Planning documents developed prior to 1994 generally did not consider land use patterns in surrounding communities, or the potential consequences of completing site missions and transferring site lands to other owners. In fact, many plans were classified or otherwise controlled because they contained sensitive information.

In 1994, DOE land use planning was re-organized under DOE Order 430.1A, *Life Cycle Asset Management* (LCAM). LCAM is focused on performance-based management of real property over its entire life-cycle: from planning to acquisition, through operation, decommissioning, and disposition or transfer out of DOE control. LCAM, which is still in effect, provides overall performance-based process requirements, but otherwise allows programs and sites the flexibility to specify their planning process. Although LCAM requires a comprehensive land use planning process with stakeholder involvement, the quality and content of land use plans are left to the discretion of DOE program directors.[67] In 1996, the Department issued DOE Policy 430.1, *Land and Facility Use Policy* (July 9, 1996), which further addresses life-cycle planning activities for

---

[65]For example, in the Final Environmental Impact Statement for the Advanced Mixed Waste Treatment Project facility at the Idaho National Engineering and Environmental Laboratory, DOE stated that: "The nature, extent and timing of future D&D activities are not known at this time. No meaningful alternatives or analysis of impacts can be formulated at this time since D&D is so remote in time that neither the means to conduct D&D, nor the impacts of the actions, are foreseeable in the sense of being susceptible to meaningful analysis now. Accordingly, D&D activities are not analyzed in detail." *Advanced Mixed Waste Treatment Project. DOE/EIS-0290, January 1999, Section 3.1.*

[66]Until 1994, planning was governed by DOE Order 4320.1b, supplemented by additional planning directed at radiation protection (DOE Order 5400.5) and later by radioactive waste management (DOE Order 431.5).

[67]LCAM-based plans have won awards from the American Planning Association and have peer respect. For example, the INEEL Comprehensive Facility and Land Use Plan was recognized as the Outstanding Federal Planning Project for 1997 by the Federal Planning Division of the American Planning Association for its original and comprehensive analysis of the environmental, historical, cultural, and economic assets of the region and their relationships to the future growth of the site.

DOE land and facilities. The policy promotes the involvement of the surrounding communities and the integration of missions, ecology, cultural, and social factors in a regional context.[68]

Although LCAM is intended to apply over the entire life-cycle of DOE's management of real property, it has been difficult to develop operational requirements specific to long-term stewardship. For example, the Order does not explicitly identify long-term stewardship as a requirement, or explicitly require development of long-term stewardship plans prior to project design or execution. As a consequence, a recent analysis of land use plans developed by sites pursuant to LCAM suggests that land use planning for long-term stewardship is not always addressed in a comprehensive and coordinated manner by the sites and their surrounding communities.[69]

Bureau of Land Management (BLM) Land Use Planning

BLM's planning processes are established primarily by the Federal Land Policy and Management Act (FLPMA). The FLPMA requires BLM to prepare land use plans to provide management direction for the public lands. Since 1984, BLM has completed 108 Resource Management Plans; 56 earlier and smaller Management Framework Plans (MFP) are still in place. These plans are periodically evaluated, amended or revised to respond to new circumstances or proposals. Some of the MFPs are replaced by new Resource Management Plans when the decisions in the MFPs are no longer valid and it is not feasible to update the decisions through the MFP amendment process. Planning Regulations at 43 CFR Part 1610.2(b) require BLM to annually publish a planning schedule identifying plan amendments and new Resource Management Plans in progress or planned over the next three years. Six Resource Management Plans were scheduled to be completed in FY 1999, and one is scheduled to be completed in FY 2000.

Source: U.S. Department of Interior, Bureau of Land Management
http://www.blm.gov/nhp/what/PAC_support/planschedule0.htm

To improve future project planning documentation and life-cycle cost analyses, DOE may need to place greater emphasis on identifying and addressing any long-term stewardship activities that are needed for real property assets. In addition, LCAM needs to be revised to include needs of long-term stewardship as they are determined in DOE policy.

---

[68]In some cases, state planning requirements also may be pertinent, as may county and city government-derived authority for land use planning (e.g., local governments adjacent to the Hanford Site pursuant to Washington State's Growth Management Act).

[69]Lowrie, K. *Land Use Planning On and Around U.S. DOE Sites: Communication, Coordination, and Commitment.* CRESP-EOHSI, Draft, September 1999. This study was based on a survey of 21 off-site municipal or county planners and on-site planners at 13 major sites. The study concluded that "although sites are required to do land use planning, there have been so many different initiatives in this direction that sites have been, at best, free to adopt or pursue what type of land use planning suits their needs, and, at worst, confused as to how to meet requirements and have therefore done nothing." The study identified a need for substantially more direct communication between the sites and local planners, which would include more mutual review and comment on land use plans between the sites and neighboring jurisdictions, the early involvement of local officials in developing and defining roles and responsibilities for stewardship, and the coordination and linkage of on-site and off-site databases of land use information with local land use agencies.

6.1.3 Integrating Long-term Stewardship More Effectively Into Planning

Comments and suggestions forwarded to DOE have noted three general options for improving planning to more effectively integrate consideration of long-term stewardship in land use plans. The three suggested approaches summarized below are not mutually exclusive.

- **DOE could develop site-specific long-term stewardship plans at all DOE sites.** Congress has directed that the Waste Isolation Pilot Plant and uranium mill tailings sites have long-term stewardship plans. High-level waste repositories and low-level waste disposal facilities must meet long-term planning requirements. As a management tool, DOE requests the development of a site-wide plan prior to accepting a new site into the long-term surveillance and monitoring program. CERCLA Operation and Maintenance Plans and RCRA post-closure permits may cover some long-term stewardship needs for specific areas. Sites will continue to conduct the planning activities that are directly needed by other applicable requirements. Many sites may develop site-specific long-term stewardship plans that incorporate the planning activities conducted pursuant to those directives. Other sites may address long-term stewardship planning in a different manner that is consistent with the needs of stakeholders, regulatory agencies, and Tribal nations.

- **DOE could adopt Environmental Management Systems (EMS) and pollution prevention concepts into mission planning and operation to increase the reliability of and reduce the need for long-term stewardship.** The use of EMS[70] and pollution prevention[71] principles in long-term stewardship planning can address, in the initial planning stages, the potential impacts after mission completion. At DOE sites with ongoing missions, DOE could incorporate long-term stewardship considerations in all planning efforts, consistent with an EMS approach. Because the effectiveness of long-term stewardship is uncertain, the best way to ensure against ineffectiveness is to minimize the need for long-term stewardship through careful consideration of the long-term stewardship implications of DOE decisions. Decisions concerning the continued generation of an existing waste stream at a site could consider the extent to which that generation is creating or contributing to residual hazards that will need long-term stewardship. Decisions concerning constructing and operating a new facility could consider the ability to decontaminate and decommission the facility after the mission is completed. DOE could draw upon the experience that other federal agencies have with life-cycle mission planning that includes long-term stewardship. DoD regulations direct life-cycle planning for new missions and programs, including the following life-cycle phases: manufacture, test and evaluation, deployment, maintenance, demilitarization, and disposal.[72] Life-cycle planning and analysis for new DoD missions and

---

[70]An Environmental Management System (EMS) is a set of management tools and principles designed to create the administrative procedures that an organization needs to integrate environmental concerns into its daily practice. The EMS process is guided by ISO 14000, a series of international voluntary standards that provide a common framework for managing environmental issues. The guiding principles of ISO 14000 are: it must result in better environmental management, it must be flexible and applicable in all nations, it must be scientifically based, and it must be practical and useful.

[71]The concept is to (1) recognize from the start that all ongoing and new missions will eventually come to an end (e.g., every new facility will eventually need to be decommissioned); and (2) design and operate missions and facilities in ways that minimize future long-term stewardship needs (e.g., design facilities so that decontamination and dismantlement are as straightforward as possible).

[72]Department of Defense Regulation 5000-2-R - Mandatory Procedures for Major Defense Acquisition Programs and Major Automated Information System Acquisition Programs.

programs include NEPA analysis. The National Park Service also conducts planning for long-term stewardship, including NEPA analysis, under its Disturbed Lands Restoration Program and Abandoned Mine Lands Program.[73] The concepts of pollution prevention, waste minimization, stewardship minimization, and EMS should be incorporated, as appropriate and to the extent possible, into the NEPA process for the evaluation of proposed actions and alternatives.

- **DOE could coordinate land use planning processes more thoroughly with planning processes conducted by affected parties.** Such coordinated planning would be beneficial in two situations. First, where uncertainty exists with respect to the potential migration of contamination off-site (e.g., groundwater plumes), coordinated planning could enhance the protectiveness of long-term stewardship. For example, DOE could work with local communities or Tribes in determining where use or zoning restrictions would prevent exposures in the event that a groundwater plume were to migrate off-site. Second, decisions about transfers of property to non-federal owners are contingent on compliance with applicable requirements, including DOE Orders. If property is considered for restricted release, it is important to understand whether the federal government, local governments, or the new owners can and will enforce long-term restrictions on property use and perform periodic maintenance. Coordinated planning could help define the roles and responsibilities of federal, state, local, and Tribal governments with respect to the creation and maintenance of land use controls. It also could be a means through which local governments take an active role in monitoring properties or maintaining and enforcing land use controls. Coordinated planning and management of natural resources on adjacent federal and non-federal lands may be appropriate at some sites.

Public Comments Providing Recommendations on Preventing the Need for Long-term Stewardship (see Exhibit 2 in Appendix C)

- Long-term stewardship should be emphasized as an essential component of all new programs and facilities (7)
- DOE should do what private entities routinely do: develop decommissioning plans prior to constructing new facilities and incorporate pollution prevention concepts into the design of new facilities and processes (16)
- DOE should work harder to ensure that the weapons complex of the future does not result in additional intractable long-term stewardship needs (16, 19)
- The *Study* should clarify how the concept of pollution prevention differs from existing requirements pursuant to RCRA, the 1990 Pollution Prevention Act, and NEPA (12, 41)

6.2 Property Transfer

At the conclusion of current cleanup activities, lands and other real property owned or controlled by DOE may be retained indefinitely in federal control or transferred to non-federal ownership (if release requirements are met). A variety of options are available for the transfer of DOE property to other federal agencies and non-federal owners.

The Department may transfer the property under a variety of authorities, including the AEA, General Services Administration (GSA) regulations, and specific Congressional legislation such as the Federal Property and Administrative Services Act, the Hall Amendment to the DOE Organization Act, and Public Law 105-119. Real property may be transferred to the Secretary of the Interior, under direct management of the Bureau of Indian Affairs, to be held in federal trust

[73] 13 Steps to a Restoration Project, U.S. Department of Interior, National Park Service.

for Tribal nations.[74] Where supported by a mission need, other federal agencies have the right of first refusal for the ability to assume control of DOE excess property. Excess land that was withdrawn from the public domain is relinquished (returned) to the controlling agency (e.g., BLM, U.S. Department of the Interior, U.S. Department of Agriculture) pursuant to 41 CFR 101-47§201-3. These disposition paths will affect long-term stewardship in different ways. DOE restrictions on real property transfers are discussed in more detail in Appendix I.

The least complicated transfer will occur if the property is not needed for any continuing DOE mission (or for buffer zones to protect public health and safety and the environment) and if the property has been cleaned up to levels that support unrestricted use. In that case, the only long-term stewardship obligations that will accompany the property or remain with DOE are routine record-keeping.

The transfer of property that needs long-term stewardship to another federal, state, Tribal, local, or private entity presents challenges to long-term stewardship implementation. In this case, as part of the transfer process, DOE and affected parties will need to determine:

- The parcels for which long-term stewardship is needed.
- Whether the receiving entity has any restrictions, concerns, or issues associated with its ability to accept the property and conduct long-term stewardship.
- What types of management or use restrictions are necessary for the parcel.
- Whether use restrictions should affect only the entity to whom the property is transferred or apply more broadly to all subsequent owners.
- Procedures for overseeing all restrictions or limits that are imposed. Note that providing oversight may be difficult (see Exhibit 5-3).
- Funding and responsibility for long-term stewardship activities.

A variety of factors will affect the choice of a disposition path. DOE needs, as a first step, to determine the suitability of the property for disposition. This means systematically assessing sites and portions of sites to determine if they are needed for a continuing DOE mission other than long-term stewardship (or for buffer zones to protect public health and safety and the environment). Unused property must then be given a second screening to determine whether it should remain in DOE possession for long-term stewardship or it can be released with or without restrictions. To date, these decisions have been made under a variety of statutory and regulatory authorities and via different processes (see Appendix I). The following factors will be

[74] As part of the Federal Indian Trust Responsibility, the federal government must hold and appropriately manage land for federally-recognized tribes. However, the Department of the Interior is committed to promoting tribal control and self-determination over tribal trust lands and resources (*Principles for the Discharge of the Secretary's Trust Responsibility*, Department of Interior Order 3215, April 28, 2000).

Public Comments Providing Recommendations for Property Transfer
(see Exhibit 2 in Appendix C)

- The federal government should retain control of sites (including mineral rights) where long-term stewardship is required, except where the durability of institutional controls can be guaranteed (24, 25, 27)
- The weakness of institutional controls should have a major effect on DOE decisions to convey property (49)
- Long-term stewardship responsibility at DOE sites could be assigned to other federal agencies better suited to land management (4, 39)
- Other federal agencies may have restrictions or concerns about accepting residually contaminated real estate, or may not have sufficient budgets for long-term stewardship (4,29)
- DOE should consider Tribal rights, Tribal treaties, and preferences by some stakeholders for biological and habitat protection in land transfer decisions (4, 44)
- If property is transferred, DOE should retain long-term stewardship responsibility in perpetuity unless the new owner has altered the property, violated a legal deed restriction, or contaminates the environment (6, 11, 20, 32, 34, 45)
- DOE needs to determine how it will enforce restrictions on land owned by someone else, particularly if ownership changes (1, 43)
- Any proposed transfer of DOE land should require a review and comment by the state (25)
- DOE should identify future site stewards and allow stakeholder to interface with these stewards prior to the completion of cleanup (36)
- The *Study* should provide more discussion of the management of property already transferred to the public, but not cleaned up (25)
- The *Study* should examine radioactive materials removed from sites being cleaned up and disposed at facilities that are not regulated under the Atomic Energy Act; such actions may increase DOE's long-term stewardship liabilities and challenges (37)
- Once federal lands are conveyed into private hands, the treaty rights to hunt and gather foods and medicines could be extinguished (49)
- The *Study* should outline what happens to 151(b) sites if the private owners refuse to invest in the necessary long-term stewardship (43)
- The "Hands Off Policy" is not clear and is hard to visualize (30)

particularly important for evaluating the potential for transferring real property from DOE control to another federal or non-federal entity:

- **Potential legal restrictions**. Under current law, parcels of land which are part of a larger site that is listed in its entirety as a single site on the CERCLA National Priorities List (NPL) cannot be transferred unless (a) EPA concurs with the transfer or (b) the larger site is deleted from the NPL.[75] If the site is not on the NPL, then DOE must obtain concurrence from the appropriate state agency. If a parcel contains residual radioactive contamination or materials at levels subject to regulation under the AEA, or if the parcel is needed as a buffer zone to protect public health and safety and the environment, it may not be possible for DOE to transfer responsibility for long-term stewardship over those materials to another federal or non-federal entity without the NRC or an agreement state licensing the entity for their possession.

[75]State concurrence is required to delete the site from the NPL.

Leasing Property at DOE Sites

Several mechanisms are available to implement leases of DOE property. DOE has implemented guidance on the protection of workers using DOE leased facilities.

- DOE can lease property under section 161(g) of the Atomic Energy Act, provided that the property was acquired by DOE in connection with functions pursuant to the Act or the property will be used to carry out objectives of the Act.

- Section 649 of the DOE Organization Act authorizes DOE to lease facilities that are temporarily not needed for up to five years if leasing is in the public interest. Unused facilities at the Hanford Site have been leased under this authority.

- The Hall Amendment to the DOE Organization Act allows DOE to lease excess property for up to 10 years at DOE facilities to be closed or reconfigured. The Hall Amendment provides EPA with the authority to concur in the DOE determination that lease conditions are "consistent with safety and protection of public health and the environment." Several facilities at the Mound Environmental Management Project have been leased under this authority.

Sources: *Selecting a Suitable Transfer Mechanism: Benefits and Limitations*, U.S. Department of Energy, Office of Environmental Management, May 13, 1997.

Joint DOE/EPA Policy Statement on Leasing under the "Hall Amendment," Memorandum from Timothy Fields, Assistant Administrator, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency; James M. Owendoff, Acting Assistant Secretary for Environmental Management, U.S. Department of Energy; Robert W. DeGrasse, Jr., Director, Office of Worker and Community Transition, U.S. Department of Energy; and G. Thomas Judd, Director, Office of Field Management, U.S. Department of Energy, June 30, 1998 (*www.epa.gov/swerffrr/doc/halltran.htm*).

Guidance on the Protection of Workers using DOE Leased Facilities, U.S. Department of Energy, Office of Worker and Community Transition, August 6, 1999 (*http://www.wct.doe.gov/owct/Documentation/Authorities%20and%20Guidance.htm*).

- **Tribal Treaty Rights and Federal Indian Trust Responsibility**. Tribal nations have reserved legal rights to pursue certain activities (e.g., hunting, gathering plants, pasturing livestock) on certain lands identified in treaties (e.g., "open and unclaimed lands"). There is disagreement as to whether these treaty rights apply to certain withdrawn lands (e.g., at Hanford).[76] In addition to specific treaty rights, the Federal Indian Trust Responsibility is a legally enforceable fiduciary obligation, on the part of the United States, to protect Tribal lands, assets, resources, and treaty rights, as well as duty to carry out the mandates of federal law with respect to American Indian and Alaska Native Tribes. DOE's implementation of this responsibility is directed by Executive Memorandum and DOE Order.[77] In several cases, the Supreme Court has used language suggesting that the Trust Responsibility entails legal

[76] *Hanford Comprehensive Land-Use Plan Environmental Impact Statement,* DOE/EIS-02222-F, September 1999.

[77] *Memorandum for the Heads of Executive Departments and Agencies – Subject Government to Government Relationship with Native American Tribal Governments*, Executive Memorandum, April 29, 1994; DOE Order 1230.2, *American Indian Tribal Government Policy*; *U.S. Department of Energy American Indian & Alaska Native Tribal Government Policy*, U.S. Department of Energy, Office of Congressional and Intergovernmental Affairs, October 2000.

duties, moral obligations, and the fulfillment of understandings and expectations that have arisen over the entire course of dealings between the United States and the Tribes.[78]

- **The nature and extent of residual contamination and other site hazards.** These must be considered in determining both whether to transfer property and what restrictions should be placed on that property if transferred. Documents that assess the environmental baseline, such as discharge permits, release sites, sampling plans and results, and descriptions of all waste management units will be needed. Federal and state regulators involved in the decision process will need to be notified at the start. In most cases, their concurrence with DOE's decision to transfer the property will be needed.

- **Property rights that do not convey with surface rights.** Minerals in place (in many states) may be conveyed by deed separately from the overlying property. Generally, the ownership of land overlying a groundwater resource determines access to the resource. However, in some states a permit to withdraw groundwater may be required. Also, in some states, groundwater may be withdrawn for use either on or off the overlying land even if this interferes with use by another landowner.

- **Needs for buffer zones and other "set-asides."** Uncontaminated property may be needed as a safety buffer zone around contaminated areas or for continuing or future mission needs. Other areas may be set aside to protect valued natural resources or cultural resources.

- **Local interest in site re-use for economic development and other socio-economic or environmental justice considerations.** Public and Tribal government involvement should be sought throughout the process to determine suitability for transfer. DOE may need to continue to build upon existing public involvement processes (e.g., Federal Advisory Committees such as Site-Specific Advisory Boards, site planning boards) to more effectively involve affected parties in property management issues (see also Chapter 9).

DOE has developed guidance outlining the information relating to the past as well as the current history and condition of the parcel that is needed before property can be transferred.[79] The necessary information includes CERCLA Records of Decision or other decision documents that identify cleanup end states and long-term stewardship strategies, NEPA review, safety/hazard analyses, and detailed real property records. In most cases, new property surveys and deed registrations will be needed to prepare for long-term stewardship activities or reduce acreage needed to support ongoing site missions (or for buffer zones to protect public health and safety and the environment). Real property records, to be complete, also should identify all infrastructure on the parcel, current and past facilities, boundaries, and all easements or covenants. For buildings, information about zoning and code compliance, structural integrity, and electrical and mechanical systems should be included, although as-built drawings and other records for older facilities may not be available (see Chapter 7).

---

[78]Seminole Nation v. United States, 1942, 316 U.S. 286 (1943); see also *http://www.doi.gov/oait/q&a.htm.*

[79]*Cross-Cut Guidance on Environmental Requirements for DOE Real Property Transfers.* U.S. Department of Energy, Office of Environmental Policy and Assistance. DOE/EH-413/97/2, October 1997.

Indemnification Following Property Transfer

Section 3158 of the National Defense Authorization Act of 1998 authorizes the Secretary of Energy to hold harmless and indemnify a person or entity to whom property is transferred against any claim for injury to person or property that results from the release or threatened release of a hazardous substance or pollutant or contaminant as a result of DOE activities at the defense nuclear facility on which the real property is located. This indemnification does not apply to the extent that the persons and entities contributed to any such release or threatened release. (42 U.S.C. 7274q(b); 10 CFR 770)

DoD has extensive experience in property transfer through implementing the Base Realignment and Closure (BRAC) Program. DoD has received explicit statutory authority to conduct transfers of DoD property at closing and realigning military bases, and is implementing the program under an extensive series of regulations and guidance documents.[80] DoD has developed a classification system for properties intended for disposal, and property must qualify for disposal through an Environmental Baseline Survey and either a Finding of Suitability for Transfer (FOST) or Finding of Suitability for Lease (FOSL). Typically, DoD property transfer is accomplished through an Economic Development Conveyance to an approved Local Redevelopment Authority.

6.3 Post-Transfer Property Management

DOE's role in long-term stewardship may not end if property is transferred, particularly if that property needs the maintenance of access or use restrictions.[81] As Chapter 5 described, such restrictions could take several forms:

- **Planning restrictions**, in which the transferee is required under enforceable provisions of the transfer document (e.g., an enforceable deed restriction incorporated into a sale agreement or condition of a lease agreement) to adopt and enforce the existing land use plan. Without such restrictions, planning decisions may be difficult to enforce. For example, even if a site-specific land use plan has been developed under NEPA (e.g., at Hanford),[82] the Record of Decision can be changed if the revised decision is adequately supported by an existing EIS. If the property or portion of the property is transferred to another federal agency or consulting Tribal government that was included in the NEPA process, a DOE Record of Decision is not binding on the cooperating agency or consulting Tribal government and does not create an obligation for a cooperating agency or consulting Tribal government to implement the plan. Once the property leaves DOE control, DOE would not have control over the use of the land unless the property is conveyed with deed or other legal restrictions.

---

[80] *The Environmental Site Closeout Process Guide,* U.S. Department of Defense, Air Force Base Conversion Agency, September 1999; *A Guide to Establishing Institutional Controls at Closing Military Installations*, U.S. Department of Defense, February 1998; *Guidance on the Environmental Review Process to Reach a Finding of Suitability to Transfer for Property where Release or Disposal has Occurred,* U.S. Department of Defense, June 1994.

[81] *CERCLA Requirements Associated with Real Property Transfers*, U.S. Department of Energy, Office of Environmental Policy and Assistance, CERCLA Information Brief. EH-413-9808, April 1998.

[82] *Hanford Comprehensive Land-Use Plan Environmental Impact Statement*, Section 1.4.3. DOE/EIS-02222-F, September 1999.

- **Traditional land use restrictions**, which are created by covenants, deed restrictions, reversionary clauses, or similar provisions. The availability of such restrictions and special circumstances governing their enforcement and persistence generally would be established by state law and therefore would be likely to differ from state to state. DOE might also create and enforce easements to ensure continued access to sites for monitoring and maintenance of waste disposal facilities. The availability and limitations of land use restrictions that can be implemented by DOE or regulators would also vary according to state law.

- **Zoning restrictions**, which would need the cooperation and continuing involvement of Tribal and local governments because they probably could not be enforced directly by DOE. The roles and responsibilities of the federal, local, and Tribal governments would need to be defined and agreed upon, and DOE might need to supply necessary technical expertise.

DOE has used deed restrictions (e.g., reversion clauses) to retain the authority to ensure the continued maintenance of institutional controls after property has been released. Examples include:

- Disposal of property on the Monticello, Utah, site involves deed restrictions establishing prohibition of residential development without prior DOE approval and prohibition of groundwater use.

- In 1973, 2,200 acres surrounding the Argonne National Laboratory East facility were transferred to a local forest preserve district. The deed included future use limitations because shallow groundwater and surface water contaminated with volatile organic compounds had migrated into the preserve.

- At the Oak Ridge Reservation, disposals of land to the City of Oak Ridge by means of quit-claim deeds included deed provisions in which DOE reserved rights of continuing access and specified that the property could only be used for certain purposes or it would revert to DOE.

Three issues for long-term stewardship are raised by these experiences with post-transfer controls:

- Additional staff and resources, focused on monitoring institutional controls and enforcing land use restrictions, may be needed if more properties, with more complicated and numerous restrictions, are transferred by DOE.

- DOE may need to be prepared to enforce institutional controls through judicial or administrative means if local governments or private individuals to whom property has been transferred do not adhere fully to the restrictions.

Recent DOE Land Transfer Experiences

Hanford Site. The State of Washington and EPA determined that the 1100 Area at Hanford poses no significant threat to public health and the environment and deleted the Area from the CERCLA National Priorities List in 1996. The 870 acre property was transferred to private ownership pursuant to section 161(g) of AEA. GSA was not involved in the transaction, although the general structure of GSA's land transfer process was used. An Environmental Assessment (EA) was prepared pursuant to NEPA. The EA concluded that all hazardous materials would be removed prior to transfer of ownership, and a Finding of No Significant Impact was made. Prior to the transfer, historical records were reviewed, and potentially problematic areas were surveyed for radiation using DOE Order 5400.5 radioactive release criteria. After the transfer, DOE Richland radiology staff requested additional surveys, which will be completed in the near future. DOE does not have an easement to conduct a survey, simply a good faith agreement. Contingency provisions within the land transfer agreement allow for future DOE remediation on the property if post-transfer surveys or sampling identify any contamination.

Sources: *Environmental Assessment for the Transfer of 1100 Area, Southern Rail Connection and Rolling Stock.* Hanford Site, Richland, Washington, U.S. Department of Energy, August 1998, DOE/EA-1260; 61 FR 51019, September 30, 1996.

Mound Site. In 1998, DOE agreed to sell the Mound Environmental Management Project Site (formerly the Mound Plant) to the Mound Miamisburg Community Improvement Corporation (MMCIC). DOE will convey the entire site to MMCIC in discrete parcels, or "release blocks." The sales contract specifies that a release block must be remediated pursuant to CERCLA, and each conveyance must be formally approved by EPA. DOE operations and decontamination and decommissioning activities are continuing at the site. Some parcels have been occupied by private sector tenants prior to the remediation of the entire release block. The tenants are generally not familiar with DOE operating procedures. In advance of the title transfer, leases of facilities are authorized by section 3154 of the National Defense Authorization Act of 1994 (the Hall Amendment to the DOE Organization Act), which allows for below market rate transactions for economic development. MMCIC in turn subleases parcels to private entities. A recent study by the Environmental Law Institute reviewed the master lease between DOE and MMCIC and the subleases between MMCIC and its subtenants. The study identified several provisions that serve as controls to ensure compliance with regulatory requirements and to ensure that exposures during reuse of the site are consistent with cleanup to industrial reuse standards. However, the study questioned whether lease restrictions or deed restrictions alone would be effective in managing residual hazards.

Sources: *Miamisburg Environmental Site Management Project Site Profile*, DOE Office of Oversight, Environmental, Safety, and Health, June 1999; *Institutional Controls Case Study: Mound Plant.* Environmental Law Institute, 1998; *Integrated Safety Management Evaluation of the Miamisburg Environmental Management Project.* U.S. Department of Energy, Office of Environment, Safety, and Health, July 1998. EM2MGT/07-98/01SH; *Mound's Land Transfer Process.* U.S. Department of Energy, Miamisburg Environmental Management Project, Miamisburg, Ohio, 1999; *Commercialization of the Mound Plant, Miamisburg, OH,* DOE/EA-1001; *Disposition of Mound Plant's South Property, Ohio*, DOE-EA-1239.

Los Alamos National Laboratory (LANL). In 1997, Congress passed Public Law 105-119, the *Departments of Commerce, Justice, and State, the Judiciary, and Related Agencies Appropriations Act, 1998*, which directs DOE to convey or transfer certain parcels of DOE land in the vicinity of LANL to the Incorporated County of Los Alamos, New Mexico, and to the Secretary of the Interior, in trust for the Pueblo of San Ildefonso. DOE's responsibilities under the Act include identifying potentially suitable tracts of land, conducting a title search on each tract, identifying and conducting any environmental restoration and remediation needed for each tract, and conducting a NEPA review of the proposed conveyance. DOE has no role in the designation of recipients nor how the parcels of land will be allocated between the recipients.

Source: *Final Environmental Impact Statement for the Conveyance and Transfer of Certain Land Tracts Administered by the U.S. Department of Energy and Located at Los Alamos National Laboratory, Los Alamos and Santa Fe Counties, New Mexico.* U.S. Department of Energy, Los Alamos Area Office, Los Alamos, NM, DOE/EIS-0293, October 1999.

- For transfers within the federal government, DOE and/or Congress will need to decide whether the funding/budget authority needed to conduct long-term stewardship activities transfers with the parcel or remains with the program that transferred the parcel.

Other federal agencies have experience enforcing institutional controls after real property transfer. For example, Findings of Suitability for Transfer and land transfer agreements for DoD property that needs long-term stewardship are required to include provisions allowing for continued access by DoD to conduct CERCLA five year reviews and monitor the effectiveness of engineered and institutional controls.[83] NRC has also addressed decommissioning of NRC-licensed sites and transfer of sites for restricted use, requiring institutional controls to maintain future land use restrictions.[84] The licensee (ordinarily the property owner) is required to demonstrate that required institutional controls are effective, enforceable, and funded prior to property transfer. The licensee also must demonstrate how the responsibility for such controls will be passed on to future responsible parties.

---

[83]DoD Guidance on the Environmental Review Process to Reach a Finding of Suitability to Transfer for Property where Release or Disposal has Occurred. U.S. Department of Defense, June 1, 1994.

[84]*Nuclear Material Safety and Safeguards, Decommissioning, Chapter 16.0, Restricted Use/Alternative Criteria.* Nuclear Regulatory Commission, NUREG-1727, September, 2000.

Chapter 7: Information Management

As DOE sites make the transition from cleanup to long-term stewardship, site stewards will need detailed, accurate information about the location and nature of residual hazards and the processes and cleanup strategies that generated these hazards. Other people will need to have access to this information, including health professionals, neighbors who live and work in the surrounding communities, and off-site entities who are responsible for some institutional controls, emergency response, and community planning and development. Even where sites have been cleaned up to levels that support unrestricted use, information that documents the levels of cleanup that were achieved will be needed.[85] The information needs to be available in a useful and readily accessible form. In order for long-term stewardship to be effective, appropriate information should be readily available to the public and all entities conducting long-term stewardship activities.

APPLICABLE SCOPING COMMENTS
(see Exhibit 2 of Appendix B)

- DOE needs to provide adequate information to the public (4, 18)
- DOE should discuss approaches for preserving information about a site and its past activities and contamination history (2)
- DOE needs to institute a reliable documentation update/revision system to ensure that crucial data on each site are preserved (4)
- DOE should identify processes whereby owners and neighbors are made aware of, in perpetuity, the nature and extent of contamination and use restrictions so that any attrition of personnel and changes in filing and computer systems do not result in a loss of corporate memory (16)
- DOE should establish mechanisms for the collection, retrieval, and storage of information needed for long-term stewardship and site historic preservation programs (1, STGWG)
- DOE should dedicate part of each former site as a historic site or museum (1)

APPLICABLE ISSUE
(see Exhibit 3 of Appendix B)

5. *Information Management*

This chapter summarizes recent recommendations for improving DOE's information management responsibilities and practices to better serve long-term stewardship needs. The chapter also describes DOE's efforts to improve the identification, preservation, and future accessibility of this information.

7.1 Current Responsibilities and Practices

Recent studies have described DOE's information management responsibilities and practices as they pertain to long-term stewardship.[86] Many DOE information management practices were developed to support nuclear weapons production. The basis for these practices (e.g., a need to protect national security, the assumption that site access will be restricted) was and continues to be critical to the success of national security missions. Conversely, long-term stewardship needs public awareness and institutional openness to facilitate continued protection of human health and the environment.

---

[85] Even at sites where cleanup achieves unrestricted use, it may be necessary to demonstrate that cleanup to a specified level actually was achieved and/or waste actually was removed to another location (e.g., for litigation or property transfer). It also may be necessary to re-evaluate these sites in response to changes in scientific information or health standards.

[86] *Roadmap to the Year 2000*, U.S. Department of Energy, Records Management Quality Improvement Team, Revision 1, August 1995; *Responsible Openness: An Imperative for the Department of Energy*. U.S. Department of Energy, Openness Advisory Panel, Secretary of Energy Advisory Board, August 25, 1997; *Managing Data for Long-term Stewardship*, Working Draft Report Prepared by ICF Kaiser Consulting Group, March 1998.

Exhibit 7-1 provides an overview of current DOE records management practices.[87] Five major aspects of current information management practices are likely to affect DOE's ability to implement long-term stewardship:

Openness vs. Protection

Although long-term stewardship generally is facilitated by open public access to information, some exceptions are necessary to protect national security (e.g., classified material), privacy (e.g., personnel records), and sensitive natural resources and cultural resources. While the need to maintain these protections presents some challenges for long-term stewardship, it should be possible to preserve the mechanisms currently in place to achieve protection during long-term stewardship. For example, DOE currently provides public access to unclassified information at a site (e.g., information related to cleanup) while at the same time maintains classified information in a variety of secure databases. In addition, some information about cultural resources (e.g., location of archeological sites) is currently exempt from the Freedom of Information Act, and there is no reason to remove such an exemption for long-term stewardship. Tribes and resource management agencies currently use a variety of techniques to inform the public about the existence of sensitive resources without disclosing their exact locations. There is no reason to anticipate that these techniques are incompatible with long-term stewardship.

1. **Uniform criteria are needed for identifying information critical for long-term stewardship**. A large amount of information is generated every day at DOE sites in support of regulatory and mission needs. The Department needs to develop a standard methodology for identifying the portion of this information that will be critical to support long-term stewardship.

2. **Data quality must meet current and future needs**. Current uses of data involve evaluations such as whether an engineered control is functioning properly. Future uses of data may involve evaluations such as temporal trends in contaminant concentration or migration.

3. **Information must be accurate**. DOE and affected parties must be confident that they can rely on the accuracy of long-term stewardship information. This is particularly important for information on the real and potential harm posed by residual hazards.

4. **There must be public trust in the information**. Affected parties must be confident that they can trust the information provided by DOE and other site stewards. Establishing and maintaining trust may be difficult when some information must be withheld for national security reasons.

[87] Although the focus of this chapter is on DOE information management practices, management of some long-term stewardship information is governed by external regulation. For example, section 113(k) of CERCLA requires the establishment of an administrative record file containing all information and documentation used in the selection of a response action. This file must contain documents relevant to the selected remedy as well as relevant comments and information, site-specific data, guidance documents, and technical references that the lead agency considered in the ultimate response selection decision. The administrative record file must be made available for public inspection. Regulations in 40 CFR Part 300.800 pertaining to the administrative record establish procedures for public involvement in the development of the administrative record file. *Source: RCRA, Superfund & EPCRA Hotline Training Module, Introduction to Superfund Community Involvement.* U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA540-R-98-027, June 1998.

Exhibit 7-1: Current Records Management Practices

Information is generated at DOE sites to support a variety of regulatory and mission needs, including cleanup. Once a given piece of information is generated, it may become a "record" as defined by the National Archives and Records Administration (NARA). Records are used for a period of time and when no longer in active use, are either preserved permanently or saved for a specified period of time and then destroyed.

Books, reports, maps, and other "hard copy" records typically are preserved by placing them in boxes, indexing the boxes, and shipping the boxes to an interim repository at the site. Records are stored in the interim repository for varying periods of time (e.g., 1 year, 25 years, or longer) until they are either destroyed or shipped to an archival repository managed by NARA.

What is a Record?

The National Archives and Records Administration (NARA) defines records to include all books, papers, maps, photographs, machine readable materials, or other documentary materials, regardless of physical form or characteristics. To be managed by NARA, records must be made or received by an agency of the United States Government under Federal law or in connection with the transaction of public business and must be preserved by that agency or its legitimate successor as evidence of the organization, functions, policies, decisions, procedures, operations, or other activities of the government or because the records contain information of value.

NARA retains the records either permanently or for varying periods of time (e.g., 75 or 80 years). Records retention schedules approved by NARA establish specific requirements for preserving and destroying records. Information management practices for electronic materials are evolving. Some electronic materials (e.g., electronic copies of reports) are considered identical to their "hard-copy" counterparts and are preserved in a similar manner. The status of other electronic materials (e.g., databases) is unclear at present. Access to preserved records is achieved by request. The person requesting a record submits a request to NARA (or the organization that manages the onsite repository). Requests for specific records (e.g., an annual report) are filled by locating the box containing the record, retrieving it from storage, extracting the record, and sending a copy to the requestor. Requests for more general information (e.g., all reports that cover groundwater monitoring) are filled by first searching indexing systems to locate potentially relevant records and then following the above retrieval and shipping process. DOE also has developed searchable electronic indexes to certain types of electronic records and has made copies of these records available via the Internet and has developed electronic indexing systems for a variety of hard copy records.

5. **Future generations must be able to locate and readily access the information.** At present, it is difficult to locate and retrieve information from storage repositories without specific knowledge about the existence and archiving of the specific records containing the needed information. For this reason, many of DOE's unclassified documents are effectively unavailable to the general public.[88] Locating information using general search criteria (e.g., "all soil contamination records from 1995 to 1998") seldom works. The search for information is also complicated by the lack of standard methods (e.g., indexing, keywords, geospatial coordinates) for describing and referencing critical information.

In spite of all the cleanup accomplishments to date, without improvement in current practices, future generations may not have access to adequate information to conduct long-term stewardship, and critical information on where and why residual hazards exist may be lost. Failure to generate, identify, and preserve critical information may result in unnecessary exposure to residual hazards, delays in desired site re-use or property transfers, and increased long-term stewardship costs.

[88] *Responsible Openness: An Imperative for the Department of Energy.* U.S. Department of Energy, Openness Advisory Panel, Secretary of Energy Advisory Board, August 25, 1997.

7.2 Improving the Ability to Meet Long-term Stewardship Information Needs

The studies cited at the beginning of this chapter identify several recommendations for improving DOE's ability to meet long-term stewardship information management needs. These recommendations, and DOE's efforts to implement them, are discussed below.

Public Comments Providing Recommendations for Information Management (see Exhibit 2 in Appendix C)

- DOE needs to establish criteria for identifying what information to keep using an open public process (4)
- The public must have open access to up-to-date, reliable long-term stewardship information, even at National Nuclear Security Agency (NNSA) sites (17, 19, 20, 23, 27, 30, 31)
- Major aspects of information management must include accuracy and public trust in DOE information (49)
- DOE should establish a record management facility accessible to the public at the local, regional, national, and international access points (6, 11, 32, 33, 34, 45)
- Designate a federal manager for long-term stewardship information to supplement state land records (12)
- Long-term stewardship records must be periodically reviewed, updated, translated, and re-recorded (12)
- DOE should work in partnership with other federal agencies; state, local, and Tribal governments; and local individuals and institutions to develop and implement systems for managing data (4, 17)
- Information baselines should include (4, 20, 29, 34, 49):
  - Independent review and validation
  - A public comment process
  - Instructions for where and how to get information
  - Current record of the management of a site
  - Definition of contaminated areas, areas proven to be clean, and monitoring areas
  - The complete data record behind risk analyses
  - Pending FOIA requests and declassification
  - Regulatory records
  - Detailed information on residual hazards and their real and potential effects on human health and the environment
  - Natural resource damage assessments
  - GIS referencing with uniform standards
  - Adequate cataloguing and cross-indexing
- Records should be available in hard copy as well as electronic form and information on FOIA requests and declassifications should be publically available (34)
- Records should be durable and available over the period of time of potential risk (23, 27, 34)
- Redundancy is more important than consistency (4)
- Consider Native American cultural norms supporting oral transmission of knowledge (4)
- Develop institutional and educational capabilities to perpetuate institutional and cultural memory and to ensure the existence of some agency to manage sites (23)
- Maintain the long-term stewardship website and include links to EPA guidance (5, 34)
- Explore measures such as universal symbols of hazard, granite markers, and the Clock of the Long Now (40)
- Provide long-term funding and in-kind support to local communities (17)
- DOE should continue to work on the "1995" list of sites and should create a database about each site, including contractor sites (5, 6, 11, 30, 32, 34, 45)

- **Develop criteria for identifying critical information**. The first step in such an effort would be to develop consensus on the types of activities onsite and in the surrounding communities that will occur during long-term stewardship. The second step would be to identify the information needed to support these activities. The third step would be to develop criteria and guidance for identifying specific site records that meet these information needs. These three steps should involve input from affected parties, both regionally and in surrounding communities. Although complex-wide guidance may ensure a more systematic approach to

identifying critical information, individual sites could begin the process independently. Sites should seek input from subject matter experts and other individuals (including representatives from affected parties) at each site to identify the subset of current, active records that appear to have long-term value. Site records management organizations could ensure that these records are retained and preserved. Preserving information could provide significant long-term benefit at relatively low cost.

Information Management System for Uranium Mill Tailings Sites

DOE is required to conduct long-term surveillance and maintenance of uranium mill tailings sites in accordance with NRC licensing regulations. Information required by NRC regulations includes a detailed description of the final disposal site conditions, frequency and extent of groundwater monitoring, and procedures for site inspections, record keeping and quality assurance (10 CFR Parts 40.27 and 40.28). DOE's Grand Junction Office has developed a document management system to manage more than 50,000 records for nine DOE projects comprising more than 30 DOE sites. Documents in the system contain the following information:

- Present and historical chemical, radioactive, and physical hazards, both natural and man-made, and present and historical releases of contaminants.
- Active and passive devices for preventing exposure to humans and the environment.
- Current (including post-closure) and historical site processes and infrastructure, such as buildings, utilities, pipelines, tanks, and wells.
- Current and historical agreements, regulations, permits, and other legal requirements associated with long-term stewardship.
- Property records related to the site, easements, and other on-site access rights.
- Off-site access rights through public and private property for monitor wells and active or passive control systems, as well as mineral, water, and other natural resources rights.
- Locations and descriptions of cultural resources and habitats and species of concern.
- Relationship of site resources and access to Native American Tribes or interest groups.
- Site topography, hydrogeology, and geology.
- Site and surrounding property land use.
- Public exposure data.
- Current and historical concerns expressed by the public.

Source: Edge., R. and Pavelka-Zarkesh, L. *Document Systems for Site Stewardship at the U.S. Department of Energy Grand Junction Office.* U.S. Department of Energy Grand Junction Office, Grand Junction, Colorado, March 1999.

- **Establish a clear information baseline at the completion of cleanup**. The baseline information would fully describe the location, condition, and status of all former and residual hazards, a summary of site activities as they pertain to those hazards, and the history of significant public health and environmental impacts to the surrounding communities. This baseline would form the core of information needed for long-term stewardship. As noted in Chapter 4, the site-specific long-term stewardship plans needed by DOE's Grand Junction Office (GJO) establish an information baseline for sites entering into long-term stewardship, but these plans are developed only for closed sites for which GJO has responsibility. In addition, the independent Project Baseline Summaries for long-term stewardship (to be developed by Fiscal Year 2003) will provide a basis for establishing a baseline at many DOE sites (see Chapter 4).

Information on Former Sites

In September 2000, the Secretary of Energy and others made a commitment to compile information about and re-examine possible contamination issues at privately owned sites formerly contracted to DOE and/or its predecessor agencies. The objectives are to (1) assemble a database of information on these sites based on the existing Case File for DOE's Formerly Used Sites program; (2) solicit other agency input on the database; (3) make the database available to the public; and (4) use the database to re-examine disposition of these sites. On January 11, 2001, the Secretary of Energy made public initial lists of sites, including beryllium vendors, DOE sites that used radioactive materials, and facilities where atomic weapons workers may have been employed. The list names 317 sites in 37 states, Puerto Rico, the District of Columbia, and the Marshall Islands. [66 FR 4003]

- **Make critical information available to offsite entities.** DOE needs to work proactively with affected parties, including states, Tribes, and local communities, to make information available to allow them to be informed and serve an appropriate role in long-term stewardship. In this way, the information needed for site-specific long-term stewardship activities can be readily identified and utilized as early as possible. This would reduce information management costs during cleanups, help ensure that adequate baselines are established, and ensure that information transfer protocols are established well before all projects at a site are complete. At the same time, sites should work with the offsite entities to improve long-term preservation and access. DOE sites have begun to establish formal agreements to share and disseminate critical information with regulators and local communities. For example, the Rocky Flats Cleanup Agreement among DOE, EPA, the State of Colorado, and several local governments required DOE to create a database of monitoring data and related documents that is accessible to all parties to the agreement. The short-term objective of the database is to improve the effectiveness and efficiency of current monitoring programs, while the long-range goal is to integrate all environmental and natural resource monitoring at the site.[89]

Public Comments Providing Recommendations for Historic Sites or Museums at DOE Sites (see Exhibit 2 in Appendix C)

- DOE should evaluate establishing historic sites or information centers or museums to perpetuate knowledge of residual contamination and institutional controls with the following characteristics and functions: (16, 17, 19, 24, 29, 34, 38, 42)
  - Modeled after Presidential libraries with museum and research facilities
  - Maintain information and enhance community awareness
  - Serve as educational and research centers that work with research and development program
  - Assist in maintaining engineered and institutional controls
  - Transmit information into the future
  - Maintain a DOE presence at the site
- Museums or information centers could be funded by a DOE trust fund (38)

- **Establish historic sites or museums.** One mechanism for perpetuating knowledge of residual hazards and institutional controls would be to establish information repositories at historic sites or museums at appropriate sites or in local communities. Museums already exist at certain DOE sites (e.g., Hanford, Los Alamos National Laboratory, Oak Ridge National Laboratory, Sandia National Laboratory), although information management is not currently part of their mission. Such museums could be modeled after the Presidential libraries, which have both museum and research facilities. The combination of a continued

[89]Rocky Flats Cleanup Agreement, Part 23, Sampling and Data/Document Availability. July 19, 1996.

DOE presence and library, archive, and educational functions could assist in maintaining institutional controls and transmitting information to the future. The advantages and disadvantages of establishing a museum should be assessed on a site-specific basis.

Information Management Systems at the Bureau of Land Management (BLM)

Although BLM does not have a long-term stewardship program in place, its current information management systems and practices have the potential to support long-term stewardship planning and implementation. BLM operates an extensive land use information management system and possesses expansive current and historical information about land ownership, use, and condition in the United States. The Bureau maintains cadastral survey and historical data on lands patented, along with information on the mineral estate, resource conditions, and permits or leases on federal lands. BLM also provides other agencies, customers, and the public with efficient and effective means to retrieve and use this information. Preserving records is critical to resolving ownership disputes and are an important source of both historic and resource information.

BLM is using information technology to speed up workflow, improve accuracy, and share information with customers, agency partners, and the public. Determining user needs, developing systems, collecting and storing data, maintaining systems, and providing for security and training is part of the information technology development process at BLM. BLM uses geospatial tools, including geographic information systems, mapping, remote sensing, and global positioning systems, to acquire and process information. Land managers can use the information to determine the location, extent, and condition of natural resources and to monitor activities on public lands. To respond to demands for faster and more accessible records, the Bureau's land ownership, land status, and other records are being automated. Deployment of this automated system, known as the Automated Land and Mineral Record System (ALMRS), began in fiscal year 1998.

Source: U.S. Department of Interior, Bureau of Land Management, *http://www.blm.gov/nhp/what/index.htm*

- **Modify existing records retention schedules to meet long-term stewardship information needs**. Federal records retention schedules establish specific requirements for preserving and destroying records, including the length of time records must be retained in an archival repository. Retention times for information critical to long-term stewardship range from essentially zero (e.g., information for obsolete facilities and infrastructure is required to be destroyed immediately)[90] to essentially forever (certain records of injuries and residual hazards are required to be retained permanently). Thus, retention times for some critical data should be examined and adjusted to meet long-term stewardship needs. The EM program has begun discussions with the DOE Chief Information Officer to modify DOE records retention schedules to better meet long-term stewardship needs.

- **Develop appropriate indexing and metadata standards**. The term "indexing" refers to the process of referencing the content of records through keywords, subject codes, and other identifiers. The term "metadata" refers to the content, quality, condition, and other characteristics of data, particularly for electronic formats. Metadata and indexing provide important contextual information (e.g., where and when data were collected, quality assurance protocols, uncertainties in the data) necessary for interpreting and using information. While certain standard indexing and metadata protocols exist,[91] specific

[90] *DOE Records Retention Schedule 14: Design and Construction Drawings and Related Records.*

[91] For example, Executive Order 12096, *Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure* directs federal agencies to ensure that all geospatial data are collected in a manner that meets all relevant standards adopted by the Federal Geographic Data Committee, an interagency committee established by the Office of Management and Budget.

protocols could be developed for DOE issues and residual hazards. The Office of Long Term Stewardship has established a Central Internet Database that provides available information on waste, contaminated media (e.g., water, soil, sediments), spent fuel, materials in inventory, and facilities.[92] The system for referencing these data provides a starting point for developing a more comprehensive referencing system for long-term stewardship data.

Information Management Requirements for the Proposed Geologic Repository at Yucca Mountain

NRC has proposed licensing criteria for disposal of spent nuclear fuel and high-level radioactive waste in the proposed geologic repository at Yucca Mountain. As proposed, prior to permanent closure of the repository, DOE would be required to provide to NRC a detailed description of the measures to be employed (e.g., land use controls, construction of monuments, preservation of records) to regulate or prevent activities that could impair the long-term isolation of emplaced waste within the geologic repository and to assure that relevant information will be preserved for the use of future generations. Specific information management requirements proposed by NRC include:

- Identification of the site and geological repository operations area by monuments that have been designed, fabricated, and emplaced to be as permanent as is practicable.
- Placement of records in the archives and land record systems of local, state, and federal government agencies, and archives elsewhere in the world, that would be likely to be consulted by potential human intruders–such records to identify the location of the geologic repository operations area, including the underground facility, boreholes, shafts, and ramps, and the boundaries of the site, and the nature and hazard of the waste.
- Preservation and maintenance of geologic, geophysical, geochemical, hydrologic, and other site data that are obtained during the operational period.
- Preservation and maintenance of records of the receipt, handling, and disposition of radioactive waste are required to contain sufficient information to provide a complete history of the movement of the waste from the shipper through all phases of storage and disposal.
- Preservation and maintenance of records of the construction of the geologic repository operations in a manner that ensures their usability for future generations.
- Preservation and maintenance of records associated with a program of material control accounting and accidental criticality reporting.

Each record must be legible throughout the retention period (specified by NRC regulations). The record may be the original or a reproduced copy or a microform provided that the copy or microform is authenticated by authorized personnel and that the microform is capable of producing a clear copy throughout the required retention period. The record may also be stored in electronic media if it is capable of producing legible, accurate, and complete records during the required retention period. Records such as letters, drawings, and specifications must include all pertinent information such as stamps, initials, and signatures, and DOE is required to maintain adequate safeguards against tampering with and loss of records.

Source: 64 FR 8639, February 22, 1999. Disposal of High-Level Radioactive Wastes in a Proposed Geological Repository at Yucca Mountain, Nevada; Proposed Rule, Nuclear Regulatory Commission, Proposed 10 CFR Parts 2, 19, 20, 21, 30, 40, 51, 60, 61, and 63.

- **Develop a system to facilitate public access to and retrieval of critical information.** A system should be developed to enable a person with limited knowledge of DOE sites to be able to easily search, find, and understand relevant information. An effective system might include both "hard copy" and electronic elements. An effective "hard copy" system might

[92] Available at *http//cid.em.doe.gov.*

include information centers or displays at the site or in nearby communities, maintenance of site files in local libraries, and periodic updates of all hard-copy materials and records indices. An effective electronic system might include (1) an electronic archive where digitized copies of all critical records are kept; (2) an electronic index consisting of a standard thesaurus of reference terms, uniform metadata, and consistent geospatial referencing; (3) a system for delivering electronic copies of records to its user; (4) a user interface with a search engine to identify and locate relevant records; and (5) a maintenance system to ensure that electronic technologies remain current. The Central Internet Database provides a step in this process. The overall system also may include periodic training and education of local librarians and other information management professionals.

Communication Through Time Using Non-Electronic Means

Suggestions on information management presented in this section are intended to supplement, but not replace, existing protocols established by authorities such as the National Archives and Records Administration. Due to the ephemeral nature of electronic technologies, the electronic archiving of long-term stewardship data will not, by itself, provide a secure means to transfer information critical to long-term stewardship to future generations.

The Department intends to use non-electronic means such as monuments and markers to communicate information through time. For example, DOE intends to provide archived records, maps, and other information pertaining to the Waste Isolation Pilot Plant in New Mexico to be stored at many locations around the world. At the site itself, DOE also will institute a number of passive controls to warn future generations about the radioactive hazards present in the below-ground repository. These controls will not need continual maintenance, but assume that society in general will maintain some knowledge of the wastes. The controls will include:

- Granite monuments with inscriptions in seven languages.
- A berm surrounding the site that includes radar and magnetic indicators.
- On-site warning markers with information about the waste.
- Informational inscriptions on granite walls.

Source: *Citizens'Guide to the Waste Isolation Pilot Plant Compliance Certification Application to the EPA.* U.S. Department of Energy, Carlsbad Area Office, Carlsbad, NM, November 1996. DOE/CAO-96-1207.

Other organizations have begun to examine approaches for both thinking and communicating across large periods of time. For example, the Long Now Foundation (*http://www.longnow.org*) was established in 1996 to develop the Clock/Library Projects as well as to become the seed of a very long term cultural institution. The foundation is developing a large, mechanical "10,000 Year Clock" to serve as an iconic focal point for thinking about time. The foundation also intends to establish a library of and for the future to meet the need for content to accompany the long-term context provided by the Clock. The library could become a repository for information deemed especially useful over long periods of time, such as extreme longitudinal scientific studies or 'Responsibility Records' of policy decisions with long-term consequences.

- **Integrate information management considerations into all site missions**. Under current business practices, information management is considered a "support" or "overhead" function that is adjunct to DOE site missions. It is not given commensurate priority with project completion. This is likely to continue until DOE recognizes information management as an integral and critical part of *all* missions, including national security, cleanup, and long-term stewardship. Such recognition could be achieved by including information management needs in all business transactions. DOE has not initiated a specific effort to projectize information management. However, the Office of Long Term Stewardship has identified information management as a high-priority science and technology need (see Chapter 4).

7.3 Developing an Institutional Framework for Managing Critical Information

Although DOE sites can take many steps now toward improving information management practices, a more systematic approach may be needed to coordinate and focus efforts throughout the DOE complex. The necessary framework would include an organization, or a network of organizations, which would have the authority, mission, and funding to identify, preserve, and provide access to information critical to long-term stewardship. There are three general options for developing such a framework: dispersed, concentrated, and hybrid (Exhibit 7-2).

Exhibit 7-2. Options for an Institutional Framework to Manage Critical Information

Option	Advantages	Disadvantages
Dispersed – multiple, regional or site-specific entities would be responsible for managing information. No central management entity would exist.	Most flexible alternative. The number, structure, and responsibilities of entities could be matched with site-specific needs.	Coordination among numerous entities would be difficult. Difficult to ensure that existing and future requirements, standards, and protocols are being followed. Configuration control would be difficult.
Concentrated – a single, national entity would be responsible for managing information. No site-specific entities would exist.	Relatively easy to maintain standards and practices and to ensure technologies are current. Configuration control would be maximized.	Least flexible alternative. Uniform approach to diverse, site-specific information management needs may not be appropriate.
Hybrid – some information management responsibilities would be concentrated in a single entity; others would be dispersed among multiple, site-specific entities.	Intermediate in terms of flexibility and coordination. A single entity could maintain overall responsibility for managing system (e.g., ensuring standards and protocols are followed, updating technologies). Other entities could be responsible for specific types of information (e.g., local governments could manage real estate records, regional libraries could serve as information repositories).	

Finding the appropriate balance between localized (dispersed) and centralized strategies for the archival and management of information will be challenging. The architecture of the World Wide Web provides a useful model for discussion – the servers upon which databases reside represent the data archives; the internet represents the means of accessing data; search engines represent the means of finding data; and desktop computers represent the points of access. Search engines can be updated rapidly, and it clearly would be advantageous for points of access to be widely dispersed. The more difficult choice is how to distribute critical information among one or more servers. On the one hand, there appears to be a clear need for one or more central repositories as a backup so that failure of one or more local or regional servers does not result in information loss. A central repository also would provide maximum configuration control over data, hardware, and software. On the other hand, long-term stewardship information needs and preferences for archiving and disseminating this information will be somewhat regional or site-specific, so a degree of flexibility in the design of databases and search engines will likely be needed. This, in turn, would make configuration control more difficult, especially with respect to hardware and software. The ultimate solution is likely to be some type of hybrid between dispersed and central control, but more dialogue among DOE and affected parties is needed before these issues can be resolved.

Other federal agencies have established institutional frameworks for managing stewardship information. NRC procedures for transfer of information (10 CFR Part 61.80) provide an approach that could be used to improve information management at DOE sites. NRC requires records to be maintained for the duration of the license. Upon termination of the license, information is to be transferred to local, state, and federal agencies, unless the property is being transferred to another licensee. The NRC nuclear material safety and safeguards criteria note that any transfer of land for restricted use by a licensee should be accompanied by a transfer of information and information management procedures for the property.[93] The Bureau of Land Management has established information management systems for its land records. The National Park Service has established a Geologic Resources Department to manage data and information for more than 2,400 sites in the Abandoned Mine Lands Program.[94] The Geologic Resources Department is currently in the process of collecting information on these sites, and the Department is anticipated to remain in operation for the duration of remedial activities at the Abandoned Mine Lands Program sites, which will be at least several decades.

---

[93] *Nuclear Material Safety and Safeguards, Decommissioning, Chapter 16.0, Restricted Use/Alternative Criteria.* Nuclear Regulatory Commission, NUREG-1727, September, 2000.

[94] U.S. Department of Interior, National Park Service, *www1.nature.nps.gov/facts/faml.htm.*

Information Management Systems for Radioactive Waste Disposal Sites

The International Atomic Energy Agency has issued guidance for developing a system for maintaining information pertaining to near surface radioactive waste disposal sites and geologic repositories. The guidance calls for the identification of:

- The types of information of most value to future generations.
- The physical form, location, indexing, and retention schedules for this information.
- Measures to be taken to ensure the continued collection and maintenance of records.
- A schedule for transfer of the collected information into a Records Management System (RMS) during the lifetime of the site.
- Methods to ensure that the information will remain accessible and understandable to future generations.
- Remedial actions to be taken in the event of records deterioration.

The guidance advocates establishing a hierarchal structure of long-term stewardship information for disposal sites, including:

- A Primary Level Information Set, consisting of all of the records continuously developed during the lifetime of the site.
- An Intermediate Level Information Set, consisting of the condensed important documentation that is necessary to ensure an understanding of the disposal site system and the contents and location of the Primary Level Information Set. This data set consists mainly of the records needed to meet the regulatory and licensing requirements of the disposal site.
- A High Level Information Set, consisting of the information sufficient to provide a more fundamental understanding of the disposal system. This data set should provide sufficient information for future generations to make informed decisions concerning the consequences of intentional actions and unforeseen occurrences pertaining to the disposal site.

The rationale for creating a hierarchal structure of information, rather than managing all of the information in a single manner, is to ensure that information most critical to future generations is preserved. A condensed and essential set of data may be more useful and understandable to future generations than a massive archive of both essential and nonessential information that would be provided by a Primary Level Information Set. The guidance advocates national and international archiving of the High Level Information Set to counteract threats to a single repository of information.

Source: *Maintenance of Records for Radioactive Waste Disposal.* International Atomic Energy Agency, Waste

Chapter 8: Funding and Financial Management

Estimating future costs for long-term stewardship remains uncertain. The *Report to Congress on Long-term Stewardship* provides the Department's most recent estimate. The estimates in the *Report to Congress* are based on the known or anticipated scope of long-term stewardship activities at individual sites, which, in turn, are based on known or anticipated cleanup end states. The funding options for long-term stewardship will depend partly on the magnitude of estimated long-term stewardship costs. However, regardless of this estimate, some consideration of how long-term stewardship will be funded is warranted. Congress currently funds most environmental cleanup and stewardship activities through annual budget appropriations for the EM program. As EM completes more cleanup projects, many DOE sites (or portions of sites) will close or may be transferred to different entities. DOE and other site stewards might have to secure and maintain funding to conduct stewardship activities, but the long-term and uncertain nature of those activities complicates the ability to estimate long-term funding needs.

APPLICABLE SCOPING COMMENTS
(see Exhibit 2 in Appendix B)

- DOE should describe funding approaches available for long-term assurance oversight without relying on Congressional appropriations (1)
- DOE should seek alternative funding for long-term stewardship in terms of trust funds or endowments, fee-generating schemes, etc. because Congressional appropriations are uncertain (4)
- DOE should explore the option of setting up funding for long-term stewardship separately from operational and programmatic funding for the contractors, and supported by a source not subject to the annual appropriations process (16)
- DOE should consider forming a joint long-term stewardship assessment group involving state and Tribal governments and other stakeholders to independently conduct long-term stewardship under a "trust" funding mechanism (17)
- DOE should not consider decisions requiring institutional controls to be final until an acceptable funding mechanism is implemented (STGWG)

APPLICABLE ISSUES
(see Exhibit 3 in Appendix B)

3. *Funding Mechanisms*

This chapter reviews DOE's current approach to estimating costs for long-term stewardship. It also examines current funding practices, as well as several alternative approaches.

8.1 Estimating Long-term Stewardship Costs

Estimates of long-term stewardship costs will need to account for routine activities (e.g., surveillance, monitoring, and periodic repairs or refurbishment of engineered systems) as well as any periodic large-scale replacement of systems (e.g., large capital outlays). Funding for routine activities is often referred to as "operational" funding; funding for unexpected or unusual needs is often referred to as "contingency" funding. Because long periods of time may be involved, long-term stewardship cost estimates also need to consider economic factors affected by time (e.g., inflation, "discounting" to account for the value of money over time). In some cases, it may be beneficial to consider non-monetary costs or qualitative cost comparisons in decisions that affect long-term stewardship.

Current Estimate of Long-term Stewardship Costs at DOE Sites

DOE's current estimate of long-term stewardship costs is presented in the *Report to Congress on Long-term Stewardship*. According to this report, the Department currently spends approximately $64 million annually on long-term stewardship and expects to spend approximately $100 million annually when all EM program cleanups are completed (see below).

- Costs are presented in constant 2000 dollars.
- Although the use of life-cycle costs has been the normal method of presenting cost information since the Department's first baseline report in 1995, annual costs are used instead. Defining "life-cycle costs" for the long term is not meaningful in most cases because there is no clear end point for long-term stewardship.
- Although long-term stewardship will be needed in perpetuity at many sites, costs are reflected only through 2070. These cost estimates should be viewed as an indicators of the "magnitude" of the projected long-term stewardship costs rather than a point where all long-term stewardship activities will end.
- Cost estimates for some sites include operational and contingency funding; estimates for other sites include operational funding only.

Cleanup status	2000		2006		2050	
	No. Sites	Estimated Cost	No. Sites	Estimated Cost	No. Sites	Estimated Cost
Entire site complete	34	$64 million	96	$65 million	129	$101 million
Some portions complete	12		12			
Surface complete Subsurface not complete	12		17			

Source: *Report to Congress on Long-term Stewardship*. U.S. Department of Energy, Office of Environmental Management, January 2001 (DOE/EM-0653).

DOE's current approach to estimating long-term stewardship costs follows the general approach used for developing the DOE's annual budget. DOE field office staff and their contractors prepare annual cost estimates for EM program activities (including long-term stewardship). These cost estimates are developed for individual projects and include either a single, integrated baseline or several interrelated baselines. The project baseline(s) identify objectives, information needs, and performance measures; estimate annual and "life-cycle" costs;[95] and establish overall schedules and major milestones.[96] Sites use a variety of techniques to develop cost estimates for the current 70-year planning time frame, including activity-based cost estimating, parametric estimating techniques, and extrapolations based on current funding levels. EM's baselines provide accurate information on long-term stewardship costs for the 26 sites currently managed by the Grand Junction Office (i.e., sites where the only EM mission is long-term stewardship). However, the accuracy of long-term stewardship cost estimates may be highly variable.

[95]The"life cycle" planning horizon for the EM program is currently 70 years. Within this time frame, all EM cleanup projects are anticipated to be completed; however, this time frame is not intended to encompass the life cycle of long-term stewardship, which may be hundreds or even thousands of years.

[96]*Integrated Planning, Accountability, and Budgeting System Information System (IPABS-IS) Guidance*. U.S. Department of Energy, Office of Environmental Management, December 1999.

Public Comments Providing Recommendations for Estimating Long-term Stewardship Costs (see Exhibit 2 in Appendix C)

- Subject long-term stewardship programs to aggressive cost-benefit analyses (8)
- Include the generation of legacy waste/contamination and their associated costs from current operations (11)
- Clearly articulate non-monetary costs and uncertainties in the process of selecting cleanup strategies (12)
- Extend cost analyses for time periods equivalent to the required duration of institutional controls (13)
- The present-worth method hides actual costs (13)
- Conduct research into costing and cost comparison methodologies that account for long-term expenditures (29)
- Separate costs of stewardship, closure, and operating activities to develop a record of actual costs that will inform and improve estimates (29)
- DOE's long-term stewardship obligations will be higher if on-site waste treatment and disposal facilities are used instead of commercial facilities (44)
- Long-term stewardship cost estimates should include a factor for natural resources damages liability under CERCLA and an explanation of how natural resources damages are estimated (49)
- The *Study* should clarify whether costs to states and local governments were included and whether such entities were consulted on their perceived needs (40)
- The *Study* should address what can be done to reduce uncertainty (4)
- The "full life-cycle accounting" that DOE uses to evaluate alternatives does not provide an accurate estimate of future long-term stewardship costs. While the DOE's definition of life-cycle currently extends 70 years, many DOE sites will remain under stewardship for much longer periods of time (50)
- This section should include a full analysis of non-economic life-cycle impacts (1)
- The *Study* should include the cost estimates in the NDAA Report and DOE should commission an independent assessment of long-term stewardship costs (24)
- The importance of a complex-wide evaluation of science and technology needs highlights the need for a cost estimate of stewardship activities that are national, rather than site-specific, in nature (29)
- There is a need for research on life cycle cost estimation and cost comparison methodology that accounts for long-term expenditures (29)
- NDAA cost estimates should include estimates for remedy reevaluation and rework in the 2030 to 2050 timeframe (29)

EM's baselines provide a tool for managing cleanup activities more efficiently. They are used to coordinate schedules, identify regulatory compliance requirements, and identify science and technology needs. Similar estimates could assist DOE's long-term stewardship program to secure and manage its resources efficiently. However, the current approach for estimating life-cycle costs, an activity-based cost approach, needs more and better data for long-term stewardship than are currently available (Exhibit 8-1). Given these data limitations, DOE has undertaken several efforts to improve its ability to estimate long-term stewardship costs:

- **DOE has developed a 'Post-Closure' Project Baseline Summary**. Guidance for preparing the EM life-cycle estimates directs sites to prepare an independent 'post-closure' Project Baseline Summary (PBS)[97] by Fiscal Year 2003. At sites where this PBS is implemented, as cleanup projects are completed, budget requests, cost estimates, and performance metrics for

[97]A PBS is a management tool used by the EM program for planning, budgeting, and evaluation. The PBS summarizes information on the scope, schedule, cost, risk, technical approach, end state, regulatory drivers, safety and health, and performance metrics of each EM program project.

Exhibit 8-1. Limitations of the Activity-Based Cost Approach for Estimating Long-term Stewardship Costs

- DOE's activity-based cost estimation approach is derived from large capital projects that generally have a well-defined beginning and completion. In contrast, the beginning of many long-term stewardship projects is difficult to determine, and the end of long-term stewardship is difficult to estimate due to the uncertainties in planning that far into the future.
- Activity-based cost estimates become more accurate when there is a clear understanding of the type, number, and timing of activities to be undertaken. The major determinants of the accuracy of cost estimates are the status of the project in terms of completion and what uncertainties remain. Cost estimates for some DOE sites (e.g., uranium mill tailings sites managed by the Grand Junction Office) are reasonably accurate because: (1) the sites have clearly defined long-term stewardship needs; (2) cleanups have been completed and the sites already are in long-term stewardship; and (3) mill tailings disposal cells are relatively simple systems compared to systems at other sites.
- Knowledge of historical costs can assist DOE in projecting costs for future stewardship activities. However, DOE's historical cost knowledge is limited because: (1) DOE has encountered a limited portion of the long-term stewardship scope that will ultimately be needed; and (2) most long-term stewardship costs for work completed to date have not yet been formally defined.
- Long-term stewardship may involve costs or situations that are not accurately estimated with activity-based cost estimation techniques. These include non-traditional costs associated with damage to or lost use of environmental resources and changes in long-term stewardship needs.

the follow-on long-term stewardship activities will be shifted into this PBS.[98] This information base will continue to grow as DOE makes more cleanup decisions, completes more cleanup activities, and develops more experience with long-term stewardship. Separating long-term stewardship costs explicitly from the costs of cleanup and other site operations will provide a basis of actual cost data for improving estimates of future costs. As confidence in the activity-based baseline estimates of long-term stewardship costs increases, DOE may be able to explore efforts to include additional cost factors, including impacts to natural resources, opportunity costs, and benefits of infrastructure re-use.

- **DOE is working to improve cost estimates based on existing data**. DOE recently began to develop and implement a more standardized methodology for defining and estimating long-term stewardship costs based on the Environmental Cost Element Structure (ECES).[99] DOE and other federal agencies developed ECES to provide a consistent framework for estimating and managing environmental management costs. The National Energy Technology Laboratory Center for Acquisition and Business Excellence (CABE) is currently leading efforts to develop separate modules for long-term stewardship. A web-based ECES

[98] *Integrated Planning, Accountability, and Budgeting System Information System (IPABS-IS) Guidance.* U.S. Department of Energy, Office of Environmental Management, December 1999.

[99] The ECES is the result of an inter-agency effort to develop a standardized method for estimating and tracking environmental management costs. DOE's Applied Cost Engineering (ACE) team has worked with representatives from the EPA and the U.S. Army Corps of Engineers to develop a comprehensive, hierarchical list of work activities (e.g., tasks, items, products) that may be required to accomplish cleanup projects. Its activity-based structure provides a consistent and visible cost management framework, with sufficient detail and coverage of project types, to track project costs and summarize into higher-level cost elements in a standardized fashion. Although additional efforts would be required to adapt ECES to long-term stewardship activities, ECES could serve as a model for developing a Work Breakdown Structure for long-term stewardship.

is also being developed as a data repository for actual environmental management costs, including long-term stewardship. The CABE will maintain the ECES database and perform quality control and analyses on the data as required. In 1999, the Rocky Flats Site developed an activity-based methodology to estimate their annual long-term stewardship costs. DOE's Grand Junction Office develops activity-based annual cost estimates for the long-term stewardship activities it currently conducts at DOE sites. These estimates are based on the guidance issued under DOE's Order 430.1A, Life Cycle Asset Management.[100]

- **DOE is using available cost estimation techniques.** DOE sites are using cost estimation techniques other than activity-based techniques to develop and improve long-term stewardship cost estimates. One technique is the *level of effort* estimate that considers certain long-term stewardship activities as a maintenance or operating mission rather than a series of individual projects. Another technique is the *parametric estimate* that generates estimates based on historical long-term stewardship costs combined with a set of reasonable programmatic assumptions (e.g., factors to adjust for the relative size and complexity of sites and activities).

Given the limitations of available data, considerable uncertainty will be associated with any long-term stewardship cost estimates. DOE could employ statistical uncertainty or scenario analysis to identify this uncertainty more explicitly (i.e., estimate upper and lower bounds for long-term stewardship cost estimates). To develop the upper and lower bounds, DOE could also measure the uncertainties related to long-term stewardship costs using statistical tools such as Monte Carlo modeling in a process similar to that used by DOE for the FY 1999 Consolidated Financial Statements (Exhibit 8-2).

Exhibit 8-2. Use of Statistical Analysis to Establish Upper and Lower Bounds for Cleanup Cost Estimates

During the formulation of the FY 1999 Consolidated Financial Statement, DOE initially scored programmatic risks to assign an uncertainty range for each applicable cleanup activity. The approach assumed three key factors influenced cost uncertainty:

- Project definition, the level of site-specific information and engineering available;
- Innovation, the extent to which the project relies on "tried and true" vs. new technical approaches; and
- Complexity, the number of process steps needed to execute a project.

Projects with high uncertainty in each of the three factors have the largest range of costs, whereas projects with low uncertainty in each factor have the smallest range of costs. Given cost ranges for each project, DOE used the Monte Carlo simulation to develop a cost uncertainty range for the total life-cycle costs.

[100] *1999 Long-term Surveillance and Monitoring Report.* U.S. Department of Energy Grand Junction Office, April 2000.

8.2 Potential Funding Mechanisms

The long-term and uncertain nature of long-term stewardship activities presents challenges not only for estimating costs but also for identifying sustainable funding mechanisms. This is one of the most frequently identified concerns from DOE advisory groups and the public. DOE's EM program currently requests and receives funds for long-term stewardship activities through the annual federal budget appropriations process. The federal budget process allows an annual debate about national priorities that results in funding appropriations for long-term stewardship and all other government functions. A number of commenters have expressed the concern that the annual budget process does not provide guaranteed funding for long-term stewardship activities. Where non-federal entities become site stewards, other mechanisms also may be needed to facilitate the dialogue on funding priorities.

Public Comments Providing Recommendations for Long-term Stewardship Funding (see Exhibit 2 in Appendix C)

- DOE should pursue reliable long-term stewardship funding that does not rely upon annual appropriations (6, 7, 11, 17, 19, 24, 25, 29, 30, 32, 34, 43, 44, 45, 50)
- Long-term stewardship budgeting and management should be uniform throughout the complex (13)
- DOE should consider alternative funding mechanisms, including: (1, 4, 7, 23, 24, 25, 27, 33)
  - perpetual care and maintenance closure trust funds
  - trust funds managed by an outside entity and trust funds created throgh the sale or lease of DOE's assets
  - escrow accounts
  - combination of trust funds and fees
  - entitlement fund or Executive Order requiring sufficient funding
- DOE should conduct research on long-term stewardship costs and funding mechanisms, including required statutory authorities and uncertainties (1, 7, 28, 44)
- DOE should commit to funding for long-term stewardship, and the local community should have a role in managing the funds (20)
- DOE should commit to providing financial assistance to state and local governments regarding long-term stewardship activities (6, 15, 18)
- DOE should formally involve the public in planning and implementation, use actual cost data to drive research and development, and use life-cycle planning (26)
- DOE should provide information and guidance on the appropriate mechanisms for funding and long-term operation and maintenance at information centers (36)
- DOE should provide adequate funding for tracking illnesses and caring for exposed people (5)
- Our generation should consider funding mechanisms to complete true cleanup (44)
- The *Study* should outline a specific set of tasks DOE will perform to facilitate the resolution of long-term stewardship funding issues at sites (19)
- The *Study* should address the issues associated with funding alternatives, including cost inflation (1, 3, 22)
- The *Study* might better distinguish between operational funding and contingency funding (4, 25)
- The report should address DOE's funding uncertainties and specify reevaluation of selected remedies and continued funding, not just on the CERCLA five-year interval (1, 28, 44)
- DOE should work with local and state communities and organizations to develop LTS funding. Funding could be directed to LTS organizations to fulfill DOE's obligations as part of a broader charter (17)
- The "Rolling Stewardship" concept must include monitoring of financial performance to be truly effective (26)

There are several alternative approaches to funding long-term stewardship, depending upon the entity responsible for conducting the long-term stewardship. This report assumes that the primary responsibility for funding long-term stewardship will continue to be assigned to the federal government, although states, Tribes, local governments, and private parties may assume some financial responsibility for particular sites or parcels of land that are transferred to their

control or ownership. Consequently, the funding alternatives discussed reflect the range of options available to DOE or another federal agency.

Resources for the Future Study of Trust Funds

A new analysis by Resources for the Future looks critically at the potential use of trust funds administered by the federal government, states, or private organizations as a means for funding long-term stewardship. The study concludes that state and private trust funds are more likely than a federal trust fund to successfully assure financing and oversight of long-term stewardship. It is unclear whether federal agencies currently have the legal ability to use federal funds to finance state or private trusts. According to the study, the biggest weakness of federal trust funds is that the terms could be changed unilaterally in the face of political or economic pressures. This could lessen the certainty that money will be available when needed. The authors of the report conclude that private charitable trusts are the preferred option for funding long-term stewardship, with state and local trust funds close behind. The analysis:

- Calls for new research into the legal considerations involved in establishing trusts that are funded by the federal government but administered by other entities.
- Urges EPA to develop a coherent and transparent long-term stewardship program that spells out what is required and who is responsible for actions at sites under its jurisdiction.
- Recommends that EPA and other federal agencies develop estimates of the annual costs of long-term stewardship for private and federal sites.

Source: *Long-Term Stewardship of Contaminated Sites: Trust Funds as Mechanisms for Financing and Oversight.* Carl Bauer and Katherine Probst, Resources for the Future, Discussion Paper 00-54, December 2000.

For this *Study*, DOE identified four types of funding mechanisms that could be used to support long-term stewardship activities at current and former DOE sites. These alternatives are described briefly below and in Exhibit 8-3. These alternatives are not mutually exclusive, and Congress could decide to fund long-term stewardship activities through a variety of mechanisms. For example, annual appropriations might be used for operational funding (routine activities), while other funding mechanisms might be used for contingency funding to cover unusual or unexpected needs.

1. *Annual Congressional Appropriations.* DOE would prepare a proposed budget for long-term stewardship that would be submitted to the Office of Management and Budget (OMB). After review and revisions carried out in negotiations among DOE, OMB, the Department of the Treasury, and the Executive Office of the President, a budget for long-term stewardship could be included in the President's budget proposal to Congress. The Congressional Committees with jurisdiction over DOE funding would review the budget proposal and could adjust funding levels, increase or decrease funding for particular activities or sites, and add or eliminate programs.

2. *Long-term Stewardship Funds(s)/Escrow Account.* Establishing a long-term stewardship trust fund (or funds) or escrow account would address the uncertainty associated with the annual appropriations process by producing a consistent, predictable funding source for long-term stewardship activities. DOE would need new legislative authority to establish such accounts. Annual funding would be provided from trust fund/escrow account income or escrow account principal. The trust funds or escrow accounts could be created at the

Exhibit 8-3. Potential Mechanisms for Funding Long-term Stewardship

Description	Advantages	Disadvantages
Annual Congressional Appropriations		
• DOE prepares a proposed budget and submits to the Office of Management and Budget (OMB); after review and revisions by OMB and Congress, funding appropriated for long-term stewardship	• Currently in place • Provides process with annual feedback that helps to optimize the amounts of funds provided • Burden of funding shared by current and future beneficiaries of long-term stewardship activities • Potentially able to respond quickly to unexpected costs or programmatic risks through increases in the next annual appropriation or re-allocation of spending • More funding may be available for long-term stewardship as cleanup is completed at other sites • Annual debate on national funding priorities	• High annual transaction costs (e.g., budget preparation) • Short planning horizon • Funding subject to significant uncertainties • May be decreased incentives to fund long-term stewardship as other site missions end
Long-term Stewardship Trust Fund(s)/Escrow Accounts/Investment Fund		
• Funds provided in single-year or multi-year contributions (public or private) • Once appropriated, the monies are typically managed in some type of trust fund • Long-term stewardship activities funded through an earnings stream	• Already familiar (more than 150 of such funds are currently in existence) • Transaction costs would be likely lower than annual appropriations • Annual budgets more predictable • Allows multi-year planning and budgeting • Ability to respond to unexpected costs or programmatic risks will depend on terms of the trust and the size of the trust's earnings stream	• Requires new statutory authority for initial appropriation and Congressional legislation to allow DOE or site steward to manage fund and use earnings • Difficult to estimate the "correct" funding level accurately to account for uncertainty and cost inflation (see Section 3.1.1); need to ensure funding levels could be adjusted in later years • Even if the "correct" amount of money is initially funded, invested funds could be managed too conservatively or too aggressively • Money in trust funds can be held back (not spent) in order to balance the federal budget

Exhibit 8-3 (continued)

Description	Advantages	Disadvantages
Fees from DOE Commercial Activity/Sales of Assets		
• DOE or other site stewards use fees generated from commercial activities (e.g., waste treatment or disposal) to fund long-term stewardship • Fee-based approach is more likely to occur under a public-private partnership approach. • DOE or other site stewards allowed to sell property or other site assets (e.g., mineral resources) to pay for long-term stewardship • Profits and fees are maintained in the DOE-wide long-term stewardship program	• Mechanisms to direct the sale of federal assets to specific spending exist and are understood • Sales would raise non-federal funds (i.e., private capital) to pay for long-term stewardship • Sales at one site could fund activities at multiple sites	• Congressional action required for a federal agency to conduct commercial activities or to retain asset sale proceeds • Asset sale is a one-time event, whereas long-term stewardship activities occur over a long time; sale proceeds could be insufficient • DOE would need to monitor the site to ensure private-party operations are in compliance with long-term stewardship needs • May be large transaction costs associated with asset sales and site monitoring after sales • Difficult to address unexpected costs or programmatic risks because of fixed levels of fees or saleable assets • Undetermined liability associated with waste management activities on DOE or post-DOE lands • Unfair advantage in competition with private enterprises
Public-private partnerships		
• Private entities would be allowed to lease or otherwise use site assets at below-market rates (perhaps with additional subsidies) in return for funding long-term stewardship activities	• Many of the same benefits as asset sales, with more control over assets that are leased vs. sold • Public-private partnerships already exist, have been successful, and would allow re-development of long-term stewardship sites • Deed or lease restrictions can require private, and not federal, funds to pay for long-term stewardship activities	• Congressional action required • DOE would need to monitor the site to ensure private parties are in compliance with long-term stewardship needs • Allowing development too close to residual hazards is still possible but less likely with an active partnership • Responding to unexpected costs or programmatic risks would be difficult, because it would need re-negotiation of public-private lease or contracts unless all potential contingencies are provided for in advance • Private entities can fail and go bankrupt, leaving increased federal liability

national, state, or site level. However, a larger number of funds could need larger and more expensive DOE oversight of fund management. The source of the initial funding for the trust fund or escrow account could be derived through a number of mechanisms, including Congressional appropriations and fees or asset sales (see below).

3. *Fees from DOE Commercial Activities/Sales of Assets.* DOE would generate revenue by selling property or other site assets (e.g., mineral resources) or by providing services such as waste storage, treatment, and disposal. The receipts from asset sales or fees for services could be collected in a fund that would support long-term stewardship activities on a site-specific or Department-wide basis. However, sales receipts would normally go to the general Treasury unless DOE received new legislative authority to retain the receipts.

4. *Public-Private Partnerships.* Private entities would be allowed to lease or otherwise use site assets at below-market rates (perhaps with additional subsidies) in return for funding long-term stewardship activities. These types of partnerships would need to identify sites with appropriate infrastructure and then carefully established leasing rates attractive to a private-sector entity. Leasing rates would need to take into account both the cost of conducting long-term stewardship activities as well as the risk associated with maintaining residually-contaminated areas in or around leased facilities. DOE would need new legislative authority to establish public-private partnerships.

Because alternatives 2, 3, and 4 would require specific Congressional action in the form of legislation or specialized appropriations, the viability of these alternatives is dependent upon Congress concluding that the annual budget process is inadequate for this purpose. Congress has provided DOE and other federal agencies with the authority to use alternative funding mechanisms for environmental activities:

- DOE currently contributes to two non-stewardship trust funds supporting future environmental cleanup activities: (1) the Nuclear Waste Fund to support the construction, operation, decommissioning, and final closure of a geologic repository for High-Level Waste and Spent Nuclear Fuel; and (2) the Uranium Enrichment Decontamination and Decommissioning (D&D) Fund to support the final cleanup of DOE uranium enrichment facilities. Note, however, that any DOE expenditures on the repository and the D&D Fund must be appropriated through the annual budget process. Both funds are supported by Congressional appropriations and by fees levied on utilities. The Uranium Enrichment D&D Fund also is the source of Title X Uranium/Thorium Program reimbursement funds. The Title X sites are a subset of the Title II UMTRCA sites, which will revert to DOE for long-term stewardship unless the host state assumes financial responsibility.

Long-term Stewardship Fees

Owners of sites subject to UMTRCA Title II must pay a one-time fee to the U.S. Treasury for long-term stewardship. The amount was established by NRC and is adjusted annually for inflation – it now is approximately $600,000. DOE does not receive these payments directly but instead submits a budget request to Congress to pay for long-term stewardship at these sites. Although these payments are potential sources for contributing to a trust fund for long-term stewardship, there is no legal mechanism to do so.

- The environmental restoration challenge grants program with the National Fish and Wildlife Foundation (NFWF) is one of the many tools used by the Bureau of Reclamation (BOR) to

promote natural resource stewardship on BOR lands.[101] BOR uses challenge grants, where recipients match funds to encourage partnerships among federal agencies, Tribal governments, state and local governments, and other organizations, to help leverage funds from many sources. In 1999 the NFWF and BOR awarded 36 grants. Recipients matched funds with an average of 3.5 non-federal dollars for every federal dollar. Non-federal funds come from a variety of sources, including private firms, nonprofit organizations, Tribes, civic groups, and private land owners. All projects receiving these funds must be connected to the resources. BOR administers the funds.

- BLM is working in partnership with the EPA, state agencies, Tribal governments, private parties, and other interested groups to accelerate the rate of cleanup of watersheds affected by abandoned hard rock mines, using the approach outlined in the Interdepartmental Abandoned Mine Lands Watershed Initiative. Based on sources and availability of funding, BLM must first focus cleanup efforts on watersheds damaged by abandoned mines rather than on physical hazards associated with these sites. BLM works in collaboration with other government and private landowners in those watersheds to leverage their funds to clean up all mining sites affecting the watershed.[102]

8.3 Managing Available Funds

The procedures for managing long-term stewardship funds are likely to vary depending on the sources of funding, financial instruments, and contracting strategies. If Congress continues to provide funds through annual appropriations, it is likely there will be little change in current procedures for funding DOE cleanup and long-term stewardship activities. Funds will continue to be authorized, appropriated, and expended using procurement and grant-issuing procedures. However, different procedures will be needed if DOE utilizes alternative funding sources and instruments such as trust funds, commercial activity fees, or public-private partnerships. In addition, DOE and site stewards must consider appropriate contracting strategies for conducting long-term stewardship activities.

Several types of financial instruments could be used to manage funds for long-term stewardship. One type of fund with substantial precedent is Federal Trust Funds (Exhibit 8-4). Federal Trust Funds generally are accounting entities whose assets are not held separate from other federal funds or reserved exclusively for the designated purpose. This means Congress can use the funds to pay for other social needs or borrow against their assets. The majority of Federal Trust Funds are seeded with public funding generated through taxes or other user fees. It is unclear whether an analogous tax or user fee system could be established to support long-term stewardship activities. Congress generally requires the tax or user fee to be related to the problem addressed by the trust. The procedures for funding annual expenditures and reinvesting income are specific to each Federal Trust Fund and are established in their enacting legislative language.

---

[101] *Resource Stewardship 2000*, U.S. Department of Interior, Bureau of Reclamation, *http://www.usbr.gov/stewardship*; *Sowing the Seeds of Success*, National Fish and Wildlife Foundation, 1999.

[102] U.S. Department of Interior, Bureau of Land Management, Abandoned Mine Lands Program, Frequently Asked Questions, *http://www.blm.gov/aml*.

Exhibit 8-4. Examples of Federal Trust Funds

- Nuclear Waste Fund (42 U.S.C. § 10222)
- Federal Old Age and Survivors Insurance Trust Fund (42 USC § 401(a))
- Federal Disability Insurance Trust Fund (42 U.S.C. § 401(b))
- Black Lung Disability Trust Fund (26 USC § 9501)
- Aquatic Resources Trust Fund (26 USC § 9504)
- Harbor Maintenance Trust Fund (26 USC § 9505)
- Inland Waterways Trust Fund (26 USC § 9506)
- Airport and Airways Trust Fund (26 USC § 9502)
- Highway Trust Fund (26 USC § 9503)
- Vaccine Injury Compensation Trust Fund (26 USC § 9510)
- Leaking Underground Storage Tank Trust Fund (26 USC § 9508)
- Hazardous Substance Superfund (26 USC § 9507); uses of fund (42 USC § 9611)
- Oil Spill Liability Trust Fund (26 USC § 9509)

A second type of fund is a trust fund held by a regulated financial institution for the benefit of a federal agency. In general, these trusts are established by private sector entities and therefore may be applicable only to a subset of long-term stewardship sites depending upon the final site long-term stewardship entity.[103] This type of fund is well-precedented. Trusts of this kind are used in a number of financial assurance programs, particularly for the post-closure care of hazardous waste disposal facilities under RCRA or sites licensed by NRC. They typically are created by a licensee or permittee at the beginning of the licensed activities. The amount of money placed into the fund equals the estimated funds necessary to close the facility or to provide long-term care for the closed facility. This estimate can be adjusted during the life of the trust, thereby requiring further contributions to or releases from the fund. If the licensee or permittee fails to pay the costs of closure or long-term care, the fund trustee is instructed to do so using funds in the trust. Both the principal and income of the fund are available to support expenditures for closure or post-closure long-term care.

Trust funds or "perpetual care investment funds" (Exhibit 8-5) could be established on a nationwide basis, or site-specific basis, provided legislative authority is established to do so. A single national fund would need a huge amount of up-front capital. Although a single fund would generally incur lower transaction costs than many separate funds, a national fund may be more costly to administer because of its larger size and multi-site responsibilities. The allocation of a national fund to multiple sites may be complicated by uncertainty in the types and costs of needed long-term stewardship activities and the highly contentious issue of equity. It would be difficult to establish a mechanism for determining each site's "share" of such a fund under any circumstances. Unexpected costs or an unexpectedly high rate of spending at a single site might lead to additional concerns about equitable distributions from a single fund. However, improving estimates over time would make it less likely that one or more sites could obtain more than their "share" of a single fund. Improved estimates could include needed contingency funding to cover potentially high costs associated with cleanup remedy failure.

[103]Federal regulations at 40 CFR Parts 264.140(c) and 265.140(c) stipulate that states and the federal government are exempt from the RCRA financial assurance requirements.

Exhibit 8-5. State of Tennessee Perpetual Care Investment Fund

The Tennessee Perpetual Care Trust Fund is an example of a "perpetual care pooled investment fund." The Fund was established pursuant to Tennessee State law (T.C.A. §9-4-603) and is administered by the Tennessee Department of Conservation (TDEC). DOE signed a Consent Order with the State of Tennessee and agreed to deposit $14 million (in $1 million annual installments) into the Fund. Other states may not have the legislative authority to implement such a fund.

The requirements for managing the Fund are established in a Fund Implementation Plan included in the Consent Order. The Plan requires that income from the Fund be used to conduct surveillance and maintenance of the Oak Ridge Reservation Environmental Management Waste Management Facility or other DOE-Oak Ridge Operations Office related activities. The Plan also requires that the principal of the Fund not be used in any circumstances.

The Fund will terminate upon written agreement that surveillance and maintenance for the facility is no longer needed. Upon termination, the balance of the fund will be returned to DOE. At this time, DOE and the State disagree on the State's ability to compel DOE contributions to the Fund if Congress does not appropriate sufficient annual funding.

There are two unique features of this agreement:

- After payment of the final installment, interest from the Fund will be used to pay for surveillance and maintenance for the Oak Ridge Reservation Environmental Management Waste Management Facility. This fund is intended as the primary source of long-term stewardship funding, not a "backstop" to DOE funding.
- The State, not DOE, will conduct the surveillance and maintenance using the interest proceeds from the fund.

Regardless of the chosen financial instrument for funding stewardship, DOE and site stewards also must choose effective contracting strategies for conducting long-term stewardship activities. This needs an understanding of both the nature of long-term stewardship activities and the contracting lessons learned by DOE during the 1990s (See Exhibit 8-6). DOE's efforts at contract reform and privatization have demonstrated that the choice of more appropriate contract instruments (e.g. fixed-price contracts, incentive fees) can reduce costs and improve productivity. In general, long-term stewardship activities fall into four types of work:

- Routine, repetitive services (e.g., groundwater monitoring, site security).
- Short-term capital construction projects (e.g., re-constructing a cap, re-installing a groundwater flow barrier).
- Special studies or analyses (e.g., health surveys, groundwater modeling).
- Long-term institutional knowledge maintenance tasks.

Exhibit 8-6. Lessons Learned on Contracting

During the Manhattan Project and throughout the Cold War, DOE and its predecessor agencies secured nuclear weapons research, production, and testing services through broadly-written, cost-reimbursable contracts that relieved contractors of most of the financial risk associated with their work. This approach was seen as necessary given the risks involved in conducting "first-of-a-kind" research and production efforts. However, as the Cold War ended, DOE's missions began to broaden and necessitated new approaches to contracting services. DOE's EM program is an example of a mission focused on the completion of discrete cleanup projects rather than maintenance of large-scale industrial manufacturing capability. The change in missions combined with an increasingly competitive funding environment prompted DOE to undertake several contracting reform initiatives during the 1990s. As a result, DOE's current best practices for contracting include increased competition, more fixed-price contracts, clearer work scope definitions, multiple contract awards, and performance-based incentives.

Routine, repetitive services and short-term capital projects are amenable to fixed-price contracting to the extent the service or project is well-defined. In contrast, where the number and type of long-term stewardship activities are uncertain, a fixed-price approach is inappropriate. It is more difficult to apply performance-based incentives to activities for which there may be no foreseeable completion date. As long-term stewardship activities become more defined, DOE and site stewards can utilize lessons from recent contract reform to reduce the costs of long-term stewardship.

Chapter 9: Natural Resources, Cultural Resources, Socioeconomic Impacts, and Environmental Justice

Long-term stewardship is a complex, multi-faceted process that cannot be successfully performed in isolation. Protection of natural resources, protection of cultural resources, and a variety of other environmental, social, economic, and engineering issues are integral to long-term stewardship. This chapter discusses four major environmental, social, and economic issues that will affect long-term stewardship and the importance of continued partnerships between DOE and affected parties in addressing these issues. Exhibit 9-1 illustrates some of the complex ways in which concerns about natural resources, cultural resources, socioeconomic impacts, and environmental justice affect long-term stewardship. As a result, the Department should:

APPLICABLE SCOPING COMMENTS
(see Exhibit 2 in Appendix B)

- Where cleanup cannot fully restore natural resources, stewardship should be used to address natural resource damage at DOE sites by improving comparable resources (3)
- The *Study* should address impacts to Tribal nations with respect to long-term stewardship (3
- Any acceptable long-term stewardship program must ensure long-term protection of human health, the environment, and cultural resources (STGWG)

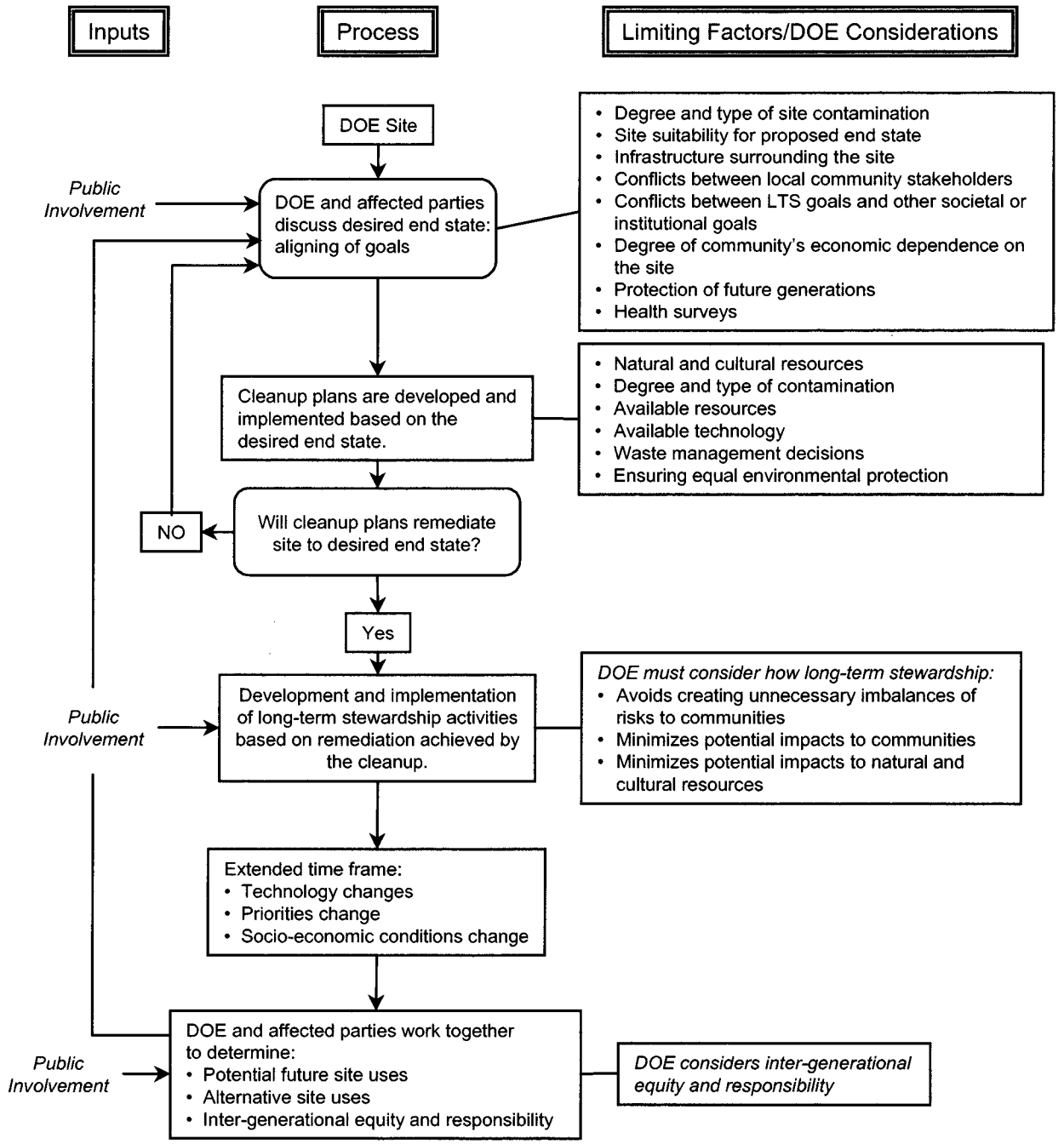
APPLICABLE ISSUES
(see Exhibit 3 in Appendix B)

11. Land Use/Natural Resources
16. Sociological/Political Issues
17. Environmental Justice
19. Public Involvement
27. Social/Citizen Control

- Identify and avoid adverse impacts to natural resources and cultural resources, where possible.
- Balance the socioeconomic needs of affected parties with DOE's stewardship goals.
- Ensure that federal Indian Trust Responsibilities and federal treaty obligations consistent with the unique legal and political status of Tribes are met.[104]
- Ensure that long-term stewardship activities do not create or exacerbate disproportionate environmental burdens on low-income and minority populations.

[104]There are currently 558 federally recognized Tribes in the United States. A federally recognized Tribe is a Tribe and/or Tribal group that has a federally acknowledged legal and political relationship with the federal government. This relationship is referred to as a government-to-government relationship. Several DOE sites have both federally recognized and non-federally recognized tribes. Federally recognized Tribes must be incorporated into DOE decision processes as a governmental entity in accordance with DOE Order 1230.2 and Council of Environmental Quality Memorandum, *Designation of Non-Federal Agencies to be Cooperating Agencies in Implementing the Procedural Requirements of NEPA*, July 28, 1999. Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments* (63 FR 67249) and the *U.S. Department of Energy American Indian & Alaska Native Tribal Government Policy*, U.S. Department of Energy, Office of Congressional and Intergovernmental Affairs, October 2000 are also relevant.

Exhibit 9-1. Environmental and Economic Issues will Affect the Process of Developing and Implementing Long-term Stewardship



Importance of Public Participation in Long-term Stewardship

Successful implementation of long-term stewardship at DOE sites will need a strong partnership between DOE and affected parties. Members of the host community may serve as one of the most effective overseers of the stewardship process, given their vested interest in ensuring that stewardship activities continue to be conducted and are appropriate to remaining site risks. A local community that has the opportunity to help develop cleanup strategies and long-term stewardship measures is more likely to support the continued implementation of those measures. As time passes, new generations will need to continuously engage in long-term stewardship planning and implementation to ensure that community involvement remains strong.

Effective public involvement in environmental decision-making involves two-way communication between the public and the agency charged with making the decision. A meaningful public involvement effort needs activities that disseminate information to, gather information from, and exchange information with all stakeholders.

Information distribution activities provide technical information about the issues under consideration (e.g., cleanup remedies, future site uses, desired end state, proposed land use options, and risk management) to all stakeholders. To enable stakeholders to participate in stewardship decisions in a meaningful way, DOE must provide accurate and timely information.

Sources: *Site-Specific Advisory Board Stewardship Workshop Report;* Oak Ridge, TN, October 1999; *Resource Conservation and Recovery Act Public Participation Manual;* U.S. Environmental Protection Agency, 1996.

9.1 Natural Resources

DOE sites are home to diverse and important natural resources,[105] such as biological resources (including fish and wildlife and threatened and endangered species) and wetlands that could be affected by long-term stewardship in numerous ways. Congress has enacted legislation to protect natural resources (Exhibit 9-2). DOE sites implement the requirements included in this legislation by first identifying these resources on the site through various mechanisms such as biological resource management plans,[106] surveys, and

Public Comments Concerning Natural Resources (see Exhibit 2 in Appendix C)

- DOE should avoid additional natural resource damages in selecting stewardship activities (4)
- In addition to enhancing natural resources, actions by DOE have degraded or destroyed natural resources (29)
- Our generation should set forth principles to assure natural resources will be preserved and should establish a balanced culture-based risk assessment and management process (44)

[105] *Survey of Ecological Resources at Selected U.S. Department of Energy Sites;* Pacific Northwest National Laboratory. September 1996.

[106] Some DOE sites have biological resource management plans in place, which establish site-wide policies regarding management of wetlands, habitats of endangered and threatened species, systematic bio-monitoring, wildlife disease, big game, trespass livestock, forest, and wildfire. These plans can be used to identify locations of habitats of endangered and threatened species, environments of migratory birds, Wild and Scenic Rivers Act designated areas, and other environmentally sensitive natural resources. The Hanford site uses Natural Resources Management Plans (e.g., the draft Hanford Biological Resources Management Action Plan) to protect its resources. These plans are incorporated into the Hanford Comprehensive Land Use Plan, which is a NEPA Record of Decision applicable to DOE. If property is transferred to another federal agency, the new agency will not be legally obligated to follow the conditions of the plan unless that Agency commits to the plan in its own Record of Decision. Also, a non-federal entity would not be bound by the plans unless there are other binding legal commitments (e.g., deed restrictions).

Exhibit 9-2. Statutes, Regulations, and Executive Orders Concerning Natural Resources

- Bald and Golden Eagle Protection Act, 16 USC 668-668d et seq.
- Clean Water Act, 33 USC 1251 et seq.
- Coastal Zone Management Act, 16 USC 1451 et seq.
- Endangered Species Act, 16 USC 1531 et seq.
- Executive Order 11990, Wetlands Protection
- Executive Order 11988, Floodplains Protection
- Fish and Wildlife Conservation Act, 16 USC 2901 et seq.
- Marine Mammal Protection Act, 16 USC 1361 et seq.
- Migratory Bird Treaty Act, 16 USC 703 et seq.
- National Environmental Policy Act, 42 USC 4231 et seq.
- Safe Drinking Water Act, 42 USC 300f et seq.
- Wild and Scenic Rivers Act, 16 USC 1271 et seq.

special studies.[107] In its current site planning process, DOE considers the potential impacts of proposed activities on these resources and typically documents its analyses in environmental impact statements and environmental assessments prepared pursuant to NEPA. In some cases, actions taken by DOE and other federal agencies over the past 50 years have enhanced natural resources at DOE sites.[108]

Role of Tribal Governments in Long-term Stewardship

Tribal governments have a primary role in the enforcement of Tribal laws and regulations that affect long-term stewardship (e.g., Tribal land use and hazardous waste regulations) and in the maintenance of institutional controls such as zoning approvals. Tribal governments also have responsibilities as a trustee of natural resources pursuant to Subpart G of the CERCLA National Contingency Plan (40 CFR Part 300) and as a trustee of cultural resources pursuant to several statutes and Executive Orders (see Exhibit 9-3). Additionally, Tribal governments have a special and unique legal and political relationship with the federal government (e.g., treaty rights, the Federal Indian Trust Responsibility) that provides Tribes with a unique role in the management and protection of Tribal lands, assets, resources, and treaty rights. For example, Tribal governments potentially affected by DOE decisions are consulted on a "government-to-government" basis concerning such decisions. Where parcels of land are transferred to Tribal governments (e.g., at Los Alamos National Laboratory), Tribal governments may assume additional responsibilities such as ensuring that future uses of these lands are consistent with restrictions necessary to protect human health and the environment. Tribal governments also may assume a more prominent role in managing long-term stewardship information and in promoting education and training to ensure the continuity of long-term stewardship across multiple generations. The unique status of Tribal nations does not imply, however, that all Tribal nations are the same or have a uniform view of long-term stewardship issues and concerns. Nothing in this *Study* should be used to make such an inference.

While planning and implementing long-term stewardship activities, DOE needs to avoid additional impacts to natural resources that could result in liability for natural resource damage assessments under CERCLA.[109] Long-term stewardship activities may impact natural resources in a positive or negative way. For example, wildlife (including threatened or endangered species) and their habitat might be protected by the maintenance of a buffer zone around a site or

[107] *Cross-Cut Guidance on Environmental Requirements for DOE Real Property Transfers*, U.S. Department of Energy, Office of Environmental Policy and Assistance. DOE/EH-413/97/2, October 1997.

[108] *The DOE Presence at the Hanford Site: Benefits to Natural Resources*, Pacific Northwest National Laboratory, November 1996.

[109] 43 CFR Part 11 Natural Resource Damage Assessments.

by restricting human access to site segments, thereby creating *de facto* wildlife preserves. On the other hand, wildlife could be adversely affected by fences or other barriers that are erected as a long-term stewardship measure but disrupt foraging or migration patterns.

Many DOE sites have been removed from the public sector for over 50 years, and at large sites often less than 10 percent of the land area is developed. Due to this situation, large parcels of DOE sites have provided unusual havens for many biota. Decisions to transfer or re-use DOE property could also affect natural resources, depending on the allowable future use of the property. For example, sensitive ecosystems and species may be protected further by creating special reserves within lands owned or controlled by DOE or by transferring those areas to agencies better equipped to manage those resources. The presence of an endangered species within a DOE site could encourage DOE to retain ownership of that land or to transfer the land to another entity that has the mission and means to better preserve such species (e.g., the Department of the Interior, a state wildlife management agency, or even a private land trust organization). As previously discussed, DOE has developed management agreements for this purpose as several sites (see Section 4.2.1).

Public Comments Concerning Tribes
(see Exhibit 2 in Appendix C)

- DOE should consider Tribal issues as a priority (1)
- The *Study's* emphasis on DOE's obligations to Native Americans and Tribal Treaties is inconsistently applied to emphasize the "host community" while neglecting the broader regional concerns (1)
- DOE needs to achieve inclusivity regarding Tribal nations and local governments; in these communications, DOE needs to acknowledge the special government-to-government nature of interactions with sovereign Tribes (1, 28, 44)
- The *Study* should emphasize that Tribes have "tribe-specific" goals so as not to infer that all Tribal nations are the same (44)
- DOE must exercise its "trust responsibility" by providing full disclosure of activities that will directly affect tribes and their treaty rights (44)
- DOE should analyze specific issues at DOE sites relative to implementation plans for engineered controls with respect to Tribal interests (44)
- The *Study* should include a fifth Principle of Intergenerational Equity – The Trust Principle; the Trustee Principle focuses on our duty to our descendants and the Trust Principle extends this to the federal government's obligation and duties towards the Tribes' descendants (1)

Partnerships among DOE, other federal agencies, Tribes, and local governments generally have been successful. However, in some cases Indian tribes and local governments have expressed concern about the need for more effective government-to-government interaction before land use decisions are finalized. The Department has recognized these concerns and is committed to more effective coordination with Indian Tribes and local governments.

DOE needs to continually monitor the extent to which long-term stewardship activities affect natural resources. Over time, new resources may be discovered and existing resources may change or be transferred, particularly over the long time periods potentially needed for long-term stewardship. For example, species not currently included on the threatened or endangered species list may be added, or species currently on the list may migrate to the site, may recover and be removed from the list, or may become extinct. DOE needs to consider potential impacts to natural resources and consult with affected parties, including Tribes,[110] in any periodic

[110]For example, the *U.S. Department of Energy American Indian & Alaska Native Tribal Government Policy*, U.S. Department of Energy, Office of Congressional and Intergovernmental Affairs, October 2000.

assessment it makes of ongoing long-term stewardship activities. Coordinated management of natural resources on adjacent federal and non-federal lands may be appropriate at some sites.

Integration of Natural Resources Concerns Into Response Actions

DOE has responsibilities under Executive Order 12580 and Subpart G of the CERCLA National Contingency Plan (40 CFR Part 300) as both a natural resource trustee and lead agency for response actions at sites under the Department's jurisdiction, custody, and control. In fulfilling these responsibilities, the heads of EM program field organizations and program and project managers are required to:

- Evaluate potential risks to natural resources or the services they provide when planning response action investigations and studies.
- Establish appropriate mechanisms for early and ongoing consultation with natural resource trustees, including establishing a natural resource trustee council or including trustee representatives on Site Specific Advisory Boards.
- Coordinate and maintain an ongoing dialogue with the trustees on potential natural resource injuries throughout the remedy selection process.
- Give strong consideration to the selection of response actions that minimize or mitigate adverse impacts to natural resources.
- Seek to obtain, where possible, covenants not to sue for natural resource damages from trustees that may file claims against DOE.
- Specifically identify any injuries to natural resources that may result from implementing the selected response actions, including any irreversible and irretrievable commitments of natural resources, in CERCLA Records of Decision or applicable licenses and permits.
- Use the Department's Natural Resource Trustee Steering Committee as a resource for implementing this policy.

Existing mechanisms for implementing this policy, such as the natural resource trustee councils established at several sites, may not be the way that this policy is implemented during long-term stewardship.

Source: *Policy on Integration of Natural Resources concerns into Response Actions*, Memorandum from Alvin Alm, Assistant Secretary for Environmental Management, U.S. Department of Energy, September 8, 1997.

9.2 Cultural Resources

DOE sites are home to diverse and historically and culturally significant resources, including:

- Artifacts and sites dating to the prehistoric, historic, and ethnohistoric periods that are currently located on the ground or buried beneath it.

- Standing structures that are over 50 years of age or are important because they represent a major historical theme or era.

- Cultural and natural places, select natural resources, and sacred objects that have importance for Native Americans and other ethnic groups.

- American folklife traditions and arts.[111]

[111]This definition was developed in 1989 by DOE's Office of Environment, Safety, and Health in cooperation with staff from the U.S. Department of the Interior, the Advisory Council on Historic Preservation, the National Congress of American Indians, and the Native American Rights Fund.

Many of these resources are protected by federal laws, regulations, and Executive Orders (Exhibit 9-3). DOE has long recognized its responsibilities for complying with applicable requirements and for managing cultural resources on DOE land and other lands that are impacted by DOE programs.[112] DOE policy and guidance documents provide a framework for implementing these responsibilities. DOE sites can implement applicable federal cultural resources management needs through mechanisms such as a cultural resource management plans, *Technical Site Information* documents (described in Chapter 6), NEPA documents, surveys, and studies.[113]

Exhibit 9-3. Statutes, Regulations, and Executive Orders Concerning Cultural Resources

- American Antiquities Preservation Act, 16 USC 431 et seq.
- American Indian Religious Freedom Act, 42 USC 1996 et seq.
- Archeological Resources Protection Act, 16 USC 470aa
- Curation of Federally Owned and Administered Archeological Collections, 36 CFR Part 79
- Determinations of Eligibility for Inclusion in the National Register of Historic Places, 36 CFR Part 65
- Executive Order 11593, Protection and Enhancement of the Cultural Environment
- Executive Order 13007, Indian Sacred Sites
- Historic Sites, Buildings, and Antiquities Act, 16 USC 1461 et seq.
- National Historic Preservation Act, 16 USC 470 et seq.
- Native American Graves Protection and Repatriation Act, 25 USC 3001
- National Register of Historic Places, 36 CFR Part 60
- National Historic Landmarks Program, 36 CFR Part 65
- Protection of Historic and Cultural Properties, 36 CFR Part 800

In its current site planning process, DOE analyzes the potential impacts of proposed activities on these cultural resources and typically documents the analyses in environmental impact statements and environmental assessments prepared pursuant to NEPA and in other studies conducted pursuant to other regulatory frameworks. In some instances, National Historic Preservation Act requirements can be combined with the NEPA process. For example, the potential environmental effects of property transfers at the Nevada Test Site and Los Alamos National Laboratory were assessed in NEPA documentation. The respective State Historic Preservation Officers and Tribal Historic Preservation Officers generally review all federal actions subject to NEPA, as well as information provided by DOE, to determine if any properties have historical significance.

DOE is required by law to consider the effects of its actions, such as implementation of long-term stewardship, on cultural resources. Continued involvement of the Department's Federal Preservation Officer, the State Historic Preservation Officers, Tribal Historic Preservation Officers, local organizations, and Tribal governments will be needed to assure that the value of historic properties and other cultural resources is considered during the planning and decision-making processes. To the extent feasible, DOE should implement long-term stewardship in a manner that continues to protect and provide appropriate access to cultural resources, including

[112]DOE has issued a wide variety of guidance documents and information briefs over the past decade to raise awareness of cultural resource management needs (e.g., *Management of Cultural Resources at Department of Energy Facilities*, U.S. Department of Energy Guidance Memorandum, February 23, 1990; *Environmental Guidelines for Development of Cultural Resource Management Plans*, U.S. Department of Energy, Final Report, DOE/EH-501, August 1995; DOE P141.1 *Department of Energy Management of Cultural Resources*, May 2001.)

[113]*Cross-Cut Guidance on Environmental Requirements for DOE Real Property Transfers*, U.S. Department of Energy, Office of Environmental Policy and Assistance. DOE/EH-413/97/2, October 1997.

historical properties. It may be necessary for DOE to evaluate many competing or conflicting factors related to cultural resources management responsibilities and long-term stewardship activities. For example, cultural and historic resources might be protected by limiting human access to traditional sacred areas[114] and/or areas where Tribes have treaty rights to hunt, gather plants, or graze livestock. The presence of culturally significant resources could also affect plans to implement some long-term stewardship activities. The transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance would be viewed as an adverse effect on the property. In some cases, DOE may reconsider or modify proposals to re-use or transfer ownership of an area in which a historic or cultural site is located.[115] In other cases, DOE may decide to transfer an historic or cultural site or to substantially alter or demolish an historic property.[116] Ultimately, DOE's responsibility will be to balance the needs of the agency mission, the public interest in protecting historic properties, the costs of preservation, and other relevant factors.

As a federal agency, DOE must ensure that federal Indian Trust Responsibilities and federal treaty obligations consistent with the unique legal and political status of Tribes are met.[117] Traditional cultural properties, archeological sites, or structures may become eligible for historic preservation or inclusion on the National Register of Historic Places. Access to information regarding the location of many cultural resources may be appropriately restricted in accordance with legal requirements (e.g., the Archeological Resources Protection Act, the National Historic Preservation Act) or specific agreements with Tribal nations. Thus, long-term stewardship plans may provide for the protection of resources without specifically disclosing protected information. Requirements to protect cultural resources also may change over time. Furthermore, treaty reserved rights could be exercised, increasing the amount of land subject to Tribal use.

9.3 Socioeconomic Impacts

The transition from cleanup to long-term stewardship may socially and economically impact affected parties by changing workforce levels and composition, local government resources, access to community services (e.g., police, fire, schools, libraries), and housing availability. A decision to close a site and maintain it as a wildlife preserve could adversely affect the number and type of jobs available in the community or could affect treaty reserved rights. On the other hand, such a decision could also increase recreation or tourism opportunities and associated economic benefits. Similarly, a decision to transfer property for industrial or commercial re-use could maintain or enhance the socioeconomic status quo or cause job growth and increased pressures on social services and housing. The extent to which DOE decisions affect

---

[114]Conference call with Los Alamos operations office, November 2, 1999.

[115]For example, the Hanford B Reactor is on the National Register of Historic Places as a nationally significant property. *Source:* National Register of Historic Places, National Park Service.

[116]DOE has this authority as long as the desired action can be justified in support of DOE's mission. However, there are a number of additional statutory and regulatory requirements that would apply. For example, if DOE decides to significantly alter or demolish an historic property, timely steps must be taken to make appropriate records and deposit the records in the Library of Congress or with another appropriate agency designated by the Secretary of the Interior for future use and reference.

[117]DOE Order 1230.2, *American Indian Tribal Government Policy*, outlines the principles to be followed by DOE in its interactions with federally recognized Tribes.

socioeconomic conditions in a community generally reflects the community's economic dependence on the DOE site. The more diverse a community's economy, the more resilient and adaptable it will be to changing circumstances resulting from DOE decisions.[118]

Directive for DOE to Consider Socioeconomic Impacts

Section 3161 of the National Defense Authorization Act of 1993 directs DOE to implement measures designed to minimize social and economic impacts associated with reconfiguration of the DOE weapons complex, and develop Workforce Restructuring Plans for Reconfigured DOE facilities.

One of the more significant results of the transition from cleanup to long-term stewardship will be changes in workforce levels and composition. As site missions change, many sites will significantly decrease the demand for highly skilled employees, which could create significant economic disruption in communities that are economically dependent on these jobs. DOE may be able to offset this decrease by transitioning some employees into long-term stewardship activities. However, it is likely that the scale and scope of long-term stewardship activities will be significantly smaller than cleanup activities. DOE also may be able to offset this disruption by attracting private industry to sites, as the Department did at Mound, Pinellas, and the former K-25 site in Oak Ridge (now the East Tennessee Technology Park).[119]

As stated earlier, successful implementation of long-term stewardship activities will need significant participation and support from affected parties. If the affected parties receive socioeconomic benefits from long-term stewardship activities, then there is likely to be a greater degree of cooperation in implementing and enforcing institutional controls. Thus, to the extent feasible, DOE should align long-term stewardship goals with the cultural and economic priorities of Tribes, local governments, and other affected parties. This will enhance the durability and effectiveness of long-term stewardship.[120]

---

[118]Frisch, M., et al. 1998. Regional Economic Benefits of Environmental Management at the U.S. Department of Energy's Major Nuclear Weapons Sites. *Journal of Environmental Management* 54: 23-37; Greenberg, M., et al. 1999. Questioning Conventional Wisdom: the Regional Impacts of Major U.S. Nuclear Weapons Sites, 1970-94. *Socioeconomic Planning Sciences* 33: 183-204.

[119]For example, in 1993 DOE made a decision to close the Pinellas plant in Florida. In 1995, DOE sold the plant to the Pinellas County Industry Council, a non-profit organization created to promote industrial growth. The Council is actively seeking tenants to occupy the facility, and 80 percent of the available space is currently leased. *Source:* www.osti.gov/privatization/report/case12.htm

[120]Such an alignment does not imply DOE is responsible for providing long-term socioeconomic support to the host community. The alignment could be achieved, for example, if long-term stewardship needs are compatible with the host community's wish for lands owned or controlled by DOE to remain as open space and serve as an aesthetic resource within the community.

Re-Use of Pinellas Site

In 1995 the Pinellas Site was sold to the State-chartered Pinellas County Industry Council for industrial redevelopment while site remediation was ongoing. Groundwater remediation is being conducted using a "pump and treat" system, and DOE anticipates that operation of the system will continue until 2014, after which no further remedial action will be needed. On-site groundwater monitoring may be needed after completion of remediation activities. The sales contract between DOE and Pinellas County includes provisions for a "lifetime easement" for DOE to conduct environmental remediation and monitoring and a similar easement for regulatory agencies to conduct activities on the site. The sales contract sets terms and conditions for potential demolition of buildings and set specifications for decontamination to levels appropriate for an industrial park. The sales contract also requires that the State of Florida acknowledge and concur with the effectiveness of the remediation.

However, the question of identifying the responsible party for remediating contamination that may potentially be discovered on site after the time of sale was not addressed in the sale documents. As of FY 2000, most of the industrial space in the former Pinellas Plant is fully occupied with industrial operations, and there may be situations where site contamination is discovered in the future that cannot be clearly attributed either to DOE's past operations or to current industrial operations.

Sources: Quit-Claim Deed. Pinellas County, Florida, 1995. Pinellas County Office of Records Book 8939, pp. 1357-1358, March 17, 1995; *Sale and Purchase Contract for the Pinellas Plant.* U.S. Department of Energy and Board of County Commissioners, Pinellas County, Florida, 1995. DE-RP04-95A187442, March 17, 1995.

9.4 Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs federal agencies to make environmental justice part of their mission by identifying and addressing disproportionately high and adverse human health or environmental effects of federal programs, policies, and activities on minority populations and low-income populations in the United States.[121]

Findings from an initial analysis of the demographic and economic composition of communities surrounding DOE's 19 major sites and 75 smaller sites show that many counties within a 10-mile radius of DOE sites have a higher percentage of minority populations and/or low-income populations than the national average.[122] For example, the study concluded that the 16-county region bordering the Savannah River Site was 41 percent African-American in 1990. This is a higher percentage than typically found in South Carolina, Georgia, or the United States. The study also found that there was a higher percentage of residents living below the poverty line in this region than in the country or surrounding states. In addition, the counties surrounding the Hanford Site have a lower socioeconomic status than in either the host State of Washington or nearby Oregon.

[121] Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations.* February 11, 1994.

[122] Greenberg, M. and Simon, D. *Demographic Characteristics of Counties Adjacent to the Savannah River, Hanford, and Other Major U.S. Department of Energy Sites*; Consortium for Risk Evaluation with Stakeholder Participation Report No. 1, March 1996; Greenberg, M. and Simon, D. *Demographic and Economic Characteristics of Areas Surrounding Small DOE Site;* Consortium for Risk Evaluation with Stakeholder Participation Report No. 17, December, 1998.

Environmental justice issues can take many forms, but often focus on the geography of risk or burden stemming from environmental hazards, such as the impact of long-term stewardship activities on the host communities and communities that could be exposed to residual site hazards. In developing and implementing long-term stewardship strategies, DOE is directed by Executive Order 12898 to consider the extent to which minority or low-income populations might face disproportionately high and adverse human health or environmental consequences. Disproportionately high and adverse consequences can be caused by a population's geographical location, lifestyle, culture, economic condition, or other elements that increase their vulnerability and susceptibility to environmental burdens. Examples include:

General Methodology for Evaluating Potential Environmental Justice Concerns

1. Identify potential impacts from the proposed action to determine adverse environmental and health impacts on the general population.
2. Using available information, identify potentially impacted minority and low-income communities.
3. Using available information, determine whether there are any unique exposure pathways or cultural practices by which minority or low-income populations could receive a disproportionally high and adverse impact.

- Lands transferred for industrial development could be located near an existing minority or low-income neighborhood.

- Minority or low-income workers might tend to live in off-site areas that are relatively close to residual site hazards, where property values are lower.

- Minority or low-income populations might receive higher-than-average doses from the consumption of relatively large amounts of freshwater fish from contaminated waters and may also suffer disproportionate impacts because they lack access to adequate medical care or are not provided useable information about risks.[123]

To effectively address stakeholders' environmental justice concerns and ensure that no valid environmental justice concerns remain unaddressed, DOE needs to find ways to promote opportunities for members of minority and low-income populations to participate in the long-term stewardship planning process. Such opportunities may include providing translation services during public meetings, publication of notices in different media (e.g., newspapers, television, radio, or distribution of flyers to community centers or door-to-door) and in different languages, and holding meetings at convenient locations (e.g., accessible by public transportation). With effective public involvement, DOE can have more certainty that cleanup decisions and long-term stewardship activities consider any environmental justice concerns.

[123]Lazarus, R.J. and Tai, S. Integrating Environmental Justice into EPA Permitting Authority. *Ecology Law Quarterly* 26, 1999; West, P.C. Invitation to Poison? Detroit Minorities and Toxic Fish Consumption from the Detroit River. *In:* Bryant, B. and Mohai, P. (eds). *Race and the Incidence of Environmental Hazards*. Boulder, CO: Westview Press, 1992.

Chapter 10: Sustainability of Long-term Stewardship

Developing and implementing long-term stewardship activities at the national scale and over an extended period of time is an unprecedented task with many uncertainties. No existing institution has yet acquired experience in protecting public health and the environment for the extremely long time frames that may be involved in long-term stewardship. Although existing statutory and regulatory requirements provide some guidelines for long-term stewardship activities, it is not clear that the requirements anticipate all of the long-term stewardship measures that may be needed in the future, nor ensure the development of effective implementation strategies.

APPLICABLE SCOPING COMMENTS
(see Exhibit 2 in Appendix B)

- Long-term stewardship plans should be flexible and take into account future advances in technology and science and future changes in cultural values and politics; these plans should undergo revisions via a democratic process (4)
- DOE should periodically re-evaluate long-term stewardship plans and implementation programs at both the site and headquarters level to reflect changing conditions (STGWG)

APPLICABLE ISSUES
(see Exhibit 3 in Appendix B)

7. *Science and Technology Development*
13. *Intergenerational Transfer*
15. *If the Department of Energy Goes Away*
20. *Roles and Responsibilities*
22. *Long-term vs. Short-term*

It is important to be cognizant of the issues associated with the sustainability of long-term stewardship over many decades and perhaps centuries. DOE recognizes that efforts to define and evaluate these issues are speculative in nature, and the discussion in this chapter is not intended to either direct or impede public debate or to attempt to resolve these issues, especially as they pertain to specific sites. Nonetheless, the Department believes it is important to note the challenges facing long-term stewardship as it moves into the future.

The technology and institutions exist to allow the present generation to pass to the next generation sites in long-term stewardship that can be maintained in a safe, environmentally protective condition, and to pass along the information which will allow the next generation to make informed decisions. Nonetheless, it should be possible to develop improved technologies and to refine institutional controls to provide more cost-effective and durable protection. That would reduce the burden on future generations. This chapter discusses several types of issues that may affect the sustainability of long-term stewardship over long periods of time.

Seventh Generation Planning

The Constitution of the Iroquois Nation was drafted as early as 1390 and possibly between 1450 and 1500. It notes the following planning horizon:

> *In every deliberation, we must consider the impact of our decisions on the next seven generations ... Look and listen for the welfare of the whole people and have always in view not only the present but also the coming generations.*

Source: http://www.axess.com/mohawk/constitution.htm

10.1 What is Needed for Sustainability?

If long-term stewardship is not designed and managed to be enduring, human health and the environment may be endangered through a variety of means. For example:

- Society's commitment to long-term stewardship may gradually fade away or be eliminated, causing necessary monitoring and maintenance to lapse.
- Opportunities for improving the cleanup end state and the monitoring and mitigation strategies may be missed at sites where residual hazards become neglected.
- The public as well as government decision-makers may come to believe that site hazards have been eliminated.
- When residual hazards are rediscovered, the ability to address the problems may have declined and the cost needed to do so may increase.

Civilization has had only limited success in planning for and avoiding the consequences of natural disasters like floods, hurricanes, earthquakes, and volcanoes. In some situations, governments have acted to ensure that activities and developments in areas prone to these events take into account the hazards (e.g., through compliance with stringent building standards or zoning restrictions). Often, however, lessons learned about the hazards are ignored, downplayed, or lost. In many cases, known hazards are accepted or ignored (e.g., people readily move back into homes in floodplains periodically subjected to floods). Approaches to ensure that long-term stewardship remains robust and adaptable must recognize that future decisions about end states and monitoring and mitigation strategies will reflect not only new scientific and technical information and options, but also the changing values of future generations.

To design long-term stewardship strategies that can be passed on to future generations and adapt to changes, DOE must address two primary questions:

- How can implementation be structured to ensure that robust and adaptable long-term stewardship endures?
- How can DOE ensure that implementation remains reliable over time?

There are no simple approaches for addressing these issues. However, four principles of intergenerational equity proposed by the National Academy of Public Administration may provide a foundation for ensuring that long-term stewardship endures (Exhibit 10-1).

Exhibit 10-1. The Four Principles of Intergenerational Equity

1. *Trustee Principle* – Every generation has obligations as trustee to protect the interests of future generations.

2. *Sustainability Principle* – No generation should deprive future generations of the opportunity for a quality of life comparable to its own.

3. *Chain of Obligation Principle* – Each generation's primary obligation is to provide for the needs of the living and succeeding generations. Near-term concrete hazards have priority over long-term hypothetical hazards.

4. *Precautionary Principle* – Actions that pose a realistic threat of irreversible harm or catastrophic consequences should not be pursued unless there is some compelling countervailing need to benefit either current or future generations.

Sources: *Deciding for the Future: Balancing Risks, Costs, and Benefits Fairly Across Generations*, National Academy of Public Administration, June 1997; *Our Common Future*, The World Commission on Environment and Development (the Brundtland Commission) Oxford: Oxford University Press, 1987, page 43.

10.1.1 Ensuring Survival

Long-term stewardship will face a variety of long-term survival challenges. Future generations may suspend long-term stewardship activities in order to deal with more immediate needs.

The long-term survivability of long-term stewardship can be bolstered by local involvement in decision-making, active involvement of a wide range of affected parties, and frequent communication across parties at each site. The affected parties located near sites have the greatest stake in the success and survival of long-term stewardship. They also will have the best access to certain types of information that should influence evolving site strategies, such as information on changes in land use patterns, property values, and social values. For these and other reasons, long-term stewardship should rely considerably on local involvement in decision-making.

A centralized institution such as DOE, however, may have the best access to other types of relevant information, such as advances in science and technology, and a greater ability to capture economies of scale in developing and disseminating such knowledge.

A certain degree of redundancy could also be beneficial. A wide range of parties have an interest in long-term stewardship, including local residents and businesses; various state, local, Tribal, and federal agencies; site owners and contractors; technology vendors; and advocacy groups. When these parties are directly involved in long-term stewardship, communicate frequently, and understand the importance, goals, and responsibilities associated with long-term stewardship, they can help counteract threats. For example, if a local government agency that has played a key role in long-term stewardship is abolished, the remaining interested parties at the site that have been conducting similar activities can ensure that the functions performed by that agency are transferred or assumed by others.

Characteristics of an Effective Stewardship Program

According to a National Research Council report, "the overarching requirement for an effective stewardship program is that it be reliable. A reliable program has a reasonable likelihood of achieving its objectives over the period it must remain in effect." The report identified several characteristics that enhance the reliability and effectiveness of a stewardship program.:

- *Layering and redundancy.* Layering means using several measures to carry out roughly the same function; redundancy means creating a situation in which several entities are responsible for or have a vested interest in the effectiveness of the measures.
- *Ease of implementation.* A stewardship activity must be capable of being put into effect, and it also should be reasonably easy to keep in effect.
- *Monitoring commensurate with risks.* Monitoring methods and schedules need to be commensurate with the harm that could be caused in the case of release of contaminants or failure of a monitoring system.
- *Oversight and enforcement commensurate with risks.* One key stewardship activity is to have a "watchdog" over other stewards and stewardship activities. For the watchdog to be effective, however, it must have teeth.
- *Appropriate incentive structures.* Attention needs to be devoted to assuring that site stewardship managers will be appropriately motivated for carrying out the needed tasks over time.
- *Adequate funding.* Implementing, monitoring, and appropriately modifying stewardship activities will require adequate and reliable financial resources throughout the activities' required lifetimes.
- *Durability and replaceability.* A stewardship activity should endure either for as long as the site's residual contaminants remain hazardous, until the activity can be refreshed or replaced by an equally reliable substitute activity.

Source: Long-term Institutional Management of U.S. Department of Energy Legacy Waste Sites. National Academy of Sciences, National Research Council, August 2000.

Frequent communication among stakeholders at a site also can help ensure that new information is widely distributed and its implications are understood and incorporated into future decisions. Likewise, fostering a community of interest groups across sites may help bring necessary expertise and resources to bear if the survival of long-term stewardship is threatened at one site. This benefit may be particularly valuable at sites located in sparsely populated areas or in communities with few resources.

Maintaining trust and credibility will be a key challenge. Public confidence in the institution(s) charged with long-term stewardship will depend on the ability of the institution(s) to demonstrate a commitment to the mission and carry out its (their) responsibilities openly and fairly.[124]

10.1.2 Maintaining Focus

Site stewards need to avoid the perception that risk levels at the sites are less than they are. Stewardship organizations also should avoid merely ensuring regulatory compliance and implementation of existing monitoring and mitigation strategies. Instead, the organizations should continually seek better solutions and incorporate new developments in science, technology, land use patterns, and societal values. The organizations also should continually learn and reinvent themselves, adapting to changing circumstances, or they will risk becoming

[124] *Long-term Stewardship of Contaminated Sites, Trust Funds as Mechanisms for Financing and Oversight.* Carl Bauer and Katherine Probst, Resources for the Future Discussion Paper 00-54, December 2000, page 380; *Long-term Institutional Management of U.S. Department of Energy Legacy Waste Sites.* National Academy of Sciences, National Research Council, August 2000, page 86.

ineffective and lose support. At least two approaches may be used to ensure that the organizations responsible for long-term stewardship remain active and focused on their responsibilities:

- Separate the responsibilities for ensuring regulatory compliance from the responsibilities for sponsoring improvements in science and technology. This division would help to ensure that the former goal does not exclude the latter. This approach may increase the difficulty of learning lessons from existing strategies, but establishing appropriate communication paths could mitigate the problem.

- Separate the responsibilities for implementing long-term stewardship from responsibilities for educating the public about the residual hazards at sites and the rationale for long-term stewardship. Educational organizations that focus on transferring institutional knowledge from generation to generation, targeted at communities surrounding DOE sites, could reduce the possibility that remaining site hazards are forgotten.

10.2 The "Rolling Stewardship" Strategy

One of the challenges facing DOE, regulators, and stakeholders is to set in place a long-term hazard management framework that ensures protection of human health and the environment for future generations. Through this hazard management framework, DOE must address possibilities such as: (1) the remedies established during cleanup will fail (e.g., engineered controls stop working as designed, institutional controls are not enforced); (2) changing circumstances at and around the site will need corresponding changes in long-term stewardship strategies; and (3) future generations will want to change the use(s) of the lands and resources involved in long-term stewardship. Pursuant to the "chain of obligation principle" (Exhibit 10-1), the current generation should always provide the next generation with the skills, resources, and opportunities to cope with any problems that may result from cleanup and long-term stewardship decisions (i.e., a "rolling stewardship" strategy).[125]

Education and Training

Education and training will be a critical part of long-term stewardship, particularly among affected parties, and will serve to continually reinforce concepts and keep the concepts familiar and pertinent. Enhancing the awareness of: (1) why long-term stewardship is necessary; (2) how to conduct long-term stewardship activities; (3) how to evaluate and interpret change; and (4) how to modify activities in response to changing circumstances will enhance the ability of long-term stewardship to survive and adapt to the changing cultural and natural environment.

Education of the public, particularly affected parties, can enhance the effectiveness of institutional controls and the protectiveness of long-term stewardship. Communities that are well educated and trained with respect to long-term stewardship issues are less likely to challenge institutional controls and more likely to prevent unaware parties (e.g., children, visitors) from putting themselves at risk. Education and training efforts also would help to promote trust between affected parties and site stewards.

[125] *Deciding for the Future: Balancing Risks, Costs, and Benefits Fairly Across Generations*, National Academy of Public Administration, June 1997

Public Comments on "Rolling Stewardship"
(see Exhibit 2 in Appendix C)

- Cleanup is the goal, not "managing the problem," which should be used only when source removal options are exhausted and only under the most stringent of justifications (13)
- I was really pleased to see the reference to managing the problem and managing the hazards, but DOE might consider 20 years (a generation) as the appropriate time frame for stewardship (48)
- It is important to assure that the principles of intergenerational equity are implemented according to its intent, spirit, and letter (44)
- Chapter 10 generally is critical to evolution of good policy and implementation for long-term stewardship, but the separations suggested in this subsection need thorough discussion with a wide range of parties, stakeholders, and disciplines, and there must also be vigorous discussion about the extent to which DOE takes responsibility for any one of these functions (4)
- DOE (or subsequent federal managers) should implement a systematic process for re-evaluating and if needed, modifying existing long-term stewardship activities to ensure that developments in science, technology, and performance are incorporated; the community should be involved in these re-evaluations (6, 11, 32, 34, 45, 50)
- Periodic re-evaluation of the remedy should include (20, 24, 43):
  - Changes in health/environmental standards
  - Changes in technology
  - Performance of the remedy in place
  - Site conditions
  - The physical integrity of permanent markers
  - Investigation and remediation of contamination in place not previously considered to be a threat

The following three principles provide guidance for making decisions that incorporate the "rolling stewardship" strategy:

- **Focus on managing the problem rather than trying to solve the problem**. Given the limitations of present-day technologies and the uncertainties in what we know about residual hazards, the durability of engineered and institutional controls, and what will happen in the future, we cannot expect at the present time to find permanent solutions to all of the problems associated with existing hazards at DOE sites. More permanent solutions may be developed in the future as a result of technological advances.

- **Focus on managing hazards for the near future (e.g., 30-50 years) rather than trying to manage hazards for centuries or millennia**. Given the uncertainties in site conditions and new science and technology, long-term strategies implemented today will need to be re-evaluated and likely changed at regular intervals in the future. Depending on the site characteristics, it may be more productive to develop strategies using a "near-future" time horizon (e.g., 30-50 years or some other appropriate time frame such as a generation) than to attempt to develop strategies using a longer time horizon. In other cases (e.g., UMTRCA sites, WIPP), regulations require consideration of longer time frames in designing the facility. However, these regulations acknowledge and address uncertainties associated with these longer time frames.

- **Avoid foreclosing future options**. Given the need to re-evaluate and perhaps modify long-term stewardship strategies over time, future generations should have as many options available as possible. Decisions should seek solutions that address near-term needs and concerns but preserve long-term flexibility to the greatest extent possible.

Two key elements of the "rolling stewardship" strategy, future evaluations of today's decisions and incorporating new science and technology, are discussed below.

10.2.1 Future Evaluations of Today's Decisions

As noted in Chapter 3, decisions made today (and over the next 40 years or more) will have ramifications for the future generations who will be responsible for managing residual hazards. In effect, the present generation is making cost-benefit tradeoffs and committing future generations to managing residual hazards, but future generations are not participating in the decision-making process. The present generation also is committing land and other resources that may be needed or desired for other purposes in the future. Future generations may need to commit additional resources to remediate or otherwise reverse the consequences of decisions.

Although the end state conditions resulting from the completion of EM projects will dictate the specific long-term stewardship needs, issues that may need changes in these needs include:

- After very long periods of time, residual levels of radionuclides and hazardous organic chemicals will eventually decay/degrade over time to levels that are safe for unrestricted use.
- Applicable laws, regulations, and standards may change over time.
- Demographic and political changes around sites may change exposure pathways or levels of concern. Over the past 50 years, urban development around some sites has dramatically increased, and ecological conditions at others have changed significantly (Exhibit 10-2). Long-term stewardship strategies that are effective today may no longer be effective in the future. For example, the needs for buffer zones and other restricted use areas at sites are likely to change over time as population patterns in the vicinities of the sites evolve.
- Climate change and other geological events may be an issue given that long-term stewardship may be needed for hundreds or thousands of years.

Exhibit 10-2. Changing Conditions at and near DOE Sites

Rocky Flats Environmental Technology Site – The population within a 50-mile radius of the site increased from approximately 600,000 in 1950 to more than 2 million today, and this population is expected to increase by an additional 30 percent in the next 20 years. (*Source*: *From Cleanup to Stewardship*, October 1999)

Savannah River Site – When the federal government purchased the site in 1951, 80-90 percent of the land area was farmland in degraded condition, and wildlife populations had been depleted by nearly 200 years of over-hunting and exploitation. By 1968, more than 100 million trees had been planted on the site. Today, wildlife populations have recovered, and seven percent of the site has been set aside for ecological research. (*Source*: *Savannah River Site Future Use Plan*, March 1998)

- Future advances in science and technology could reduce long-term stewardship needs and/or make it possible to clean up existing residual contamination to less restrictive levels.

Advances in robotics, for example, might enable future generations to excavate areas that currently pose unacceptable risks to remediation workers.

- Advances in science and medicine may identify new hazards or mitigate existing hazards. A century ago, the effects of ionizing radiation were largely unknown and unsuspected; therefore, a long-term stewardship strategy developed then would not have considered the hazards associated with such radiation. A century from now, medical science may develop treatments that mitigate or reverse the effects of ionizing radiation.

- Cultural and economic values may change over time. Today, the presence of residual contamination generally reduces property values. In the future, limited land availability or concerns over urban sprawl could increase the relative value of property with low levels of residual contamination.

- Changes in on-site plant and animal communities may affect the protectiveness of existing long-term stewardship strategies (e.g., resident species may be listed as endangered or threatened and thus may be subject to special protection).

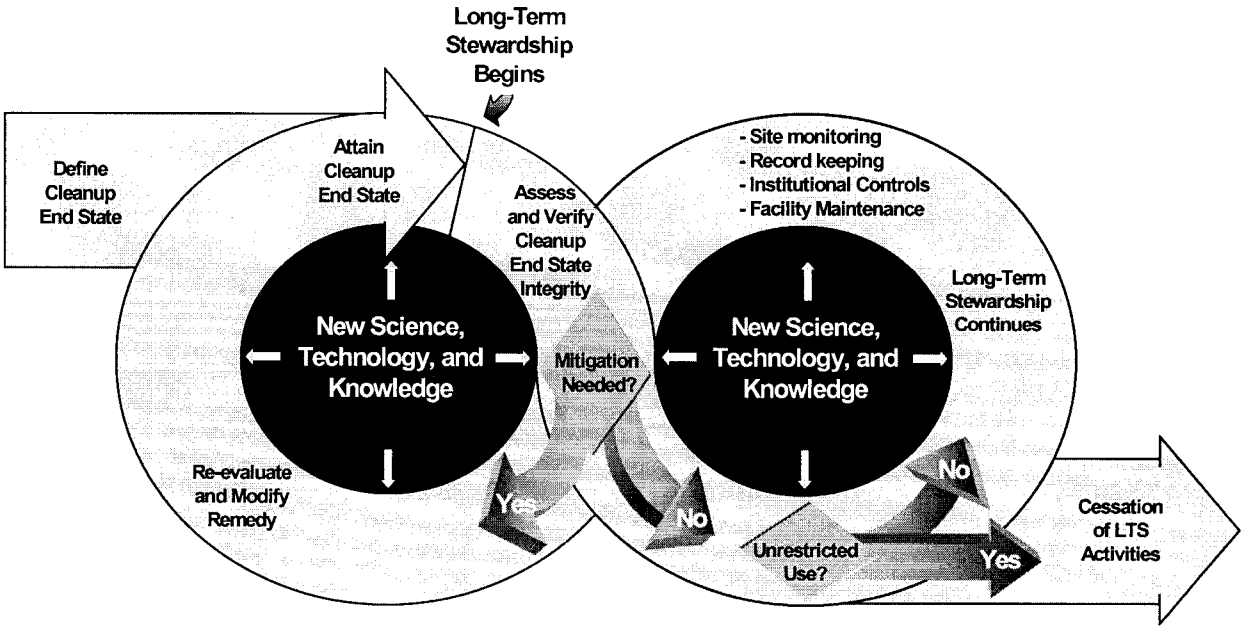
- The physical integrity or effectiveness of markers or other physical controls may change.

10.2.2 Incorporating Science and Technology Changes into Long-term Stewardship Strategies

Site stewards may benefit by using advances in science and technology to reduce costs and risks associated with long-term stewardship activities and to identify more effective ways of managing residual hazards (Exhibit 10-3). Research will be useful for a variety of technical issues (see Section 4.2.4) as well as in the social sciences (e.g., for the organizational and human performance aspects of long-term stewardship).[126] The potential benefits from advances in science and technology are available only if they are recognized and incorporated into long-term stewardship. The results of research applied to other areas may be applicable to long-term stewardship, but without a mechanism to identify and prioritize technology needs, potential improvements in the ability to meet long-term stewardship needs may be overlooked.

[126] *Long-term Institutional Management of U.S. Department of Energy Legacy Waste Sites*. National Academy of Sciences, National Research Council, August 2000, page 99.

Exhibit 10-3. The Dynamic Nature of Long-term Stewardship



Changing knowledge and technology will affect cleanup goals and strategies and long-term stewardship activities. Site stewards will benefit from re-evaluating existing end states and monitoring/mitigation strategies in response to changing knowledge and technology.

DOE has begun planning to identify new science and technology needs, initiate efforts to meet these needs, and develop the capability to react to scientific advances (see Chapter 4). The directive for DOE to develop a performance assessment (PA) and composite analysis (CA) for low-level waste disposal facilities (see Chapter 5)[127] may provide a starting point for developing a process and strategy for incorporating science and technology changes into long-term stewardship. Limited by imperfect knowledge and understanding of controlling phenomena, as well as the inability to foresee future events, the PA and CA results may be very uncertain. Therefore, the PA/CA process includes a sensitivity analysis that identifies the parameters contributing most to the long-term risk posed by the facility. These results can be used to focus research and development (R&D) efforts on those areas that would result in the greatest reduction of risk and/or uncertainty. DOE also is directed to continually update the PA and CA as new information becomes available. This provides a means for incorporating R&D results into the PA and CA and for identifying new R&D needs.

The PA/CA model approach could be applied to long-term stewardship. Site stewards will be limited by imperfect knowledge and understanding of the long-term risks associated with a site and the phenomena controlling these risks. PAs incorporating sensitivity/uncertainty analysis could identify the uncertainties that have the greatest potential for prolonging the duration of the risk or masking the true risk associated with a residual hazard. Given those characteristics, it would be possible to establish priorities for R&D to address long-term stewardship needs. Continually updating the basis for the site long-term stewardship strategy as new information becomes available would provide a means for incorporating new R&D results into long-term stewardship.

[127]Pursuant to DOE Order 435.1 *Radioactive Waste Management.*

List of Acronyms

AEA: Atomic Energy Act

BLM: Bureau of Land Management

BOR: Bureau of Reclamation

BRAC: Base Realignment and Closure

CERCLA: Comprehensive Environmental Response Compensation and Liability Act

CFR: Code of Federal Regulations

CSM: Conceptual Site Model

D&D: Decontamination and Decommissioning

DOE: Department of Energy

ECES: Environmental Cost Element Structure

EH: Environment, Safety and Health

EM: Environmental Management

EPA: Environmental Protection Agency

FOSL: Finding of Suitability of Lease

FOST: Finding of Suitability of Transfer

GJO: Grand Junction Office

GSA: General Services Administration

INEEL: Idaho National Engineering and Environmental Laboratory

LCAM: Life Cycle Asset Management

NDAA: National Defense Authorization Act

NARA: National Archives and Records Administration

NEPA: National Environmental Policy Act

NFWF: National Fish and Wildlife Foundation

NNSA: National Nuclear Security Agency

NPL: National Priorities List

NRC: Nuclear Regulatory Commission

NWPA: Nuclear Waste Policy Act

OMB: Office of Management and Budget

PBS: Project Baseline Summary

PSO: Principal Secretarial Office

RCRA: Resource Conservation and Recovery Act

UMTRCA: Uranium Mill Tailings Radiation Control Act

WIPP: Waste Isolation Pilot Plant

WM PEIS: Waste Management Programmatic Environmental Impact Statement

Glossary

Atomic Energy Act of 1954, as amended (AEA), 42 U.S.C. 2011 et seq.: The federal statute that is the primary source of NRC and DOE regulatory authority.

Baseline: A quantitative expression of planned costs, schedule, and technical needs for a defined project. Baselines should include criteria to serve as a standard for measuring the status of resources and the progress of a project.

Cleanup: The 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. This function encompasses a wide range of activities, such as stabilizing contaminated soil; treating groundwater; decommissioning process buildings, nuclear reactors, chemical separations plants, and many other facilities; and exhuming sludge and buried drums of waste. The term "remediation" is often used synonymously with cleanup.

Code of Federal Regulations (CFR): A document containing the regulations of federal departments and agencies.

Composite Analysis (CA): An analysis that accounts for not only the radioactivity in the disposal facility, but all other sources of radioactivity at the site that could contribute to an overall exposure should a failure occur.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Public Law 96-510, 42 U.S.C. 9601 et seq.: 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.

Conceptual Site Model (CSM): A set of qualitative assumptions used to describe a system or subsystem for a given purpose. CSMs are used during cleanup actions to depict the relationship between existing hazards, environmental transport mechanisms, exposure pathways, and ultimate human and ecological receptors. CSMs can also be used to distinguish between known and unknown site conditions (e.g., the existence of fractured bedrock or preferential pathways for groundwater flow).

Contingency Plan: Preparations for unexpected or unwanted circumstances (e.g., engineered control failures, environmental change).

Cultural Resources: Include artifacts and sites dating to the prehistoric, historic, and ethnohistoric periods that are currently located on the ground or buried beneath it; standing structures that are over 50 years of age or are important because they represent a major historical theme or era; cultural and natural places, select natural resources, and sacred objects that have importance for Native Americans and other ethnic groups; and American folklife traditions and arts. Many cultural resources are protected by federal laws and regulations, including the American Antiquities Preservation Act, 16 USC 431 et seq.; the Archeological Resources Protection Act, 16 USC 470a.; Executive Order 11593, Protection and Enhancement of the Cultural Environment; Executive Order 13007, Indian Sacred Sites; the National Historic Preservation Act, 16 USC 470 et seq.; and the National Historic Landmarks Program, 36 CFR Part 65.

Decommissioning: The process of removing a facility from operation followed by decontamination, entombment, dismantlement, or conversion to another use.

Disposition: Reuse, recycling, sale, transfer, storage, treatment, or disposal.

DOE Orders: Internal directives of the DOE that establish policy and procedures, including those for compliance with applicable laws. DOE Orders are established by DOE under the authority of the AEA and are not enforceable by external parties (e.g., regulators).

End State: The physical state of a site after agreed upon remediation activities have been completed.

Engineered Control: Includes radioactive, hazardous, and sanitary landfills; vaults; repositories; in-situ stabilization; caps on residual contamination; or other man-made controls designed to isolate or contain waste or materials.

Environmental Contamination: The release into the environment of radioactive, hazardous, or toxic materials.

Environmental Justice, Executive Order 12898: The fair treatment of people of all races, cultures, incomes, and educational levels with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment implies that no population of people should be subject to disproportionate negative environmental impacts of pollution or environmental hazards. The methodology for addressing environmental justice is described in Section 9.4.

Environmental Management (EM): An Office of DOE that was 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.

Exposure Pathway: The course a chemical or physical agent takes from the source to the exposed organism; describes a unique mechanism by which an individual or population can become exposed to chemical or physical agents at or originating from a release site. Each exposure pathway includes a source or a release from a source, an exposure point, and an exposure route.

Half-life: The time it takes for one-half of any given number of unstable atoms to decay to another nuclear form. Each isotope has its own characteristic half-life. Half-lives range from millionths of a second to billions of years.

Hazards: Materials or conditions that have the potential to cause adverse effects to health, safety, or the environment.

Hazardous Waste: A category of waste regulated under the Resource Conservation and Recovery Act (RCRA, 42 U.S.C. 6901 et seq.). To be considered hazardous, a waste must be solid waste under RCRA and must exhibit at least one of four characteristics described in 40 CFR Part 261.20 through 40 CFR Part 261.24 (i.e., ignitability, corrosivity, reactivity, or toxicity) or be specifically listed by the Environmental Protection Agency in 40 CFR Part 261.31 through 40 CFR Part 261.33. Source, special nuclear, or by-product materials as defined by the Atomic Energy Act are not hazardous waste because they are not defined as solid waste under RCRA.

High-Level Waste (HLW): Highly radioactive waste material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid materials 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 need permanent isolation.

In-situ: In its natural position or place.

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. Examples of institutional controls are presented in Section 5.1.

Ionizing Radiation: Any radiation capable of displacing electrons from an atom or molecule, thereby producing ions.

Isotopes: Any of two or more variations of an element in which the nuclei have the same number of protons (i.e., the same atomic number) but different number of neutrons so that their atomic masses differ. Isotopes of a single element possess almost identical chemical properties, but often different physical properties (e.g., carbon-12 and carbon-13 are stable, carbon-14 is radioactive).

Intergenerational Equity: A concept that emphasizes the importance of considering future impacts and consequences when making decisions; likewise, future generations should not be unnecessarily or disproportionately burdened by current-day decisions.

Land Use Control Assurance Plans (LUCAP): A written installation-wide plan that sets out the procedure to assure land use controls remain effective over the long-term for all areas at the particular installation where they are needed.

Life-Cycle Cost Estimate: All the anticipated costs associated with the project or program alternative through its life. This includes costs from pre-operations through operations and post-operations stewardship.

Long-term Stewardship: 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 includes, *inter alia*, land-use controls, monitoring, maintenance, and information management

Low-Level Waste: Radioactive waste that is not spent fuel, high-level waste, transuranic waste, byproduct material (as defined in section 11e.(2) of the Atomic Energy Act of 1954), or naturally occurring radioactive material.

Metadata: Refers to the content, quality, condition, and other characteristics of data, particularly for electronic formats. Metadata (and indexing) also provide important contextual information, such as where and when data were collected, quality assurance protocols, and uncertainties in the data, which is necessary for interpreting and using information.

National Environmental Policy Act (NEPA), 42 U.S.C. 4321 et seq: A federal law, enacted in 1970, that requires the federal government to consider the environmental impacts of, and alternatives to, major proposed actions that may significantly affect the quality of the human environment in the government's decision-making processes.

Natural Attenuation: A process that reduces the risk of hazards through three possible mechanisms: 1) transform contaminants to a less toxic form through destructive processes (e.g., biodegradation, radioactive decay); 2) reduce potential exposure levels by lowering concentration levels (e.g., dilution, dispersion); or 3) reduce contaminant mobility and bio-availability by sorption to the soil or rock matrix.

Natural Resources: Include, but are not limited to, biological resources (fish and wildlife), threatened and endangered species, groundwater, water rights, mineral rights, timber, and wetlands. Natural resources are protected by Congressional legislation, including the Clean Water Act, 33 U.S.C. 1251 et seq.; Endangered Species Act, 16 U.S.C. 1531 et seq.; Executive Order 11990, Wetlands Protection; the Fish and Wildlife Conservation Act, 16 U.S.C. 2901 et seq.; the National Environmental Policy Act, 42 U.S.C. 4231; and the Safe Drinking Water Act, 42 U.S.C. 300f et seq.

Performance Assessment (PA): An analysis that predicts the behavior of a system or system component under a given set of conditions.

Programmatic Environmental Impact Statement (PEIS): An environmental impact statement associated with a programmatic decision (e.g., regional vs. local waste disposal facilities) rather than a site-specific decision. The PEIS referred to in the *Long-term Stewardship Study* is the DOE is the Final Waste Management Programmatic Environmental Impact Statement (DOE/EIS-200, May 1997).

Project Baseline Summary (PBS): A management tool used for planning, budgeting, and evaluation that summarizes information on scope, schedule, cost, risk, technical approach, end state, regulatory drivers, safety and health, and performance metrics for each EM program project.

Principal Secretarial Office: A program reporting to the Secretary of Energy. Includes over 25 offices, including the Office of Environmental Management, Office of Defense Programs, Office of Environment, Safety, and Health, and Office of Science.

Radioactivity: The spontaneous transformation of unstable atomic nuclei, usually accompanied by the emission of ionizing radiation (decay).

Radionuclide or Radiosotope: An unstable isotope that undergoes spontaneous transformation, emitting radiation.

Real Property: Includes land and structures on the land such as buildings, mission-related infrastructure, waste disposal facilities, and other waste management units. For the purpose of long-term stewardship, real property also includes groundwater, surface water, natural resources, and cultural resources; however, rights to water and mineral resources may be managed differently than surface property rights.

Receptor: Any human or other living organism that could be exposed to and/or threatened by hazardous or toxic contaminants.

Record of Decision (ROD): A public document that records the final decision(s) concerning a proposed agency action. RODs may be prepared in accordance with requirements of the Council on Environmental Quality NEPA regulations (40 CFR Part 1505.2) or pursuant to CERCLA and the National Contingency Plan. A NEPA ROD identifies the environmentally preferable alternative(s), factors balanced by the agency in making the decision, whether all practicable means to avoid or minimize environmental harm have been adopted, and, if not, why they were not. A CERCLA ROD is a public document that records a final decision in a remedial action process (e.g., selection of a remedial action).

Remedy Monitoring Plan (RMP): A plan that is used to identify the objectives, schedules, information, procedures, technologies, necessary personnel, etc., to ensure the continued effectiveness of a remedy. RMPs can include evaluation of the compliance of the remedy with applicable standards; continued performance of the design, operation, and maintenance of the remedy; and continued maintenance of the land use upon which the remedy selection was based. RMPs are established as part of remedy decision documents.

Resource Management Plan: A management strategy for the conservation of biological (e.g., fish, wildlife, plants) or cultural (e.g., historically significant buildings, sites, objects) resources. Its primary purpose is to provide DOE and its contractors with a consistent approach to protect resources and to monitor, assess, and mitigate impacts from site development, cleanup or restoration activities.

Risk: Risk requires the presence of a hazard, but adds to the hazard the probability that the potential harm of undesirable consequences will be realized upon exposure of a receptor to the hazard. Risk is expressed (qualitatively or quantitatively) in terms of the likelihood that an adverse effect will occur as a result of the existence of the hazard. The existence of a hazard does not automatically imply the existence of a risk since risk requires a pathway (to a receptor) for an exposure to occur.

Spent Nuclear Fuel: Fuel that has been withdrawn from a nuclear reactor following irradiation, the constituent elements of which have not been chemically separated. Spent nuclear fuel also includes uranium/neptunium target materials, blanket assemblies, pieces of fuel, and debris.

Transuranic Elements: All elements beyond uranium on the periodic table, including neptunium, plutonium, americium, and curium.

Unrestricted Use: Land use status upon which there is no restriction on the types of activities that may occur, including permanent residential use.

Uranium Mill Tailings: Tailings or waste produced by the extraction or concentration of uranium or thorium from ore for the source material content. Mill tailings are one type of byproduct material, and typically contain about 85 percent of the radioactivity present in unprocessed ore.

Uranium Mill Tailings Radiation Control Act of 1978, 42 U.S.C. 7901 et seq.: The Act that directed the Department of Energy to provide for stabilization and control of the uranium mill tailings from inactive sites in a safe and environmentally sound manner to minimize radiation health hazards to the public. It authorized the Department to undertake remedial actions at 24 designated inactive uranium processing sites and at an estimated 5,048 vicinity properties.

Appendix A: History of Long-term Stewardship and Events Leading to the *Final Study*

History of Long-term Stewardship as an Issue for DOE

DOE first acknowledged in the 1995 and 1996 Baseline Environmental Management Reports that no feasible remediation strategy was available for certain hazards at DOE sites. The Baseline Reports suggested that site cleanup strategies and remedial endpoints for some sites were closer to "brownfields" than "greenfields." The report *Paths to Closure* also acknowledged that DOE has no remediation plans for certain types of residual hazards (e.g., entombment vs. demolition of many facilities) and concluded that long-term stewardship would therefore be needed at DOE sites to manage residual hazards. The report *From Cleanup to Stewardship,* published in October 1999, began to examine national policy issues, challenges, and barriers associated with the transition from cleanup to long-term stewardship and provided a summary of the nature and extent of DOE's long-term stewardship responsibilities. Advisory groups and non-DOE entities that have also identified long-term stewardship issues and/or provided recommendations to DOE include individual state, Tribal, and local governments, Site Specific Advisory Boards, the State and Tribal Governments Working Group (STGWG), the National Association of Attorneys General, and the Environmental Management Advisory Board (EMAB).

The Waste Management Programmatic Environmental Impact Study (WM PEIS) Settlement Agreement

In 1998, the Natural Resources Defense Council and 38 other plaintiffs reached a Settlement Agreement with DOE (*Joint Stipulation: Natural Resources Defense Council et. al. v. Richardson et. al. Civ. No. 97-963 (SS) December 14, 1998*). The text of the Settlement Agreement can be found at *http://lts.apps.em.doe.gov*.

The WM PEIS Settlement Agreement contains three elements:

1. DOE was required to establish a Central Internet Database of information on waste, contaminated media (e.g., water, soil, sediment), facilities, and waste transfers. Data in the Central Internet Database is limited to available site data, and the Settlement Agreement required public participation in its development.

2. DOE was required to prepare a Study on long-term stewardship (Exhibit A-1). The Settlement Agreement requires DOE to conduct a scoping process for the *Draft Study* in accordance with Council on Environmental Quality (CEQ) regulations and to conduct the public review process for the *Final Study* in accordance with DOE NEPA regulations.

Exhibit A-1. Language from WM PEIS Settlement Agreement Pertaining to Long-term Stewardship Study

> "DOE will prepare a study on its long-term stewardship activities. By "long-term stewardship," DOE refers to 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. While DOE's study on long-term stewardship will not be a NEPA document or its functional equivalent, DOE will, nevertheless, follow the procedures set forth in the regulations of the President's Council on Environmental Quality (CEQ) for public scoping, 40 C.F.R. § 1501.7(a)(1)-(2), and the procedures set forth in DOE's NEPA regulations for public review, of environmental impact statements (EIS's), 10 CFR § 1021.313, except that (a) DOE will not transmit the study, in draft form, to EPA, and DOE (not EPA) will publish a Notice of Availability in the Federal Register, as set forth in 10 C.F.R. § 1021.313(a); and (b) DOE will not include any Statement of Findings as set forth in 10 C.F.R. § 1021.313(c). In the study, DOE will discuss, as appropriate, alternative approaches to long-term stewardship and the environmental consequences associated with those alternative approaches."

3. DOE was required to allocate $6.25 million in funds for citizen monitoring and technical assessment for eligible organizations to procure technical expertise to review DOE Environmental Management activities. Any nonprofit organization, non-governmental organization, or Tribal organization group is eligible for funding. RESOLVE was selected as the "Administering Organization" for the funding.

Relationship Between the Background Document, the *Final Study*, and the National Defense Authorization Act (NDAA) *Report to Congress*

The Background Document *From Cleanup to Stewardship* provides background information for the long-term stewardship study scoping process required by the WM PEIS Settlement Agreement. The Background Document provides an overall summary of the nature and extent of current and anticipated long-term stewardship needs at all DOE sites. The Background Document also summarizes available information about the number and location of sites that will likely require long-term stewardship by DOE, the type of long-term stewardship activities likely to be required, and the DOE sites at which long-term stewardship activities are currently being conducted. DOE used this information to identify sites where contaminated facilities, water, soil, and/or engineered units would likely remain after cleanup is complete, and to estimate the scope of long-term stewardship activities needed.

DOE prepared the *Final Study* pursuant to the terms of the Settlement Agreement, to meet the commitment made in the Background Document, and to respond to insights provided by the public during the public scoping process. The *Final Study* is not directly related to the other two elements of the Settlement Agreement. The funding allocated by DOE for citizen monitoring and technical assessment was not used to support preparation of the *Draft Study* or the *Final Study*. The *Final Study* also was prepared independently of the Central Internet Database, which contains site-specific information concerning DOE facilities. The *Final Study* does not analyze site-specific issues, but analyzes the national issues that DOE needs to address in planning for and conducting long-term stewardship activities. The *Final Study* promotes exchange of long-

term stewardship information between DOE and non-DOE agencies and organizations, including Tribal nations, state and local governments, and private citizens. The *Final Study* will inform future DOE site and national programmatic decision processes affected by long-term stewardship issues.

The *Report to Congress on Long-term Stewardship*, published in January 2001, is the third important building block for developing DOE's long-term stewardship program. While the *Final Study* and Background document address long-term stewardship issues on a broad, complex-wide scale, the *Report to Congress* addresses DOE's long-term stewardship requirements on a more site-specific, detailed scale. The *Report to Congress*:

- Identifies sites or portions of sites where environmental restoration, waste disposal, and facility stabilization will be completed by 2006 without unrestricted land use.

- Includes sufficient detail to undertake the necessary management and stewardship responsibilities, including cost, scope, and schedule.

Appendix B: How DOE Identified the Scope for the *Draft Study*

How DOE Selected the Scope and Issues Presented in the *Draft Study*

The scope of and issues presented in the *Draft Study* were based on the comments received through the scoping process, ongoing work on long-term stewardship being conducted by DOE and non-DOE organizations, and the requirements of the WM PEIS Settlement Agreement. DOE headquarters and field organizations worked with each other, state and federal regulatory agencies, and national and local stakeholder organizations to identify and address long-term stewardship issues. Long-term stewardship issues were identified by DOE as part of the Department's cleanup, economic re-development, and facility disposition programs. DOE identified and is addressing long-term stewardship issues and statutory requirements through the development of complex-wide and site-specific guidance, site-specific agreements, and site-specific and organization-specific programs. Examples of these documents are discussed in this Appendix and referenced throughout the *Final Study*. The long-term stewardship issues that DOE identified and is addressing in these documents provides a basis for the scope of and the specific issues presented in the *Draft Study*.

The scoping comments received from DOE stakeholder organizations and the public raised a number of broad long-term stewardship issues, including complex-wide and site-specific planning, long-term provision of engineered and institutional controls, residual hazard management, alternative long-term funding mechanisms, life-cycle cost estimation, information management, natural resources management, cultural resources management, and compliance oversight. Scoping commenters also specifically requested that DOE consider recommendations on long-term stewardship issues that have been developed by advisory groups and non-DOE organizations. DOE integrated the long-term stewardship issues identified in the scoping comments with the issues that were identified through DOE's ongoing long-term stewardship work in developing the scope of and specific issues presented in the *Draft Study*. Each chapter of the *Draft Study* focused on a single broad issue of long-term stewardship.

The Scoping Process and How Scoping Comments Were Incorporated into the *Draft Study*

DOE published a Notice of Intent (NOI) to prepare a study on long-term stewardship in the October 6, 1999 Federal Register (64 FR 54279). The NOI described the goals of the study and development process for the study. The NOI also described the study scoping process and established the formal period during which DOE would accept scoping comments. Initially, the formal scoping period for the study was October 6, 1999 to January 4, 2000. In response to public comment, DOE extended the scoping period to February 3, 2000. The notice of extension for the scoping period was published in the December 29, 1999 Federal Register (64 FR 73027). DOE developed a background document for the *Study*: *From Cleanup to Stewardship, A Companion Report to `Paths to Closure' and Background Information to Support the Scoping Process Required for the 1999 PEIS Settlement Study*. Notification of the publication of the Background Document was included in the Notice of Intent.

In accordance with the terms of the settlement agreement, DOE followed the President's Council on Environmental Quality (CEQ) procedures for public scoping, 40 CFR 1501.7(a)(1)-(2), even though the *Study* is not a NEPA document or its functional equivalent. The public scoping process provided interested parties with opportunities to learn about the goals of the *Study* and review background information related to the *Study*. The public scoping process also provided DOE with input about the topics and issues that should be included in the *Draft Study*, within the general parameters established by the Settlement Agreement.

DOE conducted a public scoping workshop October 28, 1999 in Oak Ridge, TN, to provide an opportunity for information exchange and constructive discussions between DOE and interested parties on the types of issues DOE should examine in the *Study*. The public scoping workshop was scheduled to coincide with the 1999 annual Site-Specific Advisory Board (SSAB) National Stewardship Workshop held October 25-27, 1999. A public notice for the public scoping workshop was published in the October 7, 1999 Federal Register (64 FR 54624). At the public workshop, DOE staff discussed the *Study* process and objectives, described how public input will be incorporated into the *Study*, and addressed questions. The facilitated workshop provided the means for interaction among the participants so as to promote a thorough, open discussion of long-term stewardship issues.

In addition to the public workshop, DOE pursued other opportunities to inform the public about the *Study* and scoping process throughout the scoping period. DOE distributed the Background Document and other relevant information to existing forums and entities, including the Environmental Management Advisory Board (EMAB), Site-Specific Advisory Boards (SSABs), State and Tribal Governments Working Group (STGWG), and other stakeholder organizations. DOE also conducted public presentations concerning the *Draft Study* at many locations throughout U.S. (see Exhibit B-1). DOE published the Background Document and other relevant information on the long-term stewardship Internet Web Site (*http://lts.apps.em.doe.gov/lts*). DOE solicited scoping comments through the Internet Web Site and by postal mail and fax to the DOE Study Project Manager.

DOE received scoping comments from 18 commenters (Exhibit B-2). DOE reviewed and considered all scoping comments and other suggestions. These comments and suggestions were integrated with ongoing DOE work to determine the scope of and issues that were presented in the *Draft Study*. DOE made a concerted effort to address every substantive comment received. The *Draft Study* did not address site-specific issues except as examples in the context of presenting national issues. Therefore, site-specific scoping comments were incorporated into the *Draft Study* scope only to the extent feasible in the context of national long-term stewardship issues. Comments that were received by DOE after the closing date of the formal scoping process (February 3, 2000) were considered in the *Draft Study* to the extent practicable considering schedule constraints. Exhibit B-2 provides a summary of each scoping comment and where the comment was addressed in the *Study* (or whether DOE considered the comment to be out of scope for the *Study*). The *Study* also identifies the scoping comments addressed in each chapter.

Exhibit B-1. Presentations by the Office of Long Term Stewardship

Date	Organization	Location
November 16, 1999	National Association of Attorneys General	Oak Ridge, TN
November 17, 1999	Idaho National Engineering and Environmental Laboratory Citizens Advisory Board	Idaho Falls, ID
December 8, 1999	Environmental Management Advisory Board	Washington, DC
December 14, 1999	Environmental Management Advisory Board	Washington, DC
January 4, 2000	Nevada Test Site Citizens Advisory Board	Las Vegas, NV
January 5, 2000	Community Advisory Board for Nevada Test Site – Site Programs	Las Vegas, NV
January 15, 2000	Fernald Citizens Advisory Board	Harrison, OH
January 19, 2000	LLRW Decisionmakers' Forum & Technical Symposium	Amelia Island, FL
January 25, 2000	Savannah River Site Citizens Advisory Board	Aiken, SC
February 2, 2000	Office of Science and Technology Focus Area Meeting	Germantown, MD
February 28, 2000	Long-term Stewardship Workshop Waste Management 2000 Symposium	Tucson, AZ
March 9, 2000	Energy Communities Alliance	Washington, DC
April 7, 2000	Interstate Technology Regulatory Coordination Group	Arlington, VA
April 18, 2000	Applied Research, Development & Deployment Cleanup Technology Colloquium	Scottsdale, AZ
May 24, 2000	Environmental Quality Portfolio Analysis	Televideo Conference

Exhibit B-2. Scoping Comments

Commenter, Date Received, Summary of Scoping Comments, Where Addressed in *Study*
1. State Attorney General Office, January 4, 2000 • Suggests that DOE evaluate the failure of institutional controls and then recommend methods to prevent/minimize such failures in the future. (Chapter 5) • Asks DOE how it intends to provide long-term protection for UMTRCA "vicinity properties" in cases where owners did not allow property cleanup. (out of scope – site specific issue) • Proposes that DOE dedicate part of each former DOE facility as a historic site or museum for long-term information management. (Chapter 7) • Requests that DOE respond to the STGWG recommendations in "Closure for the Seventh Generation." (STGWG comments included in boxes entitled "Applicable Scoping Comments and Issues" in Chapters 2-10) • Asks DOE to describe funding approaches available for long-term assurance of adequate oversight without relying on Congressional appropriations. (Chapter 2, Chapter 8) • Recommends that DOE evaluate the pros and cons of different federal agencies performing long-term stewardship responsibilities, esp. at sites with significant natural resources/historic preservation values. (Chapter 4) • Suggests that DOE consider the issue of cost of stewardship activities when taking a remedial action that may have long-term stewardship implications and provide for redundant/overlapping oversight mechanisms to ensure that such long-term stewardship/remedial action decisions are appropriately carried out. (Chapter 3)
2. Private citizen, January 4, 2000 • Suggests that each major site have its own detailed long-term stewardship plan that must be approved/reviewed by EPA and the State. (Chapter 4) • Recommends that the *Study* include discussion on the approaches to long-term stewardship and land use control used by other federal agencies and other nations. (Chapter 4, Chapter 6) • The *Study* should assess the relative roles of active vs. passive controls with guidance on determining the length of time for active controls. (Chapter 5) • The *Study* should discuss approaches for preserving information about a site and its past activities and contamination history. (Chapter 2, Chapter 7)
3. Private citizen, January 4, 2000 • Provides alternative definitions of long-term stewardship. (Chapter 1) • Asks DOE to assess several natural resources damage and cleanup issues/decisions. (Chapter 9) • Recommends that the Study be conducted by those not previously involved with DOE, DOD, and National Labs because of possible bias, and asks that stakeholders and Tribes be involved fully in the *Study*. (out of scope – requirements for public involvement were specified in the Settlement Agreement) • Wants DOE to focus more on protecting the future and actual cleanup of sites rather than assessing the need for cleanup. (Chapter 2) • Asks that stewardship involve leaving a site in a better natural condition than when DOE started using the site. (out of scope – cleanup decision)

Exhibit B-2 (continued)

Commenter, Date Received, Summary of Scoping Comments, Where Addressed in *Study*
4. Private citizen, January 4, 2000 • Wants DOE to create a single headquarters office with cross-cutting authority to oversee long-term stewardship activities and develop rules and approve individual site plans. (Chapter 4) • Recommends that long-term stewardship decisions be transparent by involving the public and that public involvement be a key element in the planning and implementation of stewardship programs. (Chapter 2, Chapter 9) • Suggests that DOE use life-cycle accounting to assess the complete costs, present and future, associated with cleanup decisions. (Chapter 8) • Asks DOE to seek alternative funding for long-term stewardship in the form of trust funds or endowments, fee-generating scheme etc. since Congressional appropriations are uncertain. (Chapter 8) • Emphasizes that DOE needs to institute a reliable documentation update/revision system to ensure that crucial data on each site is preserved. (Chapter 7) • Acknowledges that DOE may not remain the steward and asks that provisions be made for another entity to take over as steward. (Chapter 4, Chapter 10) • Believes that DOE should evaluate the reliability of institutional controls; DOE should adopt redundant/overlapping functions to ensure efficacy of control measures; and every long-term stewardship plan should have an emergency response component to address failure of such controls. (Chapter 5) • Long-term stewardship plans should be flexible and take into account future advances in technology, science, changes in cultural values and politics etc. and undergo revision via a democratic process. (Chapter 10) • Proposes that DOE continue R&D activities to minimize residual contamination and reduce future long-term stewardship costs. (Chapter 4)
5. Citizen group, January 4, 2000 No relevant suggestions for national study. Requested EM briefing at Spokane Indian Reservation and/or Spokane. Requested copy of *Background Document*
6. State regulatory agency, December 15, 1999 • Wants DOE to explain why residual contamination will remain at some sites. (out of scope – cleanup decision) • Suggests that the *Study* examine alternative internal organizational/program strategies and financial mechanisms that will be needed to maintain long-term stewardship programs. (Chapter 8, Chapter 10) • Would like the *Study* to examine DOE's existing legislative authorities for maintaining long-term institutional control over contaminated sites and the alternatives for sharing regulatory responsibilities with other federal agencies. (Chapter 3, Chapter 4)
7. State regulatory agency, January 4, 2000 • Requests a more uniform definition of long-term surveillance and maintenance. (Chapter 5) • Recommends that the Study address the need for consistent policy and guidance at the Secretary of Energy level for long-term stewardship across all departmental programs. (Chapter 4) • Asks that the *Study* discuss contingency/emergency plans being included in long-term stewardship plans. (Chapter 5) • The state expects to work with DOE on the NDAA Report and wants the *Study* to be consistent with the NDAA Report to Congress. (Chapter 1) • Emphasizes that the *Study* must identify milestones for activities leading to a final action or decision by DOE on its plan for long-term stewardship. (Chapter 4)

Exhibit B-2 (continued)

Commenter, Date Received, Summary of Scoping Comments, Where Addressed in *Study*
8. DOE Advisory Group, January 4, 2000 • Addresses DOE's responses (5-24-99) to earlier recommendations. (out of scope – not relevant to study specifics) • Emphasizes that DOE retains liability in perpetuity for all contamination at its sites. (Chapter 6) • Expresses concern over DOE's reliance/dependency on the use of institutional controls for extended periods. (Chapter 5) • Asks DOE how it intends to assess comprehensively all elements in determining cleanup levels and future land uses. (Chapter 3)
9. Citizen group, January 6, 2000 No scoping comments provided. General comments are provided urging DOE to completely decommission facilities that are no longer needed. Supports projects like the AMWTF at INEEL.
10. State regulatory agency, January 10, 2000 • Wants DOE to establish consistent policy and guidance for stewardship across all DOE programs. (Chapter 4) • Also wants DOE to ensure programmatic effectiveness of long-term institutional controls and mechanisms for restricting future land use. (Chapter 5, Chapter 6)
11. Environmental group, January 12, 2000 No scoping comments provided. Requests DOE to extend the scoping period for 30 days, or until February 3, 2000.
12. Citizen Advisory Group, January 12, 2000 • Requests DOE to address the issues raised in the two-volume document, "The Oak Ridge Reservation Stakeholder Report on Stewardship."
13. State regulatory agency, January 26, 2000 • States that the state is directly affected by decisions concerning the cleanup of the Hanford site. (out of scope – cleanup decision) • Is disappointed at the lack of public involvement in developing the *Study* – only two public meetings, both of which were held on the eastern half of U.S. (Chapter 1, Appendix B) • Concerned that stewardship will substitute actual cleanup – does not agree that leaving contamination in place under long-term stewardship is a primary cleanup strategy. Long-term stewardship should be instituted only *after* the necessary cleanup action to remove maximum amount of contamination has been undertaken. (Chapter 3) • Skeptical of the viability of long-term institutional controls citing the historical evidence of transient nature of institutions and commitments. (Chapter 5)
14. Environmental group, January 31, 2000 • Concerned that long-term stewardship will be used an excuse to avoid cleanup of sites. (Chapter 3, Chapter 10) • Wants more emphasis on groundwater monitoring. (Chapter 5) • Suggests conducting health studies alongside monitoring of waste and caps etc. (Chapter 4) • Questions who will be overseeing, especially in multi-program site cases – does not trust Defense Programs to conduct long-term stewardship effectively. (Chapter 4, Chapter 6)

Exhibit B-2 (continued)

Commenter, Date Received, Summary of Scoping Comments, Where Addressed in *Study*
15. Private company, February 2, 2000 • Advises that DOE-EM's long-term stewardship obligations be fully addressed in conjunction with all new DOE projects and missions. (Chapter 6) • States that DOE should consider the use of commercial facilities to manage its waste instead of using on-site DOE facilities. Further adds that DOE should have addressed this option in its WMPEIS. (out of scope – cleanup decision) • Emphasizes that an institutional bias at DOE favors the development of new "on-site" DOE projects by traditional DOE contractors since this allows DOE to maintain and/or increase its current scope of work/mission. (out of scope – site-specific issue) • Believes that on-site waste treatment and disposal facilities increase DOE's long-term stewardship obligations. Believes that DOE's use of "off-site" commercial options for waste treatment and disposal as opposed to DOE's development of new "on-site" treatment and disposal facilities can reduce DOE's long-term stewardship obligations. (out of scope – cleanup decision)
16. Citizen Advisory Board, February 27, 2000 • Acknowledges that comments were submitted late but would still like them to be included/addressed in the *Study*. • Considers the scoping process to be limited since scoping meeting was held in Oak Ridge, TN and not conducted on a regional basis to allow residents near sites to participate. (Chapter 1, Appendix B) • Recommends that the *Study* carefully review, document, and provide recommendations on the transfer of liability for monitoring, surveillance, and cleanup for properties that are sold into the private sector or to other governmental entities. (Chapter 6) • Also suggests that the *Study* explicitly show how liability will be assigned in the event of the failure of a subsequent landholder to perform adequately (e.g., bankruptcy) so that public is guaranteed that a responsible steward is always identifiable. (Chapter 6) • Emphasizes that the *Study* should identify process(es) whereby owners and neighbors are made aware of, in perpetuity, the nature and extent of contamination and use restrictions and maintain corporate memory so that any attrition of personnel and changes in filing and computer systems do not result in loss of corporate memory. (Chapter 7) • Suggests that the *Study* provide that stewardship activities of DOE contractors be mandated by law. (Chapter 4) • The *Study* should explore the option of setting up funding for stewardship separately from other operational and programmatic funding for DOE contractors and supported by a source not subject to the annual appropriations process. (Chapter 8)

Exhibit B-2 (continued)

Commenter, Date Received, Summary of Scoping Comments, Where Addressed in *Study*
17. State regulatory agency, March 24, 2000 • Discusses an underground nuclear test area (UGTA) as an unique DOE former nuclear test site in the continental U.S. because of the uncontrolled pathways allowing radionuclides from the underground tests to enter the accessible marine environment. (out of scope – site-specific issue) • Comments focus on approaches that should prove helpful to DOE in carrying out its long-term stewardship responsibilities at such a site. (out of scope – site-specific issue) • Scope of contamination at DOE's UGTA sites should discuss the contaminated subsurface areas and marine waters around the site as media of special concern. (out of scope – site-specific issue) • Questions how DOE and its affiliates in the nuclear testing program will meet their joint long-term stewardship responsibility at the site and which federal entity will be assigned long-term stewardship responsibility -- DOD, DOE, USFWS? (general issues addressed, specific issues are site-specific) • States that past monitoring efforts for the region have been poor and deficient and suggests several types of monitoring plans that need to be included in a long-term stewardship plan. States that this is critical for building stakeholder trust and confidence from the native population in the region that depends on subsistence survival from the natural environment, e.g., fishing. (Chapter 9) • Suggests forming a joint long-term stewardship assessment group involving State, Tribal Governments, and other stakeholders to independently conduct long-term monitoring under a "trust" funding mechanism. (Chapter 8)
18. State regulatory agency, October 28, 1999 • DOE needs to provide adequate information to the public. (Chapter 7) • States that the boundaries of most sites include very contaminated areas and some clean areas; which should be accounted for separately. (Chapter 6) • States that DOE needs to recognize what areas need to be cleaned up, what has been cleaned up and is now in a long-term stewardship state. (Chapter 6) • States that DOE needs to identify what is expected to be cleaned up to pristine standards for unrestricted use and what can never be cleaned up completely with available technologies; identifying sites in this way will help DOE build a reliable program, identify research needs, and budget appropriately. (Chapter 3) • Suggests that long-term stewardship will inevitably fail; it's only a matter of when and where it will fail. Suggests that efforts can delay it or stretch it out, but not prevent failure. Recommends that DOE assume that long-term stewardship will fail, and the *Study* should consider this possibility. (Chapter 5) • Suggests that currently, long-term stewardship relies on several things going perfectly: perpetual funding, perpetual record-keeping, perfect monitoring and modeling, and effective containment. DOE should consider the consequences if these don't remain perfect, specifically with regard to health impacts, ecological impacts, economic disruption, and disproportionate effects of future exposures on certain segments of the population (manual laborers, low-income communities, etc.). (Chapter 5) • When starting new projects, DOE should be required to provide a technical plan and adequate funding to fully clean up any waste or contamination that would result from the project. (Chapter 6)

Exhibit B-2 (continued)

Commenter, Date Received, Summary of Scoping Comments, Where Addressed in *Study*
State and Tribal Working Group (STGWG), *Closure for the Seventh Generation*, February 1999 *Commenter number 1 requested that DOE respond to recommendations in the report "Closure for the Seventh Generation." The STGWG recommendations from that report are summarized here.* Goals of Long-term Stewardship • Any accepted long-term institutional control or stewardship program must ensure long-term protection of human health, the environment, and cultural resources. (Chapter 9) Long-term Stewardship Planning • The specifics concerning the goals of institutional controls, the types of controls required, the manner in which the controls will be implemented, and how the controls will be maintained should be evaluated for each alternative being considered in a feasibility study. (Chapter 3) • DOE should more fully explain and quantify the required long-term cost and funding commitment required for long-term institutional controls; should develop plans to ensure the availability of adequate funding for these controls; and should not consider decisions requiring these controls to be final until DOE can implement an acceptable stewardship program that includes an acceptable funding mechanism. (Chapter 8) • DOE should develop methods for accurately reflecting long-term institutional controls, monitoring, or maintenance commitments in decision documents or should identify any uncertainties related to these commitments. (Chapter 3) • DOE should establish mechanisms for the collection, retrieval, and storage of information needed for long-term stewardship and site historic preservation programs. (Chapter 7) • DOE should continue to work with regulators and stakeholders to develop an acceptable stewardship program. Each site should develop a stewardship plan that defines constraints, costs, and implementation mechanisms. (Chapter 4) • Stewardship planning and implementation should be an iterative process. DOE sites and headquarters should re-evaluate and revise stewardship plans and implementation on a routine basis to reflect decisions made and changing conditions. (Chapter 10) Long-term Stewardship Implementation • DOE should create a specific program office, not limited to the EM program, to manage stewardship responsibilities. (Chapter 4) • DOE should retain ownership and control of lands for which institutional controls are necessary unless adequate legal mechanisms and institutions exist to enforce such controls against future landowners. (Chapter 6) • Experience shows that implementing legislation facilitates maintaining long-term commitment of resources. DOE should continue to work with the states, tribes, and other stakeholders to explore the parameters of statutory long-term stewardship. (Chapter 4) • For new construction and new facilities, the closure and long-term commitments associated with the facility should be addressed in the initial approval decision. Provisions should be made for closure and post-closure funding for the facility. (Chapter 6). Public Education and Awareness • DOE needs to complete the final report, *Moving from Cleanup to Stewardship*, and distribute it for public comment as soon as possible. (out of scope – not related to *Study*)

At the public workshop, DOE presented a number of issues regarding long-term stewardship that had been raised during the past few years. The workshop participants identified a number of additional issues pertaining to long-term stewardship. The combined list of 27 issues was included in subsequent briefings used at the public presentations noted above. Exhibit B-3 lists these 27 issues and where they are addressed in the *Study* (including those considered out of scope).

Other Factors That Led to the Identification of Issues Presented in the *Draft Study*

DOE considered the ongoing work on long-term stewardship that is being conducted within DOE organizations to help determine the issues presented in the *Draft Study*. The Grand Junction Office, Oak Ridge Operations Office, Richland Operations Office, and other DOE organizations are already conducting long-term stewardship activities at sites or portions of sites for which cleanup has been completed, both in response to statutory requirements and to the conditions of negotiated site-specific agreements. The *FY 2000-2001 Idaho National Engineering and Environmental Laboratory Institutional Plan* prepared by the Idaho Operations Office describes INEEL's role as the lead laboratory for DOE's efforts to incorporate new science and technology into long-term stewardship. Long-term stewardship activities are also addressed in site-specific DOE documents, including the *1999 Long-Term Surveillance and Maintenance Report* prepared by the Grand Junction Office and the *WIPP Compliance Certification Application* prepared by the DOE National Transuranic Waste Program Office.

DOE Headquarters and Field Offices have also developed complex-wide and site-specific guidance documents and reports that address long-term stewardship issues. These include the *Cross-Cut Guidance on Environmental Requirements for DOE Real Property Transfers*, the DOE RCRA/CERCLA Information Bulletin *Planning and Implementing RCRA/CERCLA Closure and Post-Closure Care when Wastes Remain Onsite*, and *Facility Disposition Lessons Learned from the Mound Site Monograph*, prepared by the DOE Office of Environmental Policy and Assistance. DOE also reviewed other Environmental and Property Management Information Bulletins, DOE Site Profiles, Guidance Documents, and information developed by the DOE Stewardship Working Group to identify the specific issues to be included in the *Draft Study*.

DOE considered recommendations related to long-term stewardship developed by advisory groups, stakeholder organizations, and non-DOE entities, including EMAB, STGWG, the Oak Ridge Stewardship Working Group, the Environmental Law Institute, the Energy Communities Alliance, and Resources for the Future. These include the recommendations in the STGWG report *Closure for the Seventh Generation,* the EMAB *Report and Recommendations on Long-Term Stewardship*, and the *Oak Ridge Reservation Stakeholder Report on Stewardship*. Scoping comments specifically requested that DOE consider the recommendations in these stakeholder reports in developing the scope of the *Draft Study*.

DOE obtained site-specific and program-wide information from other federal agencies with long-term stewardship responsibilities. These include the Department of Defense Base Realignment and Closure (BRAC) program, the Bureau of Land Management, and the Bureau of Reclamation. DOE also reviewed EPA guidance documents concerning long-term stewardship, including guidance on the use of institutional controls as part of CERCLA remedies.

Exhibit B-3. The 27 Issues Noted During the Scoping Process

Issue	Where Addressed in *Study*
1. *Relationship of "Cleanup" Decision Process to Long-term Stewardship Needs* – how to better integrate consideration of long-term stewardship needs and requirements in waste management, facility decommissioning, and remedial action decision-making processes?	Chapter 3
2. *Development of Site-specific Long-term Stewardship Plans* – when are they needed; what should they include; how to coordinate development among sites; how to revise and update them?	Chapter 5
3. *Funding Mechanisms* – how much funding will be required; financial obligations of federal, state, and local governments; what will and will not be paid for; when are payments made and funds obligated; adequacy of the annual appropriation model for long-term stewardship?	Chapter 8
4. *Regulatory Drivers, Negotiated Agreements, and Legislative Barriers* – to what extent do existing regulatory requirements address long-term stewardship needs and requirements (are additional regulations needed?); how to better integrate consideration of long-term stewardship issues in planning processes (e.g., NEPA documents)?	Chapter 4
5. *Information Management* – what information will be required; how will it be preserved and made accessible; how should information be provided to federal, state, and local officials and to the general public; what entities will be responsible for information management?	Chapter 7
6. *Relationship of Facility Development Planning to Long-term Stewardship Needs* – how to better integrate consideration of long-term stewardship needs and implications in decisions to site, build, and operate a new facility?	Chapter 6
7. *Science and Technology Development* – how to ensure periodic re-examination of existing end states and long-term stewardship activities to apply new science and technology; how to focus science and technology development on long-term stewardship needs?	Chapter 4
8. *Institutional Controls* – appropriate entities (organizations, individuals) to ensure that long-term stewardship occurs; role of state and local governments at federal sites; long-term viability of existing institutional control mechanisms; variability among state and local laws and authorities?	Chapter 5
9. *Purpose of Long-term Stewardship* – maintaining status quo or reassess site condition and remedy?	Chapter 10
10. *Property Transfer Policies and Procedures* – what obligations and restrictions will convey to future site owners and tenants; what are the mechanisms by which property transfers from federal to non-federal (public or private) entities; role of the federal government after property transfers; variability among state and local property laws; criteria for deciding which property can be transferred?	Chapter 6
11. *Land Use/Natural Resources* – how to integrate on-site and off-site land use planning; how to balance preservation of site assets (e.g., natural or cultural resources, infrastructure) with long-term stewardship needs; how to meet treaty obligations with Tribal governments during cleanup and long-term stewardship?	Chapter 9

Exhibit B-3 (continued)

Issue	Where Addressed in *Study*
12. *Risk Management* – relationship between short-term risk reduction achieved by remedial actions vs. long-term risks during stewardship; potential conflicts between economic benefits of site redevelopment and risks to onsite workers/visitors; how to evaluate and manage risks over multiple generations?	Chapter 5
13. *Intergenerational Transfer* – what mechanisms and institutions are appropriate means to ensure transfer of long-term stewardship information and responsibility to future generations?	Chapter 10
14. *Stewardship Responsibilities at Non-EM Facilities with Continuing Operations and Multi-Purpose Sites* – what are the options for long-term stewardship responsibilities and funding at non-EM facilities and multi-purpose sites; how do we do long-term stewardship for these sites/facilities; how do you tie long-term stewardship into on-going production sites/facilities?	Chapter 4
15. *If the Department of Energy Goes Away* – what about long-term stewardship if DOE does not exist; what happens; what happens when the Administration changes?	Chapter 10
16. *Sociological/Political Issues* – what is the federal obligation/compensation for impacts related to long-term stewardship; socioeconomic/local and regional impacts?	Chapter 9
17. *Environmental Justice* – the Tribes need to be engaged and involved.	Chapter 9
18. *Realistic Cleanup Standards*	out of scope (cleanup decision)
19. *Public Involvement* – during and after long-term stewardship.	Chapter 9
20. *Roles and Responsibilities* – who will be responsible in the long term; how can we maintain sustainable responsibility?	Chapter 4, Chapter 10
21. *Enforcement* – who is going to enforce long-term stewardship? Look at the NRC licensing process.	Chapter 4, Chapter 6
22. *Long-term vs. Short-term* – need to articulate what is short- vs. long-term and how long is long.	Chapter 10
23. *Tie National Policy to Stewardship Legislative Mandate* – need policy and legislative mandate now. Need these regulatory drivers to get and maintain funding.	Chapter 4
24. *Moral Responsibility to Follow the Waste* – especially when it goes offsite.	out of scope (not addressed)
25. *Minimize Risks/Hazards and Plan for Failures* – need to plan for contingency actions now.	Chapter 5
26. *Expedite* – DOE needs to act now.	Chapter 2, Chapter 4
27. *Social/Citizen Control* – Communities/citizens need to have the information, etc.	Chapter 7, Chapter 9

Appendix C: The Public Comment Process for the *Final Study*

The Public Comment Process

As specified in the Settlement Agreement, the public review process for the *Draft Study* followed:

> *"the procedures set forth in DOE's NEPA regulations for public review, of environmental impact statements, 10 C.F.R. § 1021.313, except that (a)...DOE (not EPA) will publish a Notice of Availability in the Federal Register, as set forth in 10 C.F.R. § 1021.313(a); and (b) DOE will not include any Statement of Findings as set forth in 10 C.F.R. § 1021.313(c)."*

DOE published a Notice of Availability (NOA) announcing the availability of the *Draft Study* and describing the public review process for the *Draft Study* in the October 31, 2000 Federal Register (65 FR 64934). The NOA described the public comment process and established the formal period during which DOE would accept public comments. The 45-day formal public comment period was October 31, 2000 to December 15, 2000. The NOA also announced a public hearing that was held in Washington, D.C. on November 30, 2000. In addition to the public hearing, DOE held a public workshop in San Francisco, CA on December 14, 2000, to allow for additional information exchange and constructive discussions between DOE and interested parties on the scope and content of the *Draft Study*. DOE used input from the public to complete this *Final Study*.

In addition to the public hearing and public workshop, DOE pursued other opportunities to inform the public about the availability of the *Draft Study* and the public comment process. DOE distributed the *Draft Study* to existing forums and entities, including the Environmental Management Advisory Board (EMAB), Site-Specific Advisory Boards (SSABs), the State and Tribal Governments Working Group (STGWG), and other stakeholder organizations. Prior to and during the public comment period, DOE conducted public presentations concerning the *Draft Study* at several locations throughout the U.S. (see Exhibit C-1). DOE also published the *Draft Study* on the Internet Web Site (*http://lts.apps.em.doe.gov*). DOE solicited public comments through its Internet Web Site and by postal mail, email, and fax to the DOE Study Project Manager.

How Public Comments Were Incorporated into the *Final Study*

DOE received public comments from 50 commenters, including four speakers at the public hearing (Exhibit C-2). DOE reviewed and considered all public comments and other suggestions. These comments and suggestions were integrated with ongoing DOE work to determine how to revise the *Draft Study* and its Appendices. DOE made a concerted effort to address every substantive comment received and modify or revise the *Draft Study* accordingly. The *Final Study* does not address site-specific issues except as examples in the context of presenting national issues. Therefore, site-specific comments have been incorporated into the

Exhibit C-1. Presentations on the *Draft Study* by the Office of Long Term Stewardship

Date	Organization	Location
June 13, 2000	Interagency Steering Committee on Radiation Standards	Rockville, MD
August 7, 2000	Third Annual National Workshop on Long-Term Stewardship	Denver, CO
August 30, 2000	Third Dixie Lee Ray Memorial Symposium	Washington, DC
September 20, 2000	Post Closure Stewardship Technology Needs University of Cincinnati	Cincinnati, OH
October 3, 2000	National Governors' Association, Energy Communities Alliance, and National Association of Attorneys General Roundtable	Idaho Falls, ID
October 17, 2000	Industry Partnerships for Environmental Science and Technology	Morgantown, WV
October 18, 2000	New Environmental Technologies and Market Opportunities, Fall 2000 ITRC Conference	San Antonio, TX
October 25, 2000	Argonne National Laboratory Seminar	Argonne, IL
October 25, 2000	Management & Operating Contract Attorneys, Fall Conference	Argonne, IL
October 26, 2000	EM Site Specific Advisory Board Stewardship Workshop	Denver, CO
November 14, 2000	DOE Technical Information Exchange Conference	Augusta, GA
November 15, 2000	National Conference of State Legislatures	Augusta, GA
November 30, 2000	Public Hearing on *Draft Study*	Washington, DC
December 7, 2000	Resources for the Future	Washington, DC
December 14, 2000	Land Transfer and Long Term Management of Contaminated Federal Facilities Conference	San Francisco, CA

Exhibit C-2. Public Commenters and Date Comments Received

1. Oregon State Office of Energy, December 4, 2000
2. James S. Johnson, December 7, 2000
3. Robert Peelle, November 26, 2000
4. Tom Fitzsimmons, Washington State Department of Ecology, December 6, 2000
5. Kathy Crandall, Alliance for Nuclear Accountability, November 30, 2000
6. Tri-Valley CARES and Western States Legal Foundation, December 12, 2000
7. Stanley Hobson, INEEL Citizens Advisory Board, November 22, 2000
8. Kenneth Reim, November 28, 2000
9. Sam Booher, December 10, 2000
10. Mark Plessinger, DOE Grand Junction Project Office, December 11, 2000
11. Pamela Sihvola, Committee to Minimize Toxic Waste, December 15, 2000
12. Stephen Dycus, December 18, 2000
13. Earl Leming, State of Tennessee Department of Environment and Conservation, December 12, 2000
14. Robert Johnson, Nuclear Regulatory Commission, December 13, 2000
15. Thomas Family, December 13, 2000
16. Daniel Miller, State of Colorado Office of the Attorney General, December 13, 2000
17. Carol E. Lyons, City of Arvada, December 14, 2000
18. Michael Duvall and Mary Halliday, St. Charles City Government, December 14, 2000
19. National Governors Association, December 14, 2000
20. Julie Davis, South Davis Campus Superfund Oversight Committee, December 14, 2000
21. Norman Mulvenon, Oak Ridge Reservation Local Oversight Committee, December 14, 2000
22. Luther Gibson, Oak Ridge Site Specific Advisory Board, December 13, 2000
23. Dennis Bechtel, Clark County Department of Comprehensive Planning, December 14, 2000
24. Tom Marshall, Rocky Mountain Peace and Justice Institute, December 15, 2000
25. Stephen Mahfood, Missouri Department of Natural Resources, December 15, 2000
26. M.J. Plodinec, December 15, 2000
27. Patrick Sobotta, Nez Perce Tribe, December 15, 2000
28. Steve Tarlton, State and Tribal Government Working Group, December 15, 2000
29. Steve Tarlton, Colorado Department of Public Health and Environment, December 15, 2000
30. Reinard Knutsen and Susi Snyder, Shundahai Network, December 15, 2000
31. Carl N. Anderson, December 14, 2000
32. Robert M. Gould, Physicians for Social Responsibility, December 14, 2000
33. Fred E. Humes, Economic Development Partnership, December 11, 2000
34. Vernon Brechin, December 14, 2000
35. Janis Kate-Turner, December 19, 2000
36. DOE Fernald Environmental Management Project, December 12, 2000
37. Jay Vance, Envirocare of Utah, Inc., December 15, 2000
38. Roman Kohler, December 19, 2000
39. H. Boyd Hathaway, DynCorp Tri-Cities Services, Inc., December 15, 2000
40. Victoria L. Peters, State of Colorado Office of the Attorney General, December 15, 2000
41. Tim Michael, New Mexico Environment Department, December 18, 2000
42. Bryan Taylor, Rocky Flats History Group, December 19, 2000
43. Nevada Test Site Community Advisory Board, December 20, 2000
44. Diana Yupe, Shoshone-Bannock Tribe, December 15, 2000
45. Mark Donham and Kristi Hanson, Regional Association of Concerned Environmentalists/Coalition for Nuclear Justice, December 18, 2000
46. Debra McBaugh, Washington State Department of Health, December 29, 2000

47. and 48. Public Hearing, November 30, 2000

49. Russell Jim, Yakama Nation, December 27, 2000
50. Thomas Winston and Graham Mitchell, State of Ohio Environmental Protection Agency, December 15, 2000.

Final Study only to the extent feasible in the context of national long-term stewardship issues. Comments that were received by DOE after the closing date of the formal public comment process (December 15, 2000) have been considered in the *Final Study* to the extent practicable considering schedule constraints. The public comments, and DOE's response to these comments, are included in *Volume II – Responses to Comments*.

As noted above, DOE held a public workshop on December 14, 2000 to allow additional information exchange and discussion with the public. Discussions and comments received were recorded by note-takers. Although the discussions were not included as formal public comments, these discussions were considered by DOE in developing the *Final Study*. Many speakers also submitted formal written comments at the workshop; these are included in the 50 commenters. DOE acknowledged public comments by including text boxes throughout the *Final Study* that provide a synopsis of specific public comments and numbers in parentheses to identify the commenter(s). These numbers correspond to the numbers listed in Exhibit C-2. The full comment letters, and DOE's responses to each comment, are included in Volume II of the *Final Study*.

Other Factors That Were Incorporated into the *Final Study*

The *Final Study* was revised to incorporate policy decisions and other information pertaining to several documents that DOE issued in the period of time between the release of the *Draft Study* and completion of the *Final Study*:

- On December 15, 2000, Deputy Secretary T.J. Glauthier issued a memorandum that addressed the transition of long-term stewardship to DOE landlord organizations. The memorandum states that at sites where non-EM missions (e.g., nuclear weapons stockpile stewardship, scientific research) are expected to continue, the site landlord programs are expected to take responsibility for long-term stewardship activities after EM finishes its cleanup mission at a site.

- In January 2001, DOE issued the *Report to Congress on Long-term Stewardship*, which details the long-term stewardship requirements, scope, and cost at DOE sites where EM cleanups are expected to be completed by 2006. A summary of the cost estimates from the *Report to Congress* is included in the *Final Study*.

- In January 2001, the Assistant Secretary for Environmental Management issued a policy requiring all EM sites to develop, by 2004, site-specific long-term stewardship plans along with site-specific cost estimates, budget requests and performance metrics. The Department is currently developing guidance for these site-specific plans.

- In January 2001, the Assistant Secretary for Environmental Management issued an interim policy on the use of institutional controls during long-term stewardship. This policy is available on the long-term stewardship web-based information center, *http://lts.apps.em.doe.gov*.

- In May 2001, DOE formed the Long-term Stewardship Executive Steering Committee to provide senior management coordination, strategic planning, and policy development. The Committee includes senior managers from each DOE field office and major headquarters Program Secretarial Offices. The Executive Steering Committee is currently drafting a Strategic Plan for long-term stewardship which will be the basis for establishing specific roles and responsibilities and performance objectives for the Department. Several key issues raised in the *Final Study* were identified to the Executive Steering Committee as important near-term issues for the Department to address.

- In June 2001, the Department published a listing of major environmental statutes, regulations, and Executive Orders that may apply to long-term stewardship. A second table provides applicable DOE Orders and environmental policies. These tables are available on the long-term stewardship web-based information center, *http://lts.apps.em.doe.gov*.

The *Final Study* also was revised to incorporate information contained in recent publications by groups external to DOE:

- On December 5, 2000, Resources for the Future published a report entitled *Long-Term Stewardship of Contaminated Sites, Trust Funds as Mechanisms for Financing and Oversight*. Discussion Paper 00-54, December 2000.

- In February 2001, the Environmental Law Institute and the Energy Communities Alliance published a report entitled *The Role of Local Governments in Long-Term Stewardship at DOE Facilities* (ELI Project #972206, ELI ISBN #1-58576-015-3, Document #D10.10). Although the this report was published too late to be incorporated fully, the *Final Study* includes a text box acknowledging this report and its key recommendations.

Appendix D: Statutory, Regulatory, and Executive Order Requirements for Long-term Stewardship

DOE conducts long-term stewardship activities in accordance with various statutes, DOE Orders, policies, regulations, Executive Orders, and International and Tribal government treaties. These statutes, regulations, Orders, and treaties vary considerably in site-specificity, detail, and purpose. Statutes that broadly require DOE to conduct long-term stewardship activities include the Atomic Energy Act (AEA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also known as Superfund), and the Resource Conservation and Recovery Act (RCRA). The AEA requires DOE to conduct its activities in a manner that protects human health and the environment. RCRA and CERCLA broadly require DOE to ensure that contaminated sites and associated residual hazards are managed to protect human health and the environment over the long-term. Specific activities that DOE must conduct in order to manage residual hazards at DOE sites are established in RCRA and CERCLA requirements and through site-specific agreements with the regulators.

Statutes that require DOE to conduct long-term stewardship activities at specific sites include the Waste Isolation Pilot Plant Land Withdrawal Act (WIPP LWA), the Nuclear Waste Policy Act, and the Uranium Mill Tailings Radiation Control Act (UMTRCA). These statutes do not apply to the entire DOE complex, only to specific sites and facilities. The WIPP LWA is applicable to the Waste Isolation Pilot Plant; the Nuclear Waste Policy Act is applicable to high-level waste disposal facilities; and UMTRCA is applicable to former uranium and thorium milling sites. These Acts and their associated regulations require DOE to implement specific engineered and institutional controls for these sites in order to ensure effective long-term stewardship.

Other requirements for long-term stewardship activities that apply to DOE are related to DOE's status as a federal agency and the Department's role as an owner and manager of federal lands.

- The National Environmental Policy Act (NEPA) requires agencies to conduct environmental impact analyses of major federal actions that may significantly affect the quality of the human environment, including assessment of impacts to natural and cultural resources.

- DOE Order 1230.2, American Indian Tribal Government Policy, requires that obligations under the Federal Indian Trust Responsibility (Seminole Nation v. United States, 1942) and treaty obligations be met.[1] Treaty obligations require a long-term planning process, which directly affects Tribal rights as they were defined when treaties were signed.

---

[1]Tribal governments have a special and unique legal and political relationship with the U.S. Government, defined by history, treaties, statutes, court decisions, and the U.S. Constitution. The United States has entered into more than 600 treaties and agreements with American Indian Tribes. These treaties and agreements create a variety of legal responsibilities by the United States toward Tribes and provide the basis for a government-to-government relationship. Although the Department of the Interior, through the Bureau of Indian Affairs, has the principal responsibility for upholding obligations of the federal government to American Indians, this responsibility extends to all federal agencies, including DOE. *Source*: DOE Order 1230.2 *American Indian Tribal Government Policy*, April 8, 1992, available at *http://www.explorer.doe.gov:1776*.

- Executive Order 13175, Consultation and Coordination With Indian Tribal Governments (65 FR 67249, November 6, 2000) requires DOE to adhere to specified criteria when formulating and implementing policies that have Tribal implications; to ensure meaningful and timely input by Tribal officials in the development of regulatory policies that have Tribal implications; and to the extent practicable and permitted by law, to increase opportunities for utilizing flexible policy approaches at the Indian Tribal level with respect to proposed waivers of statutory or regulatory requirements.

- Federal real property management statutes establish requirements for owners and managers of federal land, including the acquisition, transfer, management, and sale of public land.

- The Endangered Species Act, the National Historic Preservation Act, the Archeological Resources Protection Act, the Native American Graves Protection and Repatriation Act, and other statutes require federal agencies to manage natural resources and cultural resources.

- Federal agencies including DOE are subject to Executive Orders issued by the President that may include provisions for long-term stewardship activities for public lands, such as wetlands or fisheries.

In June 2001, the Department published a listing of major environmental statutes, regulations, and Executive Orders that may apply to long-term stewardship. A second table provides applicable DOE Orders and environmental policies. These tables are available on the long-term stewardship web-based information center, *http://lts.apps.em.doe.gov*.

Appendix E: Long-term Stewardship Activities, Guidance, Reports, and Internet Web Sites

DOE is conducting ongoing long-term stewardship activities at DOE headquarters, field offices, and sites. This Appendix highlights DOE's recent long-term stewardship efforts, reports, and activities; describes DOE's long-term stewardship Internet Web Pages; and identifies the points of contact at each DOE field office.

Program Management

- The Assistant Secretary for Environmental Management established the Office of Long Term Stewardship in 1999.

- In 1998, DOE Formed the Long-term Stewardship Working Group to identify and address stewardship issues.

- DOE sponsored three workshops and a background report by Resources for the Future on long-term stewardship and analysis of long-term funding mechanism options.

- DOE sponsored case studies and workshops conducted by the Environmental Law Institute and the Energy Communities Alliance.

- DOE supported local government and SSAB evaluations of long-term stewardship issues at DOE sites (e.g., Rocky Flats Environmental Technology Site, Oak Ridge).

- DOE sponsored contractor reports on data management for long-term stewardship and risk-based requirements for long-term stewardship.

- DOE sponsored an analysis of long-term stewardship risks in the context of other risks by the Consortium for Risk Evaluation with Stakeholder Participation.

- DOE incorporated a Project Baseline Summary (PBS) within the Integrated Planning, Accountability, and Budgeting System – Information System (IPABS-IS) and developed guidance for completing the PBS. Independent PBSs for long-term stewardship are required of all EM sites by Fiscal Year 2003.

- DOE sponsored Environmental Law Institute case studies on institutional controls at the DOE Grand Junction, Mound, and Hanford sites.

- DOE prepared two reports to Congress on land-use planning at DOE sites.

- DOE prepared studies that identified actions for improving how information is currently controlled and maintained in order to provide for long-term stewardship. Relevant studies include *Roadmap to the Year 2000* and *Responsible Openness: An Imperative for the Department of Energy*.

- The Ohio Field Office has issued guiding principles for long-term stewardship: *Guiding Principles for Long-term Stewardship*. U.S. Department of Energy, Ohio Field Office, Miamisburg, OH, March 27, 2000.

- DOE issued Order 435.1, Radioactive Waste Management. The Order requires DOE sites to develop a performance assessment (PA) and composite analysis (CA) for each low-level waste disposal facility.

- The National Energy Technology Laboratory is currently leading efforts to develop separate cost estimating techniques for long-term stewardship and incorporate these modules into the Environmental Cost Element Structure, a cross-agency framework for estimating and managing environmental management costs.

- In 1999, the Rocky Flats Environmental Technology Site developed an activity-based methodology to estimate their annual stewardship costs based on the type, cost, and duration of anticipated long-term stewardship activities.

Guidance

- *Guidance for Implementation of Long-Term Surveillance and Maintenance at DOE Sites in Long-Term Stewardship*, U.S. Department of Energy, Grand Junction Office, Grand Junction, Colorado, December 30, 1999.

- *Development of Remediation Goals under CERCLA*, U.S. Department of Energy, Office of Environmental Policy and Assistance, CERCLA Information Brief. DOE/EH-413/9711, August 1997.

- *RCRA Closure and Post-Closure Plans*, DOE, Office of Environmental Guidance, RCRA Information Brief. DOE/EH-231-009/1291, December 1991.

- *Planning and Implementing RCRA/CERCLA Closure and Post-Closure Care When Wastes Remain Onsite*, U.S. DOE, Office of Environmental Policy and Assistance, RCRA/CERCLA Information Brief. DOE/EH-413-9910, October 1999.

- *Using Remedy Monitoring Plans to Ensure Remedy Effectiveness and Appropriate Modifications*, U.S. Department of Energy, Office of Environmental Policy and Assistance, RCRA/CERCLA Information Brief. DOE/EH-413/9809, July 1998.

- *Effects of Future Land Use Assumptions on Environmental Restoration Decision Making*, U.S. Department of Energy, Office of Environmental Policy and Analysis, RCRA/CERCLA Information Brief. DOE/EH-413/9810, July 1998.

- *Cross-Cut Guidance on Environmental Requirements for DOE Real Property Transfers*, U.S. Department of Energy, Office of Environmental Policy and Assistance. DOE/EH-413/97/2, October 1997.

- *Interim Policy for the Department of Energy's Use of Institutional Controls.* February 2001.

- *CERCLA Requirements Associated with Real Property Transfers,* U.S. Department of Energy, Office of Environmental Policy and Analysis, CERCLA Information Brief. EH-413-9808, April 1998.

Reports

- *From Cleanup to Stewardship*, U.S. Department of Energy, Office of Long Term Stewardship. DOE/EM-0466 , October 1999.

- *1999 Long-Term Surveillance and Maintenance Program* Report, U.S. Department of Energy, Grand Junction Office, Grand Junction, Colorado, April 2000.

- *2000 Long-Term Surveillance and Maintenance Program* Report, U.S. Department of Energy, Grand Junction Office, Grand Junction, Colorado, February 2001.

Long-term Stewardship Internet Web Sites

http://lts.apps.em.doe.gov/

This website, maintained by the Office of Long Term Stewardship, is a tool for providing long-term stewardship information to the public. The website provides news and information concerning DOE's long-term stewardship activities, including the *Study*, the *Report to Congress on Long-term Stewardship*, other complex-wide and site-specific reports and workshops, and site-specific perspectives on long-term stewardship.

http://www.em.doe.gov/settlement/index.html

This website provides news and information about the implementation of the December 12, 1998 Waste Management Programmatic Environmental Impact Statement Settlement Agreement and provides links to the Central Internet Database, Citizen's Monitoring and Technical Assistance Fund, and Long-term Stewardship Study Internet Web Sites.

http://www.em.doe.gov/settlement/index2.html

This website provides access to the Central Internet Database (CID). The CID contains reports for radioactive waste, contaminated media, spent nuclear fuel, non-radioactive waste, toxic waste, facilities, and materials in inventory. CID also contains information on DOE's current and projected waste and spent nuclear fuel inventories, management activities, and shipping and receiving quantities. The CID has organized much of its information in a searchable manner, according to state, site, DOE programs, or year.

http://www.em.doe.gov/settlement/funding.html

The Settlement Agreement requires that DOE establish a $6.25 million citizen monitoring and technical assistance fund. This Internet Web Page provides information concerning the purpose and administration of the fund.

http://www.lastinglegacy.net/legacy3.1/loadup.htm

This interactive website explains production, waste, and long-term stewardship across the nuclear weapons complex over time.

Appendix F: Long-term Stewardship Points of Contact

This Appendix lists the current principal Working Group Members and the areas they represent. The list will be updated periodically on the long-term stewardship information center web page (***http//lts.apps.em.doe.gov***).

DOE Headquarters Offices

Office	Name	Phone, Fax, Email
Office of Long Term Stewardship	David Geiser	202-586-9280 (phone) 202-586-1241 (fax) david.geiser@em.doe.gov
	Letitia O'Conor (contact for *Final Study*)	202-586-6570 / 9280 202-586-9732 letitia.o'conor@em.doe.gov
Office of Environment, Safety, and Health	Andrew Lawrence	202-586-7870 (phone) 202-586-3915 (fax) andrew.lawrence@eh.doe.gov
Office of Science	Arnold Edelman	301-903-5145 (phone) 301-903-7047 (fax) Arnold.edelman@science.doe.gov
Office of Management Budget and Evaluation	Andrew Duran	202-586-4548 (phone) 202-586-4500 (fax) Andrew.Duran@hq.doe.gov
Office of Defense Programs	John Marchetti	301-903-5003 (phone) 301-903-1562 (fax) John.marchetti@dp.doe.gov

DOE Field Offices

Office	Name	Phone, Fax, Email
Albuquerque Operations Office	Deborah Griswold	505-845-4752 (phone) 505-845-4239 (fax) dcouchman-griswold@doeal.gov
Grand Junction Office	Art Kleinrath	970-248-6037 (phone) 970-248-6023 (fax) akleinrath@doegjpo.com
Chicago Operations Office	Susan Heston	630-252-2381 (phone) 630-252-2654 (fax) Susan.heston@ch.doe.gov

Office	Name	Phone, Fax, Email
National Energy Technology Laboratory	Celinda H. Crawford	304-285-4128 (phone) 304-285-4403 (fax) Celinda.Crawford@netl.doe.gov
Idaho Operations Office	Patty Natoni	208-526-0977 (phone) 208-526-0553 (fax) natonipm@id.doe.gov
Nevada Operations Office	Bobbie K. McClure	702-295-1862 (phone) 702-295-1113 (fax) McClure@nv.doe.gov
Oakland Operations Office	Laurence B. McEwen	510-637-1623 (phone) 510-637-1646 (fax) laurence.mcewen@oak.doe.gov
Oak Ridge Operations Office	Ralph Skinner, Jr.	865-576-7403 (phone) 865-576-5333 (fax) skinnerrm@oro.doe.gov
Ohio Field Office	Anne Wickham	937-865-3624 (phone) 937-865-4397 (fax) Anne.Wickham@ohio.doe.gov
Ohio - Miamisburg Environmental Management Project	Susan L. Smiley	937-865-3984 (phone) 937-865-4489 (fax) sue.smiley@ohio.doe.gov
Ohio - Fernald Environmental Management Project	Gary D. Stegner	513-648-3153 (phone) 513-648-3073 (fax) gary.stegner@fernald.gov
Richland Operations Office	Jim Dailey	509-376-7721 (phone) 509-372-2610 (fax) James_L_ii_Daily@rl.gov
Rocky Flats Field Office	Joe Legare	303-966-2282 (phone) 303-966-2995 (fax) joe.legare@rf.doe.gov
Savannah River Operations Office	Terry Vought	803-725-9747 (phone) 803-725-2016 (fax) terry.vought@srs.gov
Weldon Spring Site Remedial Action Project	Thomas Pauling	636-441-8978 (phone) 636-447-0739 (fax) tpauling@wssrap.com

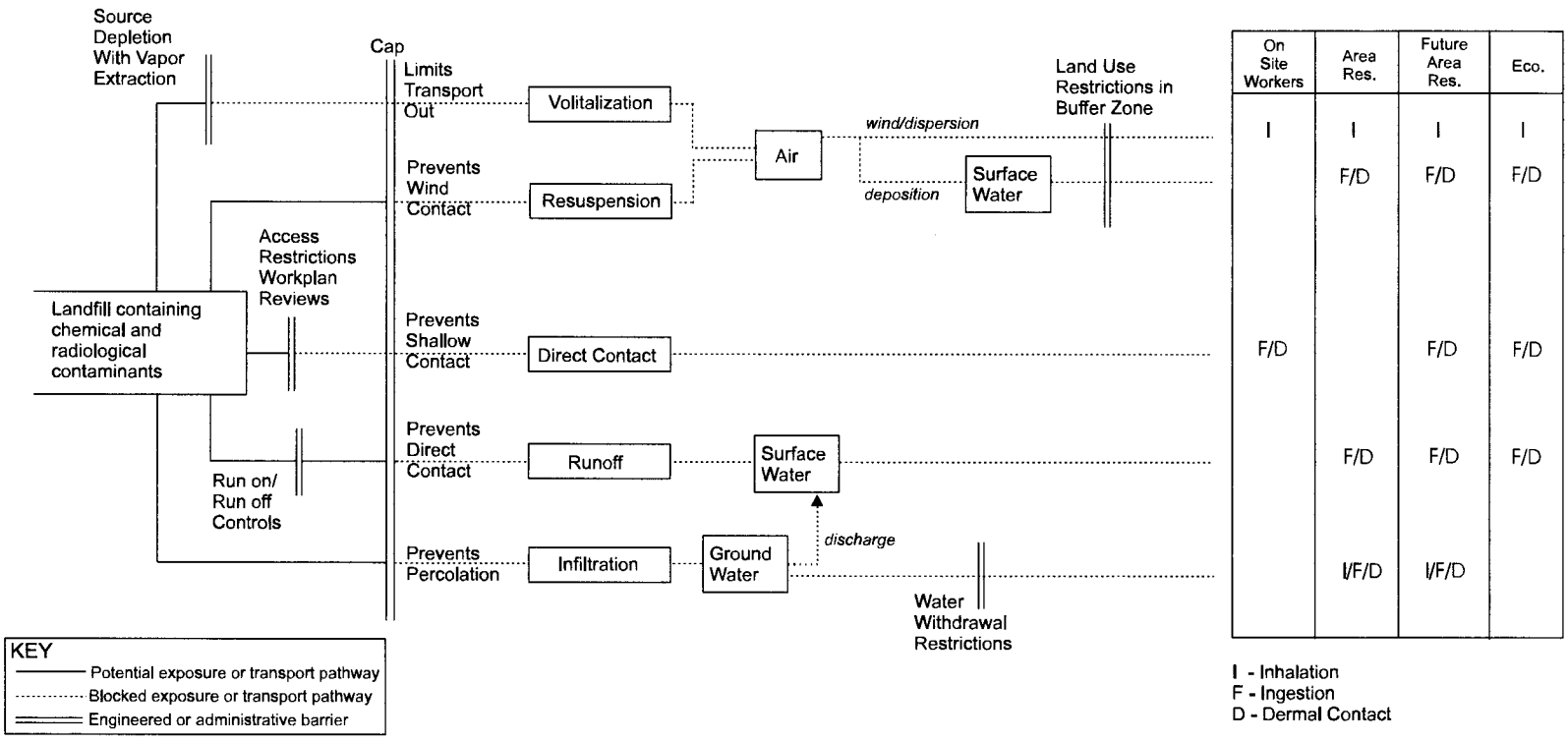
Appendix G: Using a Conceptual Site Model to Communicate End State

Conceptual Site Models (CSMs) are used during cleanup actions to depict the relationship between existing hazards, environmental transport mechanisms, exposure pathways, and ultimate human and ecological receptors. CSMs can also be used to distinguish between known and unknown site conditions (e.g., the existence of fractured bedrock or preferential pathways for groundwater flow). While CSMs have traditionally been used for individual Operable Units or Areas of Concern, it may be possible to develop a long-term stewardship CSM for broader areas of a site (e.g., encompassing multiple Operable Units or Areas of Concern). A long-term stewardship CSM, however, may be difficult to develop or impractical at large, complex sites. Functional equivalents could include management plans specific to particular biological resources or area management plans.

Long-term stewardship CSMs could be used to illustrate the characteristics of a site and its residual hazards, how hazards have been contained, how exposure pathways have been blocked, and the uncertainties that may affect the performance of engineered and institutional controls. Where significant uncertainties exist, the CSM could identify the range of scenarios that are probable or otherwise indicate the importance of the uncertainties. The resulting model could serve as the basis for evaluating the likelihood and consequences of events such as barrier failures, identifying how stewards can plan to mitigate these events, and predicting the ability of future generations to ensure protectiveness based on improved technology and increased understanding of science. The CSM also could serve as a tool for communicating with local governments and stakeholders. An example of a long-term stewardship conceptual site model is presented in Exhibit H-1.[1]

[1] *Planning and Implementing RCRA/CERCLA Closure and Post Closure Care when Wastes Remain Onsite.* U.S. Department of Energy, Office of Environmental Policy and Assistance, RCRA/CERCLA Information Bulletin, DOE/EH-413-9910, October 1999.

Exhibit G-1. Example of Post-Remediation Conceptual Site Model



Components of End State	Description
Waste Characteristics	One landfill remains on site. Contaminants include: Ra-226, Sr-90, NO, $CHCL_3$,DCE, Toluene, H_3, C_{14}, and DCA. The estimated volume of material is 420,000 y_3; a minumum of 1,000 curies was disposed in the landfill, based on historical records and knowledge of past practices.
Unit Characteristics	Landfill is approximately 50-60 feet above the upper huydrostratigraphic unit (HSU) and approximately 80 ft. above the lower HSU of the groundwater aquifer. The contaminants detected in the upper HSU include: $CHCl_3$, DCA, Cr, No_3, DCE, Toluene, H_3, and C_{14}. Contaminants detected in lower HSU include: Cr, NO, $CHCl_3$, DCE, Toluene, H_3, C_{14}, and DCA.
Barriers in Place	One single-layer cap with a design life of 30 years covers the landfill. Vapor extraction system installed and operated until concentrations drop below threshold. Land use restriction covenants in place such that: (1) There can be no digging in the landfill area; and (2) There shall be no agriculture or residential use of groundwater; pumping groundwater from wells is prohibited.
Other Key Assumptions to Maintain Protectiveness	Land use will remain industrial. Monitored natural attenuation will demonstrate that contaminants in the groundwater are below MCLs in 20 years. Remaining contaminants in landfill will not continued to leach to the groundwater. An alternate water supply is provided to local residents.

Appendix H: Developing Uncertainty Matrices to Communicate Uncertain Conditions

One key to successful communication and implementation of long-term stewardship will be to identify and describe to future site stewards the residual hazards and any associated uncertainties that remain once cleanup is complete. It is important for local residents to understand the need to adhere to and maintain land use and access controls imposed on a site because of residual contamination/hazards. Site stewards need to understand the potential for breaks in the barriers to occur, understand the impact on human health and the environment should a failure in the remedy occur, and have prepared a contingency plan for addressing the situation before major problems occur. This information can be organized and characterized with a tool called an "uncertainty management matrix". An example is presented in Exhibit I-1.

Exhibit H-1. Example Uncertainty Matrix for Long-term Stewardship

Expected Condition	Reasonable Failure	Probability of Occurrence	Time to Respond	Impact	Monitoring Plan	Contingency Plan
Cap prevents infiltration and subsequent leachate development.	Burrowing animals or plant roots will breach cap integrity	High. Operations of other landfills indicate that over time this is a common intrusion scenario.	Short for animals. In the case of plants, it takes time to establish a deep root system.	Significant since cap integrity will be lost and leachate is likely to carry contaminants to the ground water.	Site inspection every 3 months to ensure integrity of cap.	A rock cover could be installed to deter burrowing animals. Since lead times are quite short for this pathway, it may be better to install this barrier at the onset (robust design). Plant removal upon detection should mitigate root intrusion.
Access and institutional controls will prevent excavation through cap.	Humans will dig in the area of the landfill, breaching integrity of the cap.	Low. Additional controls (i.e., land use restrictions and a fence) are in place to prevent human intrusion.	Short for direct contact of humans, longer for loss of cap effectiveness with respect to infiltration.	Same as above. In addition, intrusion into the soil would likely result in dermal contact with radioactive contaminants, posing an unacceptable risk to human health.	Site inspection will include surveillance of cap condition, evaluation of fence integrity and maintenance of land use controls.	Reevaluation of remedy will be conducted if humans breach the integrity of the cap and land use controls are not functional. Options may include more sophisticated fence designs, site security, and armoring.
Contaminants in the groundwater will naturally attenuate to levels below Maximum Concentration Limits (MCLs) within a 20-year timeframe.	Contaminants do not attenuate naturally to levels below MCLs within the required timeframe.	Low. Based on modeling of site conditions, contaminant characteristics, and the general trend established by existing monitoring data, MCLs will be attained within a 20-year timeframe.	Long. Monitoring data will indicate if the current trend in contaminant reduction changes. Based on these data, the site manager will have advance warning if end objectives will not be met in 20 years.	1. High. If groundwater remediation goals cannot be reached in the 20-year period, unit regulators will require a different remediation approach, which would be quite costly. 2. Low. No risk to human health would result from additional contamination of the groundwater because land use restrictions and an alternate drinking supply prevent ingestion.	Wells within the plume will be sampled every 3 months to ensure that natural attenuation is reducing the concentration of contaminants in the groundwater. Sentinel wells will be monitored quarterly to detect any escapement near receptor wells.	If data indicate significant negative deviation from predicted trends in plume concentrations, an extraction type of remedy will be installed.

Appendix I: DOE Property Transfer Requirements

This Appendix summarizes federal real property transfer requirements, including requirements applicable to federal agencies in general, requirements specific to DOE, and CERCLA property transfer requirements. As background, the Appendix describes the roles of the various agencies potentially having jurisdiction over federal real property owned or controlled by DOE as well as the legal authority and implementing regulations that control property transfers. This is followed by a description of the various procedures that DOE may employ to transfer real property. The Appendix closes with a description of CERCLA requirements related to disclosure of hazardous substances and the transfer of contaminated property.

Agency Roles, Legal Authority, and Implementing Regulations for Property Transfers

To understand property transfer requirements, it is important to know that other federal agencies and their associated statutes and regulations often have a role in the transfer of property owned or controlled by DOE. Depending on the type of property that DOE is transferring, the Department of Interior's (DOI) Bureau of Land Management (BLM) and the General Services Administration (GSA) may play a role. DOE has authority under the Atomic Energy Act (AEA), the DOE Organization Act, and other statutes to engage directly in real property transfers without BLM or GSA involvement in some circumstances[1] (see Exhibit J-1). The type of property transfers that may occur, the required procedures, and the potential recipients of the property will depend, in part, on how DOE first acquired ownership or control of the property: by direct purchase, by withdrawal from the public domain and reservation by DOI for use by DOE, or through some other process such as a grant or gift. In addition, Congress sometimes directs DOE by legislation to transfer certain properties without the involvement of BLM or GSA.

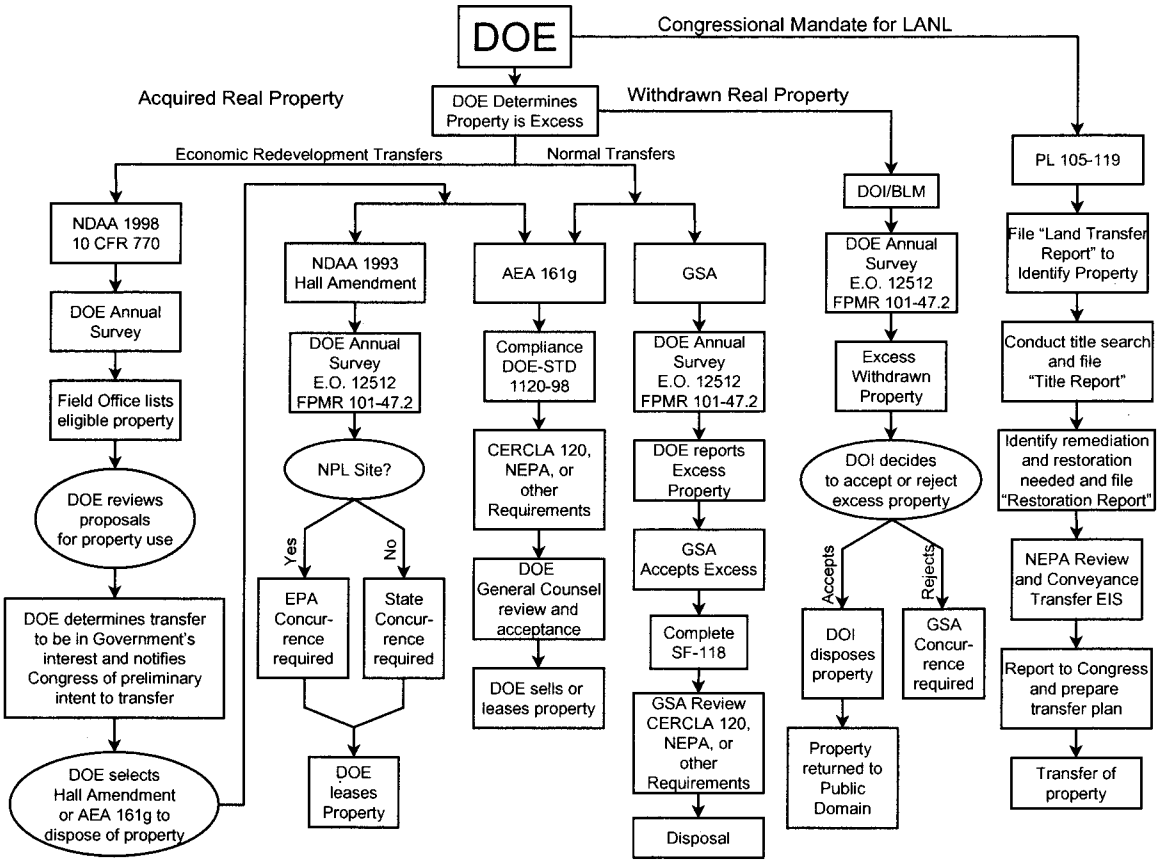
The Environmental Protection Agency (EPA) becomes involved in federal land transfers when sites proposed for transfer have hazardous waste contamination. EPA's authority in these transactions derives from the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Other federal agencies may become involved if the property transfer would impact other resources (e.g., wetlands, endangered species, archaeological or historic resources).

BLM Oversight. BLM has jurisdiction over transfers involving property that was acquired by DOE through withdrawal from the public domain. Withdrawn properties that were reserved by DOI for DOE must be relinquished to the original holder upon completion of the DOE missions for which the land was withdrawn. Withdrawn land comprises 62 percent of DOE's real property. GSA also may become involved in these property transfers. For real property transfers of withdrawn land, federal agencies are required to transfer the land in accordance with the Federal Land Policy and Management Act of 1976 (Public Law 94-579, as amended). The regulations on the restoration and revocation of withdrawn land that BLM developed to implement the Act are included in 43 CFR Part 2370.

---

[1] *Cross-Cut Guidance on Environmental Requirements for DOE Real Property Transfers*. U.S. Department of Energy, Office of Environmental Policy and Assistance, October 1997. DOE/EH-413/97/2, October 1997.

Exhibit I-1. Potential Disposition Paths for Excess DOE Real Property



Withdrawn Real Property. DOE transfers all withdrawn real property under the authority of Federal Land Policy and Management Act of 1976 (Public Law 94-579 as amended), with concurrence from the Department of the Interior (DOI). Executive Order 12512 (April 29, 1985) and Federal Property Management Review (FPMR) 101-47.2 require real property utilization surveys at DOE facilities. DOI has the discretion to decide whether the property is suitable for return to the public domain. If the property is contaminated or has any "improvements" upon it, it may be rejected by DOI, and GSA concurrence is required. If DOI accepts the excess property it will return the land to the public domain, often as land under the jurisdiction of the Bureau of Land Management (BLM).

Acquired Real Property – Atomic Energy Act. DOE uses its broad authority to sell or lease acquired real property under Section 161(g) of AEA of 1954. Property disposals under the Act must comply with DOE internal orders including DOE-STD-1120-98, Integration of Environment, Safety and Health into Facility Disposition Activities. It is DOE policy to file a memorandum to the Real Property Branch and to have the Assistant General Counsel for General Law or appropriate Field Counsel review the transfer of real property.

Acquired Real Property – Hall Amendment. DOE uses its broad authority under Section 3154 of the National Defense Authorization Act of 1993 ("Hall Amendment") to lease acquired land to promote the public interest, with special emphasis on economic development. DOE conducts an annual survey to determine excess real property. The determination to lease is made by DOE Field Office Manager. If the property is on the CERCLA National Priorities List (NPL), DOE must obtain concurrence from EPA. If the property is not on the NPL, DOE must obtain concurrence from the appropriate state regulatory agency.

Acquired Real Property – GSA. DOE disposes of acquired real property through the GSA under the Federal Property and Administrative Services Act of 1949. A determination by DOE that the property is "excess" to facility needs is required before disposition may proceed. Standard Form 118, "Report of Excess Real Property" must be filed with the GSA.

Acquired Real Property – NDAA. DOE disposes of real property for economic development purposes pursuant to section 3158 of the National Defense Authorization Act of 1998 as implemented by 10 CFR Part 770. This is not a separate authority, but merely a review, notification, and approval process for transfers pursuant to the other authorities listed. Field Office managers will provide the Community Reuse Organization and other interested parties with a list of real property that may be transferred under this Act. DOE reviews property use proposals to determine the economic development impact and if the use would be in the best interest of the government.

Congressional Mandate. (example) Public Law 105-119, the Departments of Commerce, Justice, and State, the Judiciary, and Related Agencies Appropriation Act of 1998 requires DOE to convey or transfer certain Los Alamos National Laboratory (LANL) real property to the County of Los Alamos or the Secretary of the Interior, in trust for San Ildefenso Pueblo. In October 1999, DOE issued the Conveyance and Transfer Final Environmental Impact Statement, which was required under PL 105-119. In the associated March 2000 Record of Decision, DOE decided to convey or transfer 10 tracts of land, in whole or in part, subject to DOE's ability to complete needed environmental restoration or remediation.

DOE may temporarily outgrant withdrawn lands to other parties by lease with the consent of BLM. An exception is that withdrawn lands that are under the purview of the Atomic Energy Act and that are temporarily not needed may be outgranted by DOE without BLM consent (Section 161(g) of the Atomic Energy Act). In a few situations, DOE has been permitted by other federal agencies to build facilities on land withdrawn for use by those other federal agencies. In such cases, DOE may outgrant DOE facilities as long as: (1) the terms of the lease are consistent with the original withdrawal and original use permitted by BLM; and (2) the other federal agency agrees.[2]

Some of the withdrawn lands reserved for and used by DOE now contain improvements, such as buildings, structures, and other facilities, or have otherwise substantially changed in character. Such withdrawn lands are generally not suitable for return to the public domain for disposition other than leasing and are generally turned over to GSA for disposition, after both BLM and GSA concur.

GSA Oversight. GSA's role in property transfers is that it generally has oversight over all acquired land and withdrawn lands that are not suitable for return to the public domain. Acquired land, defined as real property that DOE (or its predecessors) originally purchased, comprises 27 percent of DOE's real property. Disposition of acquired land and withdrawn lands that are not suitable for return to the public domain is governed by requirements of the Federal Property and Administrative Services Act of 1949. GSA issued Federal Property Management Regulations (FPMR) under 41 CFR Parts 101-47 and 109 to implement the Act. AEA and other statutes provide DOE with limited authority to engage directly in real property transfers without GSA authorization.

The Federal Property and Administrative Services Act authorizes federal agencies to declare real property as "excess, underutilized or temporarily underutilized," and dispose of such property. GSA has disposition oversight for property transfers under the Act. In addition, Executive Order 12512, "Federal Real Property Management," and FPMR regulations under 41 CFR 101-47.202-2, require federal agencies to conduct real property utilization surveys. The FPMR requires agencies to conduct an annual survey and Executive Order 12512 requires agencies to conduct a survey every five years.

DOE Authorities. The primary statutory authorities for DOE property transfers are section 161(g) of the Atomic Energy Act and section 646(c) - (f) (known as the "Hall Amendment") and Section 649 of the Department of Energy Organization Act. Section 161(g) of the Atomic Energy Act authorizes DOE to transfer real property that was originally acquired under the authority of the Act, or will be used to further the purposes of the Act, without the involvement of the GSA. Section 649 of the Department of Energy Organization Act applies to leasing of underutilized real property. Section 646(c) - (f) of the Act applies to leasing of specific facilities that DOE will close or reconfigure. A number of other statutes have granted DOE limited authority to transfer real property without BLM or GSA authorization or involvement, or have

---

[2] *Cross-Cut Guidance on Environmental Requirements for DOE Real Property Transfers.* U.S. Department of Energy, Office of Environmental Policy and Assistance, October 1997. DOE/EH-413/97/2, October 1997.

directed DOE to transfer specific real property. These statutes have often been focused on specific DOE sites.

DOE property transfers are governed by DOE Order 430.1A, *Life Cycle Asset Management* (LCAM), including NEPA review, as appropriate. LCAM requirements for DOE real property include:

- Use of a DOE-certified real estate specialist to execute the transfer of real property, including land and improvements (e.g., facilities).

- A DOE decision-making process by which land and facilities that are candidates for transfer are either transferred to other DOE program offices, or are determined excess and therefore available for disposal.

- Completion of a pre-transfer review commensurate with the nature of existing hazards for transfer of any contaminated land or facilities, and participation of the DOE Office of Environment, Safety, and Health in the review process.

- Specific procedures for disposition of contaminated facilities, including characterization of hazards, surveillance and maintenance, assessment of decontamination and decommissioning alternatives, identification of a specific facility end point, and preparation of a final report.

- Compliance in all disposition of physical assets with all applicable federal, state, and local laws, regulations, negotiated agreements, and DOE integrated safety management Orders and Policies.

DOE also recently issued an interim final rule (10 CFR Part 770) to address the transfer by lease or sale of unneeded real property at DOE defense nuclear facilities for the purpose of economic development (65 FR 10685, February 29, 2000). Under the interim final rule, which was required by Section 3158 of the National Defense Authorization Act for Fiscal Year 1998, DOE identifies real property at defense nuclear facilities that is unneeded and provides this information to a local economic development organization. Interested parties may then approach DOE with a specific proposal concerning the lease or sale of an identified property for the purpose of economic development.

Under the interim final rule, DOE may indemnify an entity receiving the real property against any claim for injury that results from the release or threatened release of any contaminant as a result of DOE (or predecessor agency) activities at the defense nuclear facility. This indemnification provision is similar to provisions enacted for the Department of Defense Base Realignment and Closure (BRAC) program. The indemnification provisions in Section 3158 are intended to facilitate transfers for economic development, because the possibility of as-yet undiscovered contamination poses uncertainties even at sites that have been remediated in accordance with applicable regulatory requirements. DOE may grant indemnification when it is deemed essential for facilitating local redevelopment of DOE real property proposed for transfer.

Requirements and Procedures

Internal DOE Screening. One place to begin to illustrate the requirements and procedures for property transfers is DOE's procedures for the identification of excess property. The site manager of a DOE field element (e.g., operations offices, field offices, energy technology centers, and power marketing administrations) identifies real property that is no longer needed by a specific DOE program as directed by Executive Order 12512, Federal Real Property Management, through analysis required under DOE Order 430.1A, Life-Cycle Asset Management. The site manager determines whether the real property is temporarily or permanently not needed. The property is then screened to see if it might meet the needs of other DOE programs. If there are no DOE programs that can use the property, the site manager reports the property to the Office of Management and Administration (MA) at DOE Headquarters or the appropriate DOE Field Office. The appropriate Program Secretarial Officer or designee makes a determination that a real property is excess by preparing the following for MA or the appropriate Field Office:

- Memorandum stating that the real property is excess.
- GSA Standard Form (SF) 118, "Report of Excess Real Property," and any appropriate supplementary forms.
- Recommendation for disposal of the property from DOE accountability.

The memorandum stating that the property is excess must receive all appropriate field element concurrences. The Attachment to SF 118 must address 13 items required by the FPMR. Some of these items include a description of the real property, any restriction on the property, floodplains, wetlands, historic significance, and hazardous materials or waste. Concurrent with addressing the 13 items in SF 118, the field element must identify that portion of the real property on which no hazardous substances or petroleum products were stored for one year or more, released, or disposed in order to meet requirements of the Community Environmental Response Facilitation Act of 1992 (CERFA). The results of this identification must be submitted for concurrence by EPA if the real property is a site on the National Priorities List or by a state official if the property is not on the National Priorities List. If DOE is transferring the property under Section 161(g) of the Atomic Energy Act, DOE does not have to involve GSA in the transfer process or prepare GSA Standard Form 118. However, in practice, DOE essentially collects and discloses similar information for real property transferred under Section 161(g) in terms of identifying hazardous materials and wastes, other environmental considerations, and property future use restrictions.

MA or the appropriate Field Office screens the property identified for transfer with respect to potential needs of the other DOE field elements, program offices, and operations offices for the property. The property is declared excess to DOE if there is no permanent need for the property within DOE. Upon approving the property disposal action, the Team Leader of the DOE Real Property Team within MA or the appropriate Field Office transmits the completed GSA Standard Form 118 to the appropriate GSA regional office and a copy to the DOE field element. DOE Headquarters' approval for reporting of excess real property is generally required for large

properties or for field elements lacking a certified realty specialist. If DOE Headquarters approval is not required, the DOE field element then reports the real property to GSA for disposal and submits the required GSA Standard Form 118 and any appropriate supplementary forms. For property transferred by DOE under the Section 161(g) of the Atomic Energy Act, DOE headquarters and field elements in practice follow the internal DOE processes and procedures described above, but without the involvement of the GSA.

Steps for Withdrawn Land. If the excess real property is withdrawn land, DOE must notify the appropriate BLM office that it intends to relinquish the property for return to the public domain and prepare a Notice of Intent to Relinquish. DOE must also send a copy of the Notice to the appropriate GSA regional office. There is no specific standard format for the Notice of Intention to Relinquish; however, it must contain 13 specific items identified by regulation, including:

- The extent to which the land is contaminated and the nature of the contamination.
- The extent to which the land has been decontaminated or the measures being taken to protect the public from the contamination.
- The extent to which the land and resources have been disturbed and the measures being taken to recondition the property.

In addition, DOE must describe easements or other rights and privileges burdened on the land and a list of the terms and conditions, if any, DOE deems necessary to be incorporated in any further disposition of the land in order to protect the public interest. BLM then reviews the Notice of Intention to Relinquish to determine the suitability of returning the property to the public domain. The five conditions for BLM acceptance of withdrawn land for return to the public domain, as identified in 43 CFR 2374.2, are as follows:

1. The lands have been decontaminated and restored to suitable conditions. If decontamination and restoration are uneconomical, DOE must install and maintain protective notices and barriers.
2. DOE agrees to undertake treatment measures and measures deemed necessary by BLM to prevent deterioration of the land and resources.
3. DOE has exhausted GSA procedures for disposition of improvements to the land and certifies they are of no value.
4. DOE has resolved, through a final grant or denial, all commitments to third parties relative to rights and privileges related to the land.
5. DOE has submitted to the appropriate BLM office a copy of the easements, leases, or other encumbrances.

If the property meets all of the five conditions, BLM will notify DOE and GSA that it accepts accountability and responsibility for the excess withdrawn land. BLM then manages the land. If

BLM determines that the excess withdrawn land has been so substantially changed in character that it is not suitable for return to the public domain, BLM will notify GSA and request GSA to concur in the determination. BLM tends to reject for return to public domain excess withdrawn land upon which improvements have been built.

GSA Reviews. GSA reviews the submission from DOE to ensure that the documentation is complete and that the real property has no encumbrances and has a marketable title. If GSA rejects the property that DOE has reported as excess, it becomes a candidate for transfer to DOE's Office of Environmental Management (EM). GSA generally rejects real property if it is contaminated. If GSA accepts the property, then DOE can relinquish the property to GSA for disposal. Until the property is disposed, the DOE field element has environmental, safety, and health responsibility for the property for five fiscal quarters from GSA's acceptance of the report of excess property, or until the excess property is disposed, whichever is earlier.

CERCLA Requirements. CERCLA requires DOE to disclose whether any hazardous substances, certain hazardous wastes, or petroleum products have been stored, released, or disposed of on the property, in accordance with CERCLA Section 120(h)(1) and (3) and EPA regulations at 40 CFR Part 373. Conversely, CERCLA Section 120(h)(4) requires DOE to identify uncontaminated parcels of land that are proposed for transfer. EPA or the state agency must approve DOE's identification of uncontaminated parcels. CERCLA Section 120(h)(5) requires notification of the leasing of DOE real property which has been contaminated and where government operations will cease.

CERCLA Section 120(h)(3)(A) requires that a federal agency transferring real property to a nonfederal entity include a covenant in the deed of transfer warranting that all remedial action necessary to protect human health and the environment has been taken prior to the date of transfer with respect to any hazardous substances remaining on the property. In addition, CERCLA Section 120(h)(B) requires, under certain circumstances, that a federal agency demonstrate to EPA that the cleanup remedy implemented on the property is "operating properly and successfully" before the federal agency can provide the "all remedial action has been taken" covenant to the non-federal entity to which the land will be transferred. Under CERCLA Section 120(h)(C), the covenant can be deferred so that property may be transferred before all necessary remedial actions have been taken if regulators agree that the property is suitable for the intended use and the intended use is consistent with protection of human health and the environment. EPA has issued Interim Final Guidance on Institutional Controls and Transfer of Real Property pursuant to CERCLA Section 120(h)(3)(A), (B) or (C). Depending upon whether the property is or is not listed on the NPL, either EPA or the state must approve transfer of property under CERCLA.

For the purpose of spurring economic development in communities where federal facilities are closing, Congress has enacted several statutes to facilitate the transfer of contaminated properties from the federal government. These statutes are aimed at avoiding delays in clean-up and indemnifying new owners from having to clean-up hazardous substances attributable to federal activities. The statutes include CERFA, which amended CERCLA in 1992, and specific to DOE, the National Defense Authorization Act for Fiscal Year 1998.

NEPA Requirements. DOE's procedures (10 CFR Part 1021) for complying with NEPA and with the Council on Environmental Quality NEPA implementing regulations (40 CFR Parts 1500 to 1508) require a determination of whether any DOE proposal requires preparation of an Environmental Impact Statement (EIS), or an Environmental Assessment (EA), or is categorically excluded from the preparation of either an EIS or and EA. DOE's procedures allow categorical exclusions for the transfer, lease, disposition, or acquisition of interests in real property if certain conditions are met:

- Property use is to remain unchanged (i.e., the type and magnitude of environmental impacts would remain essentially the same (10 CFR Part 1021, subpart D, Appendix A, subsection A.7).

- For the transfer of uncontaminated structures for residential, commercial, or industrial use, if environmental impacts after the transfer would generally be similar to those before the transfer (10 CFR Part 1021, subpart D, Appendix B, subsection B.24).

- For the transfer, lease, disposition, or acquisition of interest in uncontaminated land for habitat preservation or wildlife management (10 CFR Part 1021, subpart D, Appendix B, subsection B.25).

Oct 2001

REF

LIBRARY COPY

LONG-TERM STEWARDSHIP STUDY

Volume II – Response to Public Comments

Prepared to comply with the terms of a settlement agreement:
Natural Resources Defense Council, et al. v. Richardson, et al., Civ. No. 97-936 (SS) (D.D.C. Dec. 12, 1998).

Final Study

October 2001

U.S. Department of Energy
Office of Environmental Management
Office of Long Term Stewardship

Introduction

Volume II of the *Long-term Stewardship Study* includes a copy of each public comment received on the *Draft Study* along with DOE's responses to these comments. The 45-day formal public comment period was October 31, 2000 to December 15, 2000 and included a public hearing that was held in Washington, D.C. on November 30, 2000.

DOE received public comments from 50 commenters, including four speakers at the public hearing. DOE reviewed and considered all public comments and other suggestions. These comments and suggestions were integrated with ongoing DOE work in the development of the *Final Study*. However, the *Study* does not establish policy or make decisions, and site-specific comments have been incorporated only to the extent feasible in the context of national long-term stewardship issues.

List of Commenters

Commenter

1. Mary Lou Blazek, Oregon State Office of Energy, December 4, 2000
2. James S. Johnson, Oak Ridge, TN, December 7, 2000
3. Robert Peelle, November 26, 2000
4. Tom Fitzsimmons, Washington State Department of Ecology, December 6, 2000
5. Kathy Crandall, Alliance for Nuclear Accountability, November 30, 2000
6. Tri-Valley CARES and Western States Legal Foundation, December 12, 2000
7. Stanley Hobson, INEEL Citizens Advisory Board, November 22, 2000
8. Kenneth Reim, Las Vegas, NV, November 28, 2000
9. Sam Booher, Augusta, GA, December 10, 2000
10. Mark Plessinger, DOE Grand Junction Project Office, December 11, 2000
11. Pamela Sihvola, Committee to Minimize Toxic Waste, December 15, 2000
12. Stephen Dycus, Vermont Law School, December 18, 2000
13. Earl Leming, State of Tennessee Department of Environment and Conservation, December 12, 2000
14. Robert Johnson, Nuclear Regulatory Commission, December 13, 2000
15. Thomas Family, Pleasant Hill, CA, December 13, 2000
16. Daniel Miller, State of Colorado Office of the Attorney General, December 13, 2000
17. Carol E. Lyons, City of Arvada, CO, December 14, 2000
18. Michael Duvall and Mary Halliday, St. Charles City Government, MO, December 14, 2000
19. Ann Beachesne, National Governors Association, December 14, 2000
20. Julie Davis, South Davis Campus Superfund Oversight Committee, December 14, 2000
21. Norman Mulvenon, Oak Ridge Reservation Local Oversight Committee, December 14, 2000
22. Luther Gibson, Oak Ridge Site Specific Advisory Board, December 13, 2000
23. Dennis Bechtel, Clark County Department of Comprehensive Planning, December 14, 2000
24. Tom Marshall, Rocky Mountain Peace and Justice Center, December 15, 2000
25. Stephen Mahfood, Missouri Department of Natural Resources, December 15, 2000
26. M.J. Plodinec, Mississippi State University, December 15, 2000

27. Patrick Sobotta, Nez Perce Environmental Restoration and Waste Management, December 15, 2000
28. Steve Tarlton, State and Tribal Government Working Group, December 15, 2000
29. Steve Tarlton, Colorado Department of Public Health and Environment, December 15, 2000
30. Reinard Knutsen and Susi Snyder, Shundahai Network, December 15, 2000
31. Carl N. Anderson, Oakland, CA, December 14, 2000
32. Robert M. Gould, Physicians for Social Responsibility, December 14, 2000
33. Fred E. Humes, Economic Development Partnership, December 11, 2000
34. Vernon Brechin, Mt View, CA, December 14, 2000
35. Janis Kate-Turner, Livermore, CA, December 19, 2000
36. DOE Fernald Environmental Management Project, December 12, 2000
37. Jay Vance, Envirocare of Utah, Inc., December 15, 2000
38. Roman Kohler, Rocky Flats Homesteaders, December 19, 2000
39. H. Boyd Hathaway, DynCorp Tri-Cities Services, Inc., December 15, 2000
40. Victoria L. Peters, State of Colorado Office of the Attorney General, December 15, 2000
41. Tim Michael, New Mexico Environment Department, December 18, 2000
42. Bryan Taylor, Rocky Flats History Group, University of Colorado, December 19, 2000
43. Nevada Test Site Community Advisory Board, December 20, 2000
44. Diana Yupe, Shoshone-Bannock, Tribal State and Tribal Government Working Group, December 15, 2000
45. Mark Donham and Kristi Hanson, Regional Association of Concerned Environmentalists/ Coalition for Nuclear Justice, December 18, 2000
46. Debra McBaugh, Washington State Department of Health, December 29, 2000
47. and 48. Public Hearing, Thursday, November 30, 2000
49. Russell Jim, Yakama Nation, December 27, 2000
50. Thomas Winston and Graham Mitchell, State of Ohio Environmental Protection Agency, December 15, 2000

Oregon
John A. Kitzhaber, M.D., Governor

Office of Energy
625 Marion St. NE, Suite 1
Salem, OR 97301-3742
Phone: (503) 378-4040
Toll Free: 1-800-221-8035
FAX: (503) 373-7806
www.energy.state.or.us

December 4, 2000

Steven Livingstone
Project Manager
U.S. Department of Energy
P.O. Box 45079
Washington, D.C. 20026-5079

Dear Mr. Livingstone:

We are pleased to provide comments on the Department of Energy's Long-Term Stewardship Study Draft dated October 2000.

This draft is a very well reasoned and thoughtful analysis of the problems and issues that DOE faces in managing the legacy of wastes left from its' operations from the beginning of the cold war through the present and into the future. Though the document notes that this is not a decision document, it provides a good framework for DOE managers to begin their evaluations in many other decision documents. We also believe it provides a good basis for DOE to begin formulating Policy Guidance.

1.1 – The Department appreciates this comment. Thank you.

We are especially pleased to see the emphasis on planning for uncertainty and fallibility. By planning for these, DOE stands a much better chance of avoiding difficult and costly responses long after cleanup was thought to be completed.

1.2 – The Department appreciates this comment. Thank you.

The draft recognizes the value of contingency planning and emergency management for unanticipated events.

Lakeview Uranium Mill Waste Disposal Site

One of the first long-term disposal sites for Uranium Mill wastes was completed several years ago near Lakeview, OR. This site is instructive on what DOE might expect for some long-term stewardship issues. During construction, the cover rock authorized by DOE was of lower quality than originally specified.

1.3 – This comment focuses on site-specific issues. Where these issues have identified general issues for long-term stewardship, the Department has attempted to communicate these issues in both the Draft and Final Study. This comment has been forwarded to the Department's long-term stewardship representatives at the appropriate sites; however, the long-term stewardship study is not the appropriate document for addressing site-specific issues.

Since completion of the disposal cell, several problems have been noted. Cows walked up a hill immediately adjacent to the site and formed a furrow, which eroded. If this continued uncorrected, it had the potential to erode into the disposal cell. The damage was repaired and a fence is now maintained below the disposal cell to keep the cows away.

A badger was also found burrowing into the soils on top of the hill immediately adjacent to the disposal cell. The badger was relocated and the damage repaired. This too threatened the cell and might have been avoided with minor changes to the disposal cell design.

The greatest threat to the disposal cell so far is from the rock used in the disposal cell cover. The rock is showing signs of degradation and is breaking up. It is likely that at some point this portion of the cover will need to be removed and replaced. This cap and cover was designed for a one-thousand year life.

Indian Tribes

The draft makes extensive comments analyzing and supporting DOE's obligations to Native Americans and to Tribal Treaty duties. However, this is inconsistently applied. It seems to place emphasis on the "host community", while neglecting the often major importance that DOE sites play in regions of the country.

The Hanford site is instructive in this regard. Though Hanford has the greatest immediate impact on the local Tri-City communities of Richland, Pasco and Kennewick, it also has enormous impact on the broader Columbia Basin, including both Oregon and Washington States, the Yakima Nation, the Wanapum, the Confederated Tribes of the Umatilla and the Nez Perce Tribe. Public involvement in all aspects of the site must include the interests from the entire effected region.

1.4 – This comment is acknowledged in a text box in Section 9.1 of the Study. The definition of "affected parties" in Chapter 1 of the Study was broadened to include regional concerns. Section 4.1 and Chapter 9 of the Study acknowledge the special government-to-government relationship between the federal government and Tribal governments. Chapter 9 of the Study also acknowledges the importance of ensuring that the federal Indian Trust Responsibilities and federal treaty obligations are met.

Four Principles

The draft identifies The Four Principles of Intergenerational Equity. A fifth principle should also be included – The Trust Principle. The Trustee Principle focuses on our duty for our descendants. The Trust Principle extends this to the Federal Governments obligation and duties for the Tribes descendants.

1.5 – This comment is acknowledged in a text box in Section 9.1 of the Study. The Department agrees that long-term stewardship activities must ensure that the federal Indian Trust Responsibilities and federal treaty obligations are met. However, the Four principles of Intergenerational Equity noted in the Draft Study are a direct citation from the National Academy of Public Administration report.

Failure of long term institutional controls

To succeed, Long-Term Stewardship at DOE sites must avoid to the greatest degree possible the use of institutional controls. Instead, active remediation combined with proven engineered barriers should be preferred.

The conceptual models used to support these designs must be verified to bound the actual site conditions. In particular, horizontal transport of moisture through soils challenges the utility of surface barriers.

1.6 – Long-term stewardship planning (see Chapter 4 of the Study) and remedy selection decisions are done on a site-specific basis with input from regulators, stakeholders, and the public. As noted in Exhibit 3-1 of the Study, the criteria used to evaluate remedial alternatives include long-term effectiveness and cost-effectiveness. The long-term effectiveness of institutional controls is one of the criteria for evaluating long-term stewardship requirements during remedy selection that have been suggested in guidance developed by DOE, EPA, and the Department of Defense (DoD) and in recommendations forwarded to the Department (see Exhibits 3-2 and 3-3 in the Study). The Department also has identified the need to promote new science and technology development to help address the uncertainties associated with maintenance of institutional and engineered controls. The Department acknowledges the public concerns about long-term effectiveness in a text box in Section 3.2 of the Study. The issue of uniform or national standards for cleanup is beyond the scope of this Study because this document focuses on long-term stewardship. In addition, the Department notes that the specific mix of active remediation, proven engineered controls, and institutional controls needs to be decided on a site-specific basis.

Timeframes

It is unfortunate that many of the wastes created by DOE over the past fifty years will remain intrinsically dangerous a long time. As a result, cleanups at the sites need to focus on ensuring the permanence of proposed remedies for the indefinite future. The hazardous waste laws are for the most part aimed at ensuring compliance for a few decades to at most a century. They do not easily lend themselves to analyzing hazards over thousands of years. Long-Term Stewardship can play a central role in changing the way cleanups are done, thereby reducing both the hazards remaining and the long term costs. As a beginning, cleanups should be implemented in such a manner that there is a high likelihood that they will remain effective as long as the wastes remain dangerous. 1.7

1.7 – Long-term stewardship planning (see Chapter 4 of the Study) and remedy selection decisions are done on a site-specific basis with input from regulators, stakeholders, and the public. As noted in Exhibit 3-1 of the Study, the criteria used to evaluate remedial alternatives include long-term effectiveness and cost-effectiveness. The long-term effectiveness of institutional controls is one of the criteria for evaluating long-term stewardship requirements during remedy selection that have been suggested in guidance developed by DOE, EPA, and the Department of Defense (DoD) and in recommendations forwarded to the Department (see Exhibits 3-2 and 3-3 in the Study). The Department also has identified the need to promote new science and technology development to help address the uncertainties associated with maintenance of institutional and engineered controls. The Department acknowledges the public concerns about long-term effectiveness in a text box in Section 3.2 of the Study. The issue of uniform or national standards for cleanup is beyond the scope of this Study because this document focuses on long-term stewardship.

The draft notes the inadequacies of our current technical understanding and capabilities. It further provides the impetus to advance the science, engineering and technology for a remedy. Understanding how well or poorly we understand the ecosystems, physical environment, transport processes other factors and uncertainties will form a key component of any such analysis. 1.8

1.8 – The Department acknowledges these comments in a text box in Section 4.2.4 of the Final Study. As noted in Section 4.2.4 of the Final Study, the Department's process for developing and implementing new science and technology includes developing a long-term stewardship science and technology roadmap that will (1) identify science and technology needs; (2) identify existing capabilities to meet these needs both within and external to DOE; (3) determine research and development priorities; and (4) direct specific efforts to meet these needs. The Department agrees that research into a number of key areas is needed, including the long-term effectiveness and reliability of engineered and institutional controls; surveillance and monitoring; and information management. Advances in science and technology may provide future generations with the ability to cost-effectively achieve unrestricted use at some sites. The Department's Long-term Stewardship Working Group recently identified the policy issue as to whether the ultimate goal of new science and technology should be to improve the ability to maintain the existing end state (i.e., the end state established during cleanup) or should be to "improve" the end state more closely toward unrestricted use as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee.

Environmental Justice

At DOE sites, cleanup decisions are frequently analyzed by using a combination of different exposure scenarios. The two most common are the industrial and residential scenarios. Residential scenarios set an acceptable risk cutoff of one in one-million. The industrial scenario assumes that exposure is limited by exposure time and exposure pathways. It allows for a higher risk level of one chance in ten-thousand of inducing a fatal cancer.

Industry may favor building on clean land to avoid liability for past practices of others that used the site before them. This may invalidate the assumptions used in the industrial cleanup scenario and seriously question the policy of having two cleanup levels. What is needed is a uniform protective standard for cleanup that recognizes the unique conditions at each site. 1.9

1.9 – The extent that risk-based cleanup standards can be adapted to a particular land use is the approach followed by DOE and external regulators in making cleanup decisions.

Land Use

At present, many DOE cleanup decisions are predicated on deciding today what land use will be more than a century from now. The acceptable level of cleanup is set by the scenarios that flow from this land use that recognizes the unique conditions at each site.

However, the reality as is noted by the draft is that institutional controls cannot be relied upon. People's desires can and do change and the land use cannot be assured. These factors lead to 1.10

1.10 – Long-term stewardship planning (see Chapter 4 of the Study) and remedy selection decisions are done on a site-specific basis with input from regulators, stakeholders, and the public. As noted in Exhibit 3-1 of the Study, the criteria used to evaluate remedial alternatives include long-term effectiveness and cost-effectiveness. The long-term effectiveness of institutional controls is one of the criteria for evaluating long-term stewardship requirements during remedy selection that have been suggested in guidance developed by DOE, EPA, and the Department of Defense (DoD) and in recommendations forwarded to the Department (see Exhibits 3-2 and 3-3 in the Study). The Department also has identified the need to promote new science and technology development to help address the uncertainties associated with maintenance of institutional and engineered controls. The Department acknowledges the public concerns about long-term effectiveness in a text box in Section
3.2 of the Study. The issue of uniform or national standards for cleanup is beyond the scope of this Study because this document focuses on long-term stewardship. In addition, the Department agrees that institutional controls must be continuously monitored for effectiveness, and the results made available to all stakeholders. DOE also recognizes that future stakeholders may have views and desires for land uses that are different than those established by today's stakeholders. Therefore, a viable long-term stewardship program is necessary to

potential failures in Long-Term Stewardship. What is needed is a uniform protective standard for cleanup.

Cleanup Standards

DOE managers and regulators also often make a distinction on cleanup standards based on land-use. When the proposed future use of the land is decided, the regulators and DOE tend to set cleanup levels that allow much higher residuals of contaminants to remain behind. As noted above, this leaves a large vulnerability to change as these land-use decisions are revisited in the future.

1.11 – Since cleanup decision documents must specify or reference a future land use for the site appropriate for the protection of human health, worker safety, and the environment, a remedy would be unprotective if the land use decision was reversed resulting in unacceptable exposures. The remedy may need to be revisited in this case to ensure long-term protection of human health and the environment.

At Hanford, DOE and the regulators have proposed setting cleanup levels in this way. However, in the short time since these decisions were made, large portions of the site have been designated as a National Monument. The U.S. Fish and Wildlife Service (USF&W) is the lead Federal agency for management of the monument. They propose to require that cleanup levels for lands in the monument be more restrictive to protect the ecosystems than was proposed for protection of humans under the residential scenarios.

It is possible that contaminated lands under DOE control today will have to be cleaned up to more stringent standards to allow ultimate transfer to USF&W. If not DOE will likely have to institute and maintain long-term protective actions and stewardship over contaminated parcels surrounded by National Monument lands.

Public Involvement

Throughout this process, the public – both local and regional – the effected States, Tribes and others should be consulted and involved in the decision making. This already occurs over the short term for most decisions made under the direction of The National Environmental Policy Act, the Resource Conservation and Recovery Act and the Comprehensive Environmental Response, Compensation and Liability Act. It must also occur at each decision point throughout the long-term stewardship period.

1.12 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend the public participation process will allow the Tribes and the public to express their views on long-term stewardship activities at DOE sites.

State and Tribal Governmental Working Group (STGWG) comments

We endorse and strongly support the comments provided by the State and Tribal Governmental Working Group.

1.12.1 – Please see responses to comment letter 28.

Attached are our additional detailed comments.

If you have any questions in regards to our comments, please contact me at (503) 378-5544 or Mr. Dirk Dunning on my staff at (503) 378-3187.

Sincerely,

Mary Lou Blazek
Nuclear Safety Program Manager
Oregon Office of Energy
625 Marion St. NE, Suite 1
Salem, OR 97301-3742

Cc:
States and Tribal Working Group
National Governors Association
Hanford Advisory Board
Oregon Hanford Waste Board

Detailed comments and questions on the Department of Energy's Long-Term Stewardship Study Draft dated October 2000

- How will DOE enforce restrictions on land owned by someone else, particularly if ownership continues to change hands?

1.13 – This comment is acknowledged in a text box in Section 6.2 of the Study. Section 6.2 of the Study recognizes the many issues, public concerns, and uncertainties associated with ensuring the continued provision of long-term stewardship after property transfers. The Department's Long-term Stewardship Working Group recently identified the issue of how DOE will ensure adequate protection of human health and the environment at sites transferred to the private sector as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This comment will be provided to the Executive Steering Committee for their consideration.

- Part 2.5 page 8 states in part that continued protection of human health and the environment will depend on public awareness and institutional openness. This is one of the most critical challenges to sustainability.

  DOE must begin public awareness as soon as possible with stakeholder participation. The only way the public will respect restrictions is if they are involved from the beginning and continue with a robust public awareness and involvement program. In addition, if such controls are to be used, there must be some way to assure that they remain in place and remain used for so long as the hazard remains. Already we know that at DOE sites, memory of what was disposed begins to fail within a decade.

1.14 – See response to Comment 1.7

- Part 2.6 page 8 states in part that one of the biggest stakeholder concerns is the source and nature of sustained funding for long term stewardship. A variety of issues are associated with each funding alternative, including in some cases the lack of clear legislative authority to implement the alternative.

  The draft should outline the issues associated with each alternative.

1.15 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. As noted in Section 8.2 of the Study, developing an alternative funding mechanism will require additional study and eventually Congressional action. Section 8.2 of the Study also provides a summary of the recent study of Trust Funds by Resources for the Future. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration. In addition, the Department believes that Section 8.2 of the Study adequately discusses

- Part 2.7 page 8 states in part that Tribal goals often differ from those of local governments.

  DOE should consider tribal interests as a priority.

1.16 – See response to Comment 1.4.

- Part 2.8 page 10 states in part that residual hazards and strategies for managing these hazards should be re-evaluated periodically to take into account new science and technology.

  Stakeholders should be involved in these evaluations.

1.17 – See response to Comment 1.12.

- Chapter 3: page 13 states in part that requirements of cleanup decisions under RCRA typically extend up to 30 years beyond completion of cleanup, with provisions to extend monitoring and maintenance activities beyond that period if necessary.

  The plan should include the point at which the decision to extend would be made. It should also include at what points during the 30 years the public will be involved and that the public will be involved beyond that point if further decisions need to be made.

1.18 – As noted in Section 4.2.2 of the Study, site-specific long-term stewardship plans are required by law for uranium mill tailings sites and must be approved by the Nuclear Regulatory Commission. The Department also requests the development of a site-specific long-term stewardship plan before accepting long-term stewardship responsibilities for any site. As the EM mission at a site is completed, current plans call for the EM program and the site landlord (if different from EM) to develop a long-term stewardship baseline for each site. The baseline will describe the scope of applicable long-term stewardship requirements, the technical activities and the projected schedule to meet these requirements, and expected costs. The Department acknowledges these comments in a text box in Section 4.2 of the Final Study and will consider the recommendations they provide in developing the guidance that will specify the format and content for site-specific long-term stewardship plans.

- Page 14 states in part that for UMTRA sites there is no termination of the general license issued by the NRC for custody and long-term care of residual radioactive material disposal sites. 1.19

  DOE should have a general license or some other regulatory arrangement with NRC for long term maintenance and monitoring in perpetuity.

- Page 14 also states in part ...if complete treatment or removal of the source(s) and resulting contaminated media is technically and economically feasible.... 1.20

  It should be stated that DOE will make this decision in consultation with regulators and stakeholders.

- Part 3.2 page 15 states in part...Preliminary and Final Close-out Reports ...provide more ...information about the ...remedy and requirements for operation ...and monitoring of the remedy. 1.21

  The public involvement process for the preliminary and final Close-out Report should be stated.

- Page 17 discusses Remedy Monitoring Plans 1.22

  There is no discussion of any public process prior to issuing a final plan. If this is the case, a decision (remedy selection) is made which leads to the decision about long-term stewardship without public involvement.

- Exhibit 3.3 page 20 (Department of Energy) outlines criteria developed by DOE, EPA and DOD for evaluating long-term stewardship. 1.23

  This exhibit should discuss the points for public involvement in the process.

- Exhibit 3-4 Recommendations by Affected Parties is an important list of considerations and we support them.

- Exhibit 3-4 (continued) suggests that Congress should establish a fund that will generate the required annual budget for stewardship. Another bullet points out that the Assistant Secretary should require full consideration of the estimated lifecycle costs of remediation and long-term institutional controls in order to evaluate the tradeoffs between cleanup and stewardship. We agree. Further, this analysis should include a full analysis of non-economic life-cycle impacts. 1.24

1.19 – The Department acknowledges these comments in a text box in Section 4.1 of the Final Study. The specific mechanisms available for oversight and enforcement of long-term stewardship vary according to the applicable regulatory regime(s) and state laws on a site-specific basis. The Department has not developed a policy on potential alternative regulatory regimes at specific sites. These comments will be provided to the senior management Long-term Stewardship Executive Steering Committee for their consideration.

1.20 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend the public participation process will allow the Tribes and the public to express their views on long-term stewardship activities at DOE sites. The Department also notes that Chapter 1 of the Study states that DOE's cleanups are based on existing plans and agreements with regulators, with input from affected parties.

1.21 – See response to Comment 1.12.

1.22 – See response to Comment 1.12.

1.23 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend the public participation process will allow the Tribes and the public to express their views on long-term stewardship activities at DOE sites. In addition, the Department believes that the text in Section 3.2 of the Study adequately provides this information.

1.24 – The Department acknowledges this comment in a text box in Section 8.1 of the Final Study. The Department agrees that more information is needed on the scope of future long-term stewardship activities and better life-cycle costs estimates are needed. The Final Study incorporates the cost estimates from the Report to Congress on Long-term Stewardship and will discuss the basis for these estimates. Accurate cost estimates are critical for long-term stewardship, particularly for ensuring accountability for the technical scope of the program. The Report to Congress on Long-term Stewardship is only the first step in developing the necessary cost figures. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should b e addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites. This comment will be forwarded to the Executive Steering Committee for their consideration.

- Part 7.2 page 73 states in part that "The first step in such an effort would be to develop a consensus on the types if activities onsite and in the surrounding communities that will require information.

  This section should state…"will require information" add…by involving **the regional stakeholders** and surrounding communities…

- Page 74 **"Make critical information available to offsite entities."** Change the first sentence to read: DOE needs to work proactively with **States, stakeholders and** local communities to make information available…..

- Page 77 regarding records…first line should be changed to read "site files in **regional** and local libraries;

- Page 78 first line should be changed to read "between dispersed and central control, but more dialogue **to include stakeholders** is required …

- Page 85 Item number 2 at the bottom of the page. Long-term Stewardship Funds /Escrow Account. We strongly support this approach.

- Page 94, Exhibit 9-1 describes a process for involving the public in DOE's decision process. However, it omits the special government to government relationship between the Federal Government (represented by DOE) and the Tribes in the process, as well as the regulators and broader regional interests.

1.25 – The text now mentions regional "affected parties". The Department uses this term instead of the suggested word: "stakeholders".

1.26 – The text has been changed to reflect this comment; however, the term "affected parties" is used rather than "stakeholders".

1.27 – The text has been changed to reflect this comment; however, the phrase "local libraries" is used instead.

1.28 – This comment is reflected in the text; however, the term "affected parties" is used rather than "stakeholders".

1.29 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. As noted in Section 8.2 of the Study, developing an alternative funding mechanism will require additional study and eventually Congressional action. Section 8.2 of the Study also provides a summary of the recent study of Trust Funds by Resources for the Future. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

1.30 – Section 9.1 includes a text box on the Role of Tribal Governments in Long-term Stewardship.

918 West Outer Drive
Oak Ridge, TN 37830
(865)-483-5152
JOSHJOHNSON@Prodigy.net
7 December 2000

Steven Livingstone, Project Manager
U.S. Department of Energy
P.O. Box 45079
Washington, DC 20026-5079

Subject: Comments on "Long-Term Stewardship Study", draft of October 2000.

Dear Mr Livingstone:

I have participated in various Oak Ridge groups interested in stewardship and in their review of the subject draft. Here, I wish to comment as an individual on one specific aspect that seems of particular importance.

On page 38, a box summarizes various needs for research and development. Although I do not quarrel with any of them, it seems to me there is a grievous omission. Estimates of stewardship costs for the Oak Ridge Reservation have varied wildly, but many projections have been in the range of ten to fifteen million dollars per year. However, the breakdowns have frequently attributed $10 million plus to Bethel Valley (site of Oak Ridge National Laboratory) alone. When one is aware of the far worse contamination over the ridge in Melton Valley, not to speak of Y-12 and the old K-25, such a large fraction raises questions.

So far as we members of the public have been able to elucidate answers, it appears that the major drains in Bethel Valley are the costs of pumping and treating ground water, eighty or ninety percent of the total. It seems unlikely that pumping is the major factor; most of the water appears to be from the sumps of buildings in the area, with relatively small fractions from controlling the core-hole 8 and other plumes. Treatment then must be the major cost. From what numbers I have been able to extract in oral presentations, it seems that of the order of $100/kilogallon is being spent on treatment. The feed is only slightly contaminated; it does not need elaborate shielding for the workers. This cost seems exorbitant. I don't know what is spent to make high-salinity Persian Gulf water potable, but I doubt it is over 5 or 10% of $100/kilogallon.

Applied research topics are usually selected on the basis of economic gain of success and the probability of success. It seems to me that improvement of technology for water treatment (or just adopting better available technology) easily meets both of these criteria. I have the impression that similar high costs are being incurred in DOE sites other than Oak Ridge.

Although the projections of gross stewardship costs I quoted have appeared in CERCLA and other documents, the volumes of water being treated in Bethel Valley and costs attributed to the activity have been gleaned from oral presentations. There is consequently a possibility of misunderstanding. However, if the numbers are in the ball park, there needs to be an assessment of current practices.

Sincerely,

James S. Johnson Jr

James S. Johnson, Jr

2.1 – This comment focuses on site-specific issues. Where these issues have identified general issues for long-term stewardship, the Department has attempted to communicate these issues in both the Draft and Final Study. This comment has been forwarded to the Department's long-term stewardship representatives at the appropriate sites; however, the long-term stewardship study is not the appropriate document for addressing site-specific issues.

2.2 – The Department acknowledges this comment in a text box in Section 4.2.4 of the Study. The Department has identified two preliminary goals for new science and technology for long-term stewardship: (1) reduce long-term stewardship costs, and/or (2) increase long-term stewardship effectiveness. These preliminary goals may change in the future as DOE gains more experience with long-term stewardship. Section 4.2.4 also notes that expertise and solutions may come from the private sector.

130 Oklahoma Avenue
Oak Ridge TN 37830
November 26, 2000

Steven Livingstone, Project Manager
U.S. Department of Energy
P.O. Box 45079
Washington D.C. 20026-5079

Dear Mr. Livingstone **Comments on the draft Long Term Stewardship Study of October 2000**

This report is an excellent effort to illuminate the large issues involved for Department of Energy Long Term Stewardship (LTS) and indicate the available broad policy directions. I did not detect a major point that is not covered somewhere at least by implication. A few ideas, however, were treated too lightly or indirectly to command the future attention they deserve. A few sentences changed or added could eliminate these residual questions.

3.1 – The Department appreciates this comment. Thank you.

Citizen requests, as in Oak Ridge, for better LTS coverage in Proposed Plans (PP) and Records of Decision (RODs) are dismissed on pages 15 and 17 in Section 3.2 with an argument based on a flawed statement of the request. Nobody expects a detailed stewardship plan in a ROD, a plan that would locate signs, fenceposts, the exact width of buffer zones, or list the botanical and biological species that will be monitored forever. Yet the impossibility of including such detail has been given as the reason for not including meaningful stewardship discussions in the crucial decision documents (PP and ROD) that set out the whole remediation strategy for an area. How can stewardship be considered in remedy suggestion as the LTS study suggests on page 16 if these documents do not clearly commit to maintaining a level of remediation through time that is sufficient to achieve the chosen Remedial Action Objectives? (There is an open process for modifying objectives.) Here, "remediation" includes all the monitoring, maintenance of both institutional and physical controls, information storage and retrieval, public education, and reconsideration of alternatives to which your Study refers. (An analogous issue must exist at sites not regulated under CERCLA.) I believe that a post-ROD document, to which the public has no required input, is no place to be defining high level goals for long-term stewardship as is suggested near the end of page 17.

3.2 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process to allow for meaningful Tribal and public involvement. Note also that The Department agrees that Records of Decision and other decision documents should clearly identify problems, remedial objectives, and long-term stewardship implications to the extent feasible. Section 3.2 of the Study has been revised to emphasize this point.

On page 41 and Exhibit 5-1 the authors of the Study acknowledge that persons outside the originally contaminated area are protected from hazards primarily by "engineering controls" designed to stabilize the contaminants, rather than by "institutional controls" that keep people away from hazards. However, the rest of the report dwells far too much on the latter type of remedy. Unless contaminated properties are transferred to owners who prove to be complacent and uncooperative, the engineering controls and their maintenance will be the more important for DOE sites just as they are for strip mines and old hazardous waste dumps that lack effective liners and caps. Where hazardous contamination will be left in place at weapons sites, engineered physical controls will be added to substitute for the careful structure of a proper landfill; storm and flood are bound to challenge the halfway measures that must be used to control contaminant transport.

3.3 – The Department acknowledges this comment in Section 5.3 of the Study. The Department believes that Section 5.3 of the Study appropriately discusses the difficulties and challenges associated with ensuring the long-term maintenance of institutional controls, including roles and responsibilities for enforcement. The determination of the type of institutional controls and enforcement of these controls (e.g., by DOE or external parties) will be determined on a site-specific basis as part of remedy selection and long-term stewardship planning and may change over time.

On page 48 and particularly in Exhibit 5-4, the authors indicate the fragility and possible uselessness of land use control measures such as deed restrictions. I recall that the paper of Mary English, your Reference 49, indicates that easements and other deed restrictions have been found to fail over time unless the owner that originates the restrictions (here usually the federal government) consistently enforces the restrictions in the civil courts. This finding is very important, and suggests a strong and difficult condition for the usefulness of deed restrictions. I have found many references to deed restrictions in government regulations and decision documents, but recall only one case that indicated the intent of the agency to inspect and then enforce the restriction (groundwater licenses in Union Valley in Oak Ridge). If Ms. English is correct for an important fraction of the cases, this consistent enforcement caveat needs emphasis; it is just the type of condition that engineers and members of the public are unlikely to think of. (Another approach would be for the DOE to convince state legislatures to enable third party lawsuits to enforce deed restrictions for a class of lands that includes DOE sites. Local governments normally cannot and do not try to enforce such restrictions.)

3.4 3.4 – See response to Comment 3.3.

Please mention the significance of cost inflation to the considerations involving trust funds in Section 8 around page 91. The trust described in Exhibit 8-5 for stewardship of the Oak Ridge Reservation Environmental Management Waste Management Facility can succeed only if the terms of agreement are broadly interpreted to include regularly using a portion of the trust income to increment the principal. This reinvestment would counteract the expected gradual increase over time in the dollar cost of maintenance and monitoring. The Tennessee trust fund agreement is a real breakthrough, and interestingly it is one in which the local public played no roles except to be concerned before and to cheer after it was signed.

3.5 3.5 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. The text in Exhibit 8-3 was modified to note this point.

The likely importance of continuing local public involvement to effective LTS is introduced in the sidebar on page 91 concerning public participation. I applaud those comments, but would go farther. I think some sort of citizen stewardship board will be needed at the widely contaminated sites. Successful organization of such boards will be difficult, and some encouragement by the federal government may be required. Local governments could combine to provide such informal oversight, but my own extensive experience as a county legislator suggests that long term problems rarely get the attention of local political leaders. They are usually busy paving roads, operating jails, and hiring school teachers, all on a tight annual schedule. Often, some citizen group must activate the elected leaders. Also, local governments are under heavy pressure to overprioritize economic development efforts.

3.6 3.6 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process to allow for meaningful Tribal and public involvement.

I am pleased that the Natural Resources Defense Council lawsuit settlement has led to a useful overview of DOE's stewardship needs.

Regards,

Robert Peelle

cc. Oak Ridge Stewardship Committee

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
P.O. Box 47600 • Olympia, Washington 98504-7600
(360) 407-6000 • TDD Only (Hearing Impaired) (360) 407-6006

December 6, 2000

Mr. Steven Livingstone
Project Manager
U.S. Department of Energy
P.O. Box 45079
Washington, D.C. 20026-5079

Dear Mr. Livingstone:

Thank you for providing the opportunity to comment on the Department of Energy's Draft Long-Term Stewardship Study. From our perspective, long-term stewardship at the Hanford Site is a very important and challenging issue. The framework set out in the Draft Study will certainly play a significant role in determining how USDOE, the State of Washington, Indian tribes, local governments and other stakeholders approach that challenge.

Your department's leadership in addressing long-term stewardship at large contaminated sites will also affect how other agencies, regulators and responsible parties approach management of residual hazards all across the country. In the enclosed comments, you will find us frequently urging a broader perspective than the inward-focused tone in the draft Study. Please do not take that to mean that USDOE's work and leadership are not critical. Indeed they are, and we strongly encourage the Department to carry on this work and to become an advocate within the broader federal family.

We trust the enclosed comments will be helpful to you as you finalize the Study document, and as you develop a path forward for USDOE's long-term stewardship efforts. If you have questions regarding these comments, please contact Max Power, in our Nuclear Waste Program, at 360/407-7118.

Sincerely,

Tom Fitzsimmons
Director

cc: Chuck Findley, USEPA Region X
Keith Klein, Manager, Richland Operations Office, USDOE
Howard Roitman, ECOS Long-Term Stewardship Subcommittee
Dan Miller, NGA Long-Term Stewardship Committee
Earl Leming, State & Tribal Government Working Group Long-Term Stewardship Committee
Merilyn Reeves, Hanford Advisory Board

Draft Comments on
USDOE's
Long-Term Stewardship Study Draft

GENERAL COMMENTS

- The draft Study brings together many complex issues in a single overview and in generally readable and often candid prose. There are however points at which the "bureaucratese " obscures the message.

4.1

4.1 – The Department appreciates this comment. Thank you.

- The draft Study includes a number of useful compendia of legal and regulatory citations, summaries of specific concepts, examples and other material. This will make it a useful desk reference; however, that also suggests that periodic updates would be in order to maintain its usefulness.

4.2

4.2 – This comment is acknowledged in a text box in Section 4.1 of the Study. Updates to the Study for the suggested purpose would have little added value because most of this information is available at EPA and DOE (EM, EH) websites, including the Long-term Stewardship Information Center Website (http//lts.apps.em.doe.gov).

- In spite of some good discussion, especially in Chapter 3, the draft Study understates the degree to which the costs and uncertainties of long-term stewardship should drive toward cleanup to unrestricted use wherever such cleanup is feasible. The multiplication of contaminated soil sites, in particular, requiring long-term stewardship is likely to lead to both confusion and diffusion of resources, focus and effort. Given the complexities of long-term stewardship, as revealed in the study, it should be focused on those area--e.g. waste disposal units and major groundwater contaminant plumes--where such activities are significant and concentrated.

4.3

4.3 – The decision to clean up to unrestricted use, or to meet other specific land use requirements, is made on a site-specific basis with input from regulators, stakeholders, and the public. It is both DOE and EPA policy that cleanup remedies should be consistent with the intended future use of the affected areas. Chapter 2 of the Study includes a new text box that provides a more formal statement on the scope of long-term stewardship and why it is required (i.e., the inability to achieve unrestricted use and the nature of residual hazards). The goal of long-term stewardship is to ensure continued protection of human health and the environment consistent with applicable requirements. The Department recognizes the many issues and public concerns associated with the uncertainties with planning for, documenting, and funding long-term stewardship throughout the Study and acknowledges this comment by including it in a text box in Section 3.2 of the Study.

- A major missing component is how DOE should integrate management of DOE lands with long-term stewardship of adjacent federal or state lands. Two examples:
  - This should clearly be considered in Nevada where the Nellis Range is immediately adjacent to the Nevada Test Site.
  - At Hanford, there have been proposals to link up the DoD-controlled Yakima Training Center with the nearby Hanford Site to create a continuous habitat for the endangered sage grouse.

  In other words, this document has missed the *national* perspective on ecosystem management.

4.4

4.4 – The Department acknowledges this comment in a text box in Section 2.1 of the Study. The Department notes that the definition of long-term stewardship used in the Study is that which is stated explicitly in the Settlement Agreement. The Department agrees that long-term stewardship at some sites may include activities such as resource management and discusses these concepts, for example, in a new text box in Chapter 2 and in Section 9.1 of the Study. The Department also agrees that coordinated management of resources on adjacent federal and non-federal lands may be appropriate at some sites and has modified the text in Sections 6.1.3 and 9.1 of the Study to note that point. The Department's Long-term Stewardship Working Group recently identified the issue of whether the scope of long-term stewardship includes only compliance activities or also includes other activities associated with the management of DOE lands as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee.

- Recognizing that this is a DOE report, dealing with DOE's responsibilities, it is not reasonable to expect that DOE is, will be, or should be the principal actor in assuring that the necessary work of stewardship gets done. This will be addressed in specific comments below—but just one example here: Why should or would one assume that DOE will be the agency best suited to make sure stewards (DOE or others) are aware of new technologies to reduce cost, speed attenuation of contamination, or more effectively close off pathways?

  As in other situations our state has experienced, DOE's over-emphasis on its responsibility and authority under its internal regulations and orders may well become

4.5

4.5 – The Department acknowledges this comment in a text box in Section 4.2 of Study. The Study has included examples of successful efforts to assist individual sites in establishing these partnerships. Developing partnerships, however, is both difficult and time-consuming, and it may be years before partnerships function smoothly. Potential options for managing long-term stewardship include a centralized agency to steward Federal sites. However, a detailed discussion of the advantages and disadvantages of such a centralized agency is beyond the scope of the Study, which is required to focus on DOE sites.

a barrier to the kind of partnership discussed at various places throughout the draft Study.

SPECIFIC COMMENTS

Sec. 3.1, p. 14 The following statement is overly optimistic: " The remedy selection process essentially determines how any residual hazards at a site will be managed for the long term and thus establishes implicit or explicit long-term stewardship requirements."

As a practical matter, many remedy selection decisions (as noted in the following section) come much too early to have much specific content about long-term management of residual hazards. At most, the remedy selection may include a concept (e.g. land use control, or type of cover) without specific requirements about who will monitor, how, and with what frequency. Lacking such specifics, costs cannot be accurately calculated, nor is there a driver for technology development specifically aimed at reducing costs, risks and uncertainties.

4.6 – The Department agrees that site-specific long-term stewardship planning and decision documents should clearly identify problems, remedial objectives, and long-term stewardship implications to the extent feasible. Section 3.2 of the Study has been revised to emphasize this point. The Department acknowledges this comment in a text box in Section 3.2 of the Study. Chapter 4 of the Study discusses DOE's current policy requiring sites to conduct long-term stewardship planning.

Sec. 4.1, p. 28 The DoD requirement for an environmental baseline survey should be generally supported, not only for any area being transferred, but also for any area deemed "cleaned up to the specified end state" that will go into long-term stewardship. Established standards are important, but so is some mechanism for independent scientific and public review. The outcome/comments from such a review can become part of the accessible record. That, in turn, would provide a basis for some periodic audit or review of the effectiveness, accuracy and relevance of the baseline studies.

4.7 – As noted in Section 4.2.2 of the Study, site-specific long-term stewardship plans are required by law for uranium mill tailings sites and must be approved by the Nuclear Regulatory Commission. The Department also requests the development of a site-specific long-term stewardship plan before accepting long-term stewardship responsibilities for any site. As the EM mission at a site is completed, current plans call for the EM program and the site landlord (if different from EM) to develop a long-term stewardship baseline for each site. The baseline will describe the scope of applicable long-term stewardship requirements, the technical activities and the projected schedule to meet these requirements, and expected costs. The Department acknowledges these comments in a text box in Section 4.2 of the Final Study and will consider the recommendations they provide in developing the guidance that will specify the format and content for site-specific long-term stewardship plans.

Sec. 4.2.2, p. 33 Two bullets on this page appear to be confusing. "Planning for sale of site/end state" appears to imply end states will be sold. The meaning of "records disposition plans for contaminated, electronic, transuranic waste, and classified records" is very hard to decipher.

4.8 – These bullets have been revised to reflect this comment.

Sec. 4.2.3, p. 34 The suggestion that "state governments may assume a more prominent role in managing long-term stewardship information and in promoting education and training to ensure the continuity of long-term stewardship across multiple generations" is intriguing. Some suggestions as to specific kinds of activities would be helpful. It appears that state involvement in school curricula, training local land use planners under state growth-management laws, higher education, and sustaining historical societies/museums offer some possible avenues to implement this suggestion.

4.9 – Examples have been provided in response to this comment.

Sec. 4.2.4, p. 36 It is not clear whether the intent of the paragraph beginning "The majority of the EM program's. . . ." is to increase emphasis on technology development and deployment to reduce the number of sites needing long-term stewardship, to increase investment in technologies that make long-term stewardship less costly, or both. It may be worth making explicit here the

4.10 – The text has been altered to reflect this comment.

importance of having enhanced technology for long-term monitoring available in the very near term, so that it can be deployed at the greatest number of sites during remediation.

Sec. 4.2.4, p. 37 The phrase "For the same reason", at the beginning of the penultimate sentence on this page, doesn't seem to connect to what goes before. Having said that, however, we strongly support the need for increased investment in information management "technology"—if this includes "soft" sciences, like anthropology, psychology and sociology. 4.11

Sec. 4.3, p. 38 The Department may wish to consider the possibility that long-term stewardship responsibility could be assigned to another agency or party altogether for those at least some of the 21 sites where DOE will have continuing missions. 4.12

Sec. 5.2, p. 44 One of the study's most important findings may be that there is essentially no ongoing monitoring and research to understand degradation of sub-surface barriers. If true, that raises the question: What validates the assumptions used in Performance Assessments and Composite Analyses? 4.13

Sec. 5.3, p. 47 Layering of institutional controls must include multiple oversight or enforcement mechanisms. Accountability to parties other than the stewards needs to be clear. Ideally, parties with divergent interests will all have a tangible stake in exercising some kind of oversight. For instance, adjoining property owners, wildlife or resource management agencies, local governments and Indian tribes all might have assigned rights and roles. 4.14

Sec. 5.4, p. 51 Clearly the steward must have the capabilities to mobilize to respond both to failures and to long-term changes in both values and site conditions. Again, however, there must be some accountability. It is not clear that DOE (or another agency in the role of steward) should itself determine when action is warranted for the reasons listed at the top of p. 51. For example, a regulatory agency that changes standards in order to protect public health and the environment, based on new scientific knowledge, should have some ability to demand a response from the steward. 4.15

Sec. 5.4.2, p. 52 While environmental restoration, per se, is young, efforts to block "pathways" into (or out of) underground structures, and to maintain structures, are very old and well studied. DOE and other agencies involved in stewardship would do well to invest more time and resources in studying history of engineering and archeology. 4.16

Sec. 6.1, p. 56 We heartily concur with the statement that "In practice, it has been difficult to cover the entire life-cycle within a single planning activity such as preparation of an Environmental Impact Statement." It is equally true that it is difficult to plan for the whole life-cycle of an activity or project from the 4.17

4.11 – The phrase has been changed to: "On the other hand" to reflect this comment.

4.12 – The Department acknowledges this comment in a text box in Section 6.2 of the Study. The Department recognizes that long-term stewardship responsibility eventually may be vested in any number of federal or non-federal entities. The Department will address these issues during site-specific long-term stewardship planning processes. The Department has added language to Section 6.2 of the Study to address some of the potential complications associated with a transfer of LTS responsibility to other federal agencies. Note also that current DOE policy is that the landlord organization will take responsibility for long-term stewardship at these 21 sites (see Exhibit 4-2 of the Study).

4.13 – The Department acknowledges these comments in a text box in Section 4.2.4 of the Final Study. As noted in Section 4.2.4 of the Final Study, the Department's process for developing and implementing new science and technology includes developing a long-term stewardship science and technology roadmap that will (1) identify science and technology needs; (2) identify existing capabilities to meet these needs both within and external to DOE; (3) determine research and development priorities; and (4) direct specific efforts to meet these needs. The Department agrees that research into a number of key areas is needed, including the long-term effectiveness and reliability of engineered and institutional controls; surveillance and monitoring; and information management. Advances in science and technology may provide future generations with the ability to cost-effectively achieve unrestricted use at some sites. The Department's Long-term Stewardship Working Group recently identified the policy issue as to whether the ultimate goal of new science and technology should be to improve the ability to maintain the existing end state (i.e., the end state established during cleanup) or should be to "improve" the end state more closely toward unrestricted use as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. In addition, the Department anticipates that required long-term stewardship activities will include appropriate surveillance and monitoring to assure the continued effectiveness of engineered controls. The reference in question was included to note some of the technical challenges associated with long-term stewardship.

4.14 – The Department acknowledges this comment in Section 5.3 of the Study. The Department believes that Section 5.3 of the Study appropriately discusses the difficulties and challenges associated with ensuring the long-term maintenance of institutional controls, including roles and responsibilities for enforcement. The determination of the type of institutional controls and enforcement of these controls (e.g., by DOE or external parties) will be determined on a site-specific basis as part of remedy selection and long-term stewardship planning and may change over time.

4.15 – See response to Comment 4.14.

4.16 – The Department acknowledges these comments in a text box in Section 4.2.4 of the Final Study. As noted in Section 4.2.4 of the Final Study, the Department's process for developing and implementing new science and technology includes developing a long-term stewardship science and technology roadmap that will (1) identify science and technology needs; (2) identify existing capabilities to meet these needs both within and external to DOE; (3) determine research and development priorities; and (4) direct specific efforts to meet these needs. The Department agrees that research into a number of key areas is needed, including the long-term effectiveness and reliability of engineered and institutional controls; surveillance and monitoring; and information management. Advances in science and technology may provide future generations with the ability to cost-effectively achieve unrestricted use at some sites. The Department's Long-term Stewardship Working Group recently identified the policy issue as to whether the ultimate goal of new science and technology should be to improve the ability to maintain the existing end state (i.e., the end state established during cleanup) or should be to "improve" the end state more closely toward unrestricted use as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee.

4.17 – See response to Comment 4.7.

viewpoint of the project's proponent. Unfortunately, what has happened is that DOE has therefore layered multiple planning systems and reviews, but only some—generally the environmental impact statement process (which is weak, as stated above)—is open to external input and reconciliation of multiple values. This may be the point that the first full paragraph on p. 58 seeks to make in discussing supplemental NEPA analysis. However, there may be more effective ways to get the needed perspective built into DOE's multiple planning layer--e.g. Project Baseline Summaries.

Sec. 6.1.2, p. 60 The last sentence in the last paragraph of this section, at the top of p. 60, is one of the draft's unfortunate lapses into bureaucratic mumbo-jumbo. What does "identifying long-term stewardship as a performance measure in the facility disposition process" really mean in terms of what someone will actually do?

4.18 – The sentence now reads: "In addition, LCAM needs to be revised to include needs of long-term stewardship as they are determined in DOE policy," where LCAM refers to DOE Order 430.1A (Life-Cycle Asset Management).

Sec. 6.2, pp. 61-2 Section 6.2 needs to address the restrictions that other agencies may have on accepting formerly/residually contaminated real estate, and the steps (e.g., Inter-Agency Agreements, Executive Order) that would be necessary to overcome those agencies objections & policies.

4.19 – The Department acknowledges this comment in a text box in Section 6.2 of the Study. The Department recognizes that long-term stewardship responsibility eventually may be vested in any number of federal or non-federal entities. The Department will address these issues during site-specific long-term stewardship planning processes. The Department has added language to Section 6.2 of the Study to address some of the potential complications associated with a transfer of LTS responsibility to other federal agencies.

Section 6.2 also needs to include a strong statement that DOE is not an appropriate land management (resource management) agency for non-mission essential land. It should mention state land management agencies as potential recipients.

Given the ecological significance (and size) of many DOE reservations (including but not limited to Hanford, INEEL, Oak Ridge, Savannah River) this section should explicitly recognize the preference by some stakeholders (and some law/policy, e.g., the Endangered Species Act) for biological and habitat preservation in land transfer decisions.

4.20 – The issue of whether DOE is an appropriate land management agency for non-mission essential land is beyond the scope of the Study. Section 6.2 of the Study notes explicitly that uncontaminated property may be "set aside" to protect valued natural resources or cultural resources; however such decisions will be site-specific.

Sec. 6.3, p. 68 We agree with the three issues raised with regard to enforcement of institutional controls on transferred properties. However, it is not clear that DOE should be the primary enforcer of accountability (unless reversionary mechanisms are used, or surrounding property remains in DOE uses). DOE may be one among several oversight agents at this point, and perhaps primary oversight responsibility should rest in an agency whose primary mission is stewardship.

4.21 – Where DOE has an easement or lesser interest in the property, by regulation and law it must enforce its rights. However, there may be site transfer situations where DOE may not be the most effective enforcer of institutional controls at a site, but the Department has not identified these situations. With respect to the issue of a single federal agency responsible for long-term stewardship, the Department's Long-term Stewardship Working Group has recommended to the senior management Executive Steering Committee that DOE should undertake to interact with other federal agencies to develop a consensus approach to long-term stewardship across the federal government.

Sec. 7.1, pp. 70-1 We agree with the four major information management aspects identified. Again, these must be resolved for DOE sites, but DOE cannot resolve them without a genuine partnership with other federal agencies, state, local and tribal governments, and individuals and institutions surrounding the sites.

4.22 – The Department acknowledges this comment in Section 7.2 of the Study. The Department has begun a process to more clearly identify and develop a consensus on long-term stewardship information needs and develop guidance for long-term stewardship information and records management. Some information management guidance will be included in the guidance for site-specific long-term stewardship plans currently under development by the Department. This comment will be considered in these efforts.

Sec. 7.2, p. 73 Nowhere is the above more evident than in the task of setting criteria about what information to keep. Two examples may help clarify the point. In the early decades of Hanford operations, scientists realized it was important to sample fish in the Columbia River to measure uptake of radionuclides. But, as they assumed salmonoids left the river as juveniles and returned to spawn years later without eating, they also assumed it wasn't worth sampling salmon. There was no awareness of the importance of salmon to the Columbia Basin's indigenous people, nor even of the possibility of uptake around the mouth of the River. In 1986, the draft Hanford Defense Waste Environmental Impact Statement barely mentioned chemical contamination at the site, focusing almost entirely on radioactive elements. Awareness of issues surrounding chemical contamination had barely begun within DOE's world. Establishing such criteria must be a very open public and stakeholder process.

4.23 4.23 – See response to Comment 4.22.

Sec. 7.2, p. 74 As mentioned above (Sec. 4.1, p. 28), the concept of clear information baselines at "closure" of cleanup is important. Independent review and validation, and a public comment process, should be incorporated. This then becomes the part of the information base that is unchanging. It can be multiply located and accessible. It must include clear instructions about where and how to get subsequent information about monitoring, changing conditions, etc.

4.24 4.24 – See response to Comment 4.22.

Sec. 7.3, pp. 77-9 The need to institutionalize information management, and the tradeoffs between decentralized and centralized structures are well, if briefly drawn. Two aspects need more attention. First, redundancy is more important than consistency. If the baseline information is fairly uniform—and includes public review comments—it can be widely distributed and available. Not all repositories will get updates, though the effort should be made and the baselines should all have at least one identified pathway to get to updates. On balance, however, redundant but discrepant information is better than no information.

4.25 4.25 – See response to Comment 4.22.

Second, individuals and institutions need to have incentives to maintain, make available and/or demand the information. Co-location with museums or visitor centers, requirements governing title searches, inclusion in school curricula—the list is long and diverse. But some of these mechanisms need to be used consciously to create and sustain an incentive structure.

One might consider, as a subset, how to rely on Native American cultural norms supporting oral transmission of knowledge.

Sec. 8.1, pp. 82-4 The description of the various techniques of estimating long-term stewardship costs does not explicitly address what is being done or what might be done to reduce uncertainty.

4.26 4.26 – The Department acknowledges this comment in a text box in Section 8.1 of the Study. The Department agrees that more information is needed on the scope of future long-term stewardship activities and better life-cycle cost estimates are needed. The Study incorporates the cost estimates from the Report to Congress on Long-term Stewardship and discusses the basis for these estimates. Accurate cost estimates are critical for long-term stewardship, particularly for ensuring accountability for the technical scope of the program. The Report to Congress on Long-term Stewardship is only the first step in developing the necessary cost figures. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites. This comment will be forwarded to the Executive Steering Committee for their consideration. Note also that Section 8.1 of the Study discusses some of these efforts.

Sec. 8.2, p. 85 It might be helpful to distinguish the two identified needs for funding more clearly. *Operational funding* for monitoring, maintenance,

4.27 4.27 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. The Draft Study may not have adequately distinguished between operational and contingency funding. Chapter 8 of the Study has been modified to discuss this distinction. Some of the cost estimates in the Report to Congress on Long-term Stewardship include contingency funding; others do not.

information management and periodic reviews of remedies might be handled one way, or within one kind of budget or fund. *Contingency funding* to cover emergent failures or unforeseen problems might be handled as a risk pool, funded by periodic assessments or appropriations. The Price-Anderson structure might be a starting point.

4.27 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. The Draft Study may not have adequately distinguished between operational and contingency funding. Chapter 8 of the Study has been modified to discuss this distinction. Some of the cost estimates in the Report to Congress on Long-term Stewardship include contingency funding; others do not.

Sec. 8.2, p. 88 The two notions at the top of the page share a common idea: Give the steward an incentive to manage the site well (i.e. to prevent spread of contamination) by including income-producing resources, which, in turn, support stewardship. It's not clear that DOE is well suited to this role, but other agencies and non-profit entities (e.g. recreation districts) may be.

4.28 – See response to Comment 4.5.

The study should also explore whether Nuclear Regulatory Commission (and Agreement State) regulations on financial responsibility may be applicable or relevant and appropriate requirements (ARARs) under CERCLA. Although federal facilities would typically be exempt from trust fund obligations under those regulations, the financial requirements under these regulations might provide a creative path towards creating a trust fund.

4.29 – The Department acknowledges these comments in a text box in Section 4.1 of the Final Study. The specific mechanisms available for oversight and enforcement of long-term stewardship vary according to the applicable regulatory regime(s) and state laws on a site-specific basis. The Department has not developed a policy on potential alternative regulatory regimes at specific sites. These comments will be provided to the senior management Long-term Stewardship Executive Steering Committee for their consideration.

Sec. 8.3, pp. 90-1 We would note that the state of Washington maintains both Perpetual Care and Maintenance and Closure trust funds for the USEcology low-level waste disposal facility located on the Hanford site. These funds are built from per-cubic-foot disposal fees. DOE should explore state-maintained funds more thoroughly. They may be a particularly attractive option if a national risk pool is created to cover extraordinary failures or unforeseen events.

4.30 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. As noted in Section 8.2 of the Study, developing an alternative funding mechanism will require additional study and eventually Congressional action. Section 8.2 of the Study also provides a summary of the recent study of Trust Funds by Resources for the Future. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

Sec. 9.1, p. 96 We agree with the point that DOE should avoid additional natural resource damages in selecting stewardship activities. However, this notion should be expanded. Avoidance of future damages is another reason to favor cleanup to unrestricted use in the near term. We support the suggestion that stewardship can be done in ways that positively enhance resource values.

4.31 – This comment is acknowledged in a text box in Section 9.1 of the Study. The definition of "affected parties" in Chapter 1 of the Study was broadened to include regional concerns. Section 4.1 and Chapter 9 of the Study acknowledge the special government-to-government relationship between the federal government and Tribal governments. Chapter 9 of the Study also acknowledges the importance of ensuring that the federal Indian Trust Responsibilities and federal treaty obligations are met.

Sec. 10.1.2, p. 108 Chapter 10 generally is critical to evolution of good policy and implementation for long-term stewardship. The separations suggested in this sub-section need thorough discussion with a wide range of parties and stakeholders, and with the insights of many disciplines. Our initial bias is that separating the functions along the lines suggested is desirable for long-term success. As indicated throughout these comments, there must also be vigorous discussion about the extent to which DOE takes responsibility for any one of these functions.

4.32 – The Department acknowledges this comment in a text box in Section 4.2 of the Final Study. The Department's Long-term Stewardship Working Group recently identified the need for a corporate vision for long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. The corporate vision includes the appropriate organizational structure for long-term stewardship within the Department. The Department also recognizes that it is important to define long-term stewardship roles and responsibilities both within DOE and between DOE and other entities, including other federal agencies, states, Tribes, and regional governments. The Executive Steering Committee is developing a Strategic Plan for long-term stewardship; part of that effort will include identifying roles and responsibilities within DOE. The Department also notes that long-term stewardship as an issue is broader than DOE sites. For example, states and local governments already have long-term stewardship responsibilities at municipal landfills, and states may have long-term stewardship responsibility for some "Superfund lead" sites on the CERCLA NPL. Implementation of long-term stewardship across this broad spectrum of sites will require states to develop their own, independent capability to provide long-term stewardship.

Sec. 10.2, p. 109 The principles of "rolling stewardship" constitute good advice, but should not be taken to extremes or out of context. Adding a third principle might help counteract that tendency: In managing hazards for the near- to mid-term, foreclose as few options as possible for future decisions. For example, Hanford stakeholders recommended disposing of the low-activity fraction of Hanford tank

4.33 – A new principle has been added in response to this comment.

wastes in a form that would be retrievable and moveable in the future, rather than in huge concrete monoliths whose performance was at best uncertain.

Sec. 10.2.2, p. 111 Technology development and deployment in support of long-term stewardship are very important. One of the draft Report's (and the earlier ***From Cleanup to Stewardship's***) major contributions is the concept cyclical re-evaluation in light of new technology and scientific knowledge. However, it would be a mistake to place this technology development and deployment role in DOE for two reasons. First, DOE has other missions, and the EM mission will decline in relative importance as its share of the overall agency budget declines. Second, other federal agencies, Indian tribes, state agencies, local governments and private entities all will have stewardship responsibilities relating to many contaminated sites. They, along with DOE, should be advocates for and clients of a centralized program.

4.34 – The Department agrees that the EM program, or DOE itself, will not be the only source of new science and technology for LTS. The language in Section 4.2.4 of the Study has been modified to reflect this. The Department acknowledges this comments in a text box in Section 4.2.4 of the Study.

Appendix A, page A-1 The first sentence is blatantly incorrect: "Prior to 1995, Congress and the public assumed that DOE generally was cleaning up its sites to levels appropriate for unrestricted use."

4.35 – Appendix A has been changed to reflect this comment.

In fact, DOE had already completed cleanup at a number of its uranium mill tailings sites, had prepared Long Term Surveillance & Maintenance (LTS&M) plans for those sites, and was receiving congressionally-approved funding for the DOE Grand Junction site to perform LTS&M/LTS. This report is "reinventing the wheel" because it has ignored DOE's actual operating history for post-closure UMTRA sites, and has ignored the copious congressionally-funded research that was done circa 1978 – 1985.

Alliance for Nuclear Accountability

A national network of organizations working to address issues of nuclear weapons production and waste cleanup

Member Groups

American Friends Service Committee
Denver, CO

Carolina Peace Resource Center
Columbia, SC

Citizen Alert
Las Vegas, NV

Coalition for Health Concern
Benton, KY

Concerned Citizens for Nuclear Safety
Santa Fe, NM

Fernald Residents for Environmental Safety and Health, Inc.
Ross, OH

Global Resource Action Center for the Environment
New York, NY

Government Accountability Project
Seattle, WA

Heart of America Northwest
Seattle, WA

Los Alamos Study Group
Santa Fe, NM

Miamisburg Environmental Safety & Health
Miamisburg, OH

National Environmental Coalition of Native Americans
Prague, OK

Neighbors in Need
Englewood, OH

Nuclear Watch of New Mexico
Santa Fe, NM

Oak Ridge Environmental Peace Alliance
Oak Ridge, TN

Panhandle Area Neighbors & Landowners (PANAL)
Panhandle, TX

Peace Action Education Fund
Washington, DC

Peace Farm
Panhandle, TX

Physicians for Social Responsibility
Washington, DC

Portsmouth/Piketon Residents for Environmental Safety & Security
McDermott, OH

Rocky Mountain Peace and Justice Center
Boulder, CO

Snake River Alliance
Boise, ID

Southwest Research and Information Center
Albuquerque, NM

STAND of Amarillo
Amarillo, TX

Tri-Valley CAREs
Livermore, CA

Western States Legal Foundation
Oakland, CA

Women's Action for New Directions
Arlington, MA

Alliance for Nuclear Accountability Comments to the Department of Energy's Long-term Stewardship Draft Study

November 30, 2000

The Alliance for Nuclear Accountability (ANA) is a network of local, regional and national organizations working together to promote education and action to address issues related to the cleanup and protection of the public and the environment at Department of Energy (DOE) sites. Many ANA member organizations were plaintiffs to the lawsuit settlement requiring this Study on Long-term Stewardship (LTS), so ANA has a special interest in it. We want to ensure that this Study is a first step in an iterative, open, public process of LTS planning for the DOE weapons complex. 5.1

We recognize and commend the effort that went into this Study and note that in addition to this Study, the Office of Long-term Stewardship has also worked on other aspects of LTS information gathering and sharing to lay the foundation for policy development in this area. We hope that this foundational work will be preserved and built upon during the next administration. For example, we hope that the excellent LTS web site will be maintained. Moreover, we think that preserving one Office of LTS at DOE headquarters with the authority to coordinate LTS activities would be helpful in furthering coherent, credible and cost effective LTS planning and policies. 5.2 5.3

The LTS Office has also been working on a Report to Congress on Long-term Stewardship as required by the FY2000 National Defense Authorization Act (NDAA). Although Congress required the Report by October 1, 2000, the Report is still not completed. It is unfortunate that this Congress that requested the Report will not be able to review it. This NDAA Report is another essential piece of work that provides more site-specific information. We strongly urge that Department promptly complete its work on this Report and release it so that both the Report and Study together (the PEIS Study and the NDAA Report) are available to inform Congress, as well as the next administration, stakeholders and interested members of the public. 5.4

5.1 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. The Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis.

5.2 – The Department acknowledges this comment in Section 7.2 of the Study. The Department has begun a process to more clearly identify and develop a consensus on long-term stewardship information needs and develop guidance for long-term stewardship information and records management. Some information management guidance will be included in the guidance for site-specific long-term stewardship plans currently under development by the Department. This comment will be considered in these efforts. The Department continues to maintain the long-term stewardship web site.

5.3 – The Department acknowledges this comment in a text box in Section 4.2 of the Study. The Department's Long-term Stewardship Working Group recently identified the need for a corporate vision for long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. The corporate vision includes the appropriate organizational structure for long-term stewardship within the Department. The Department also recognizes that it is important to define long-term stewardship roles and responsibilities both within DOE and between DOE and other entities, including other federal agencies, states, Tribes, and regional governments. The Executive Steering Committee is developing a Strategic Plan for long-term stewardship; part of that effort will include identifying roles and responsibilities within DOE. The Department also notes that long-term stewardship as an issue is broader than DOE sites. For example, states and local governments already have long-term stewardship responsibilities at municipal landfills, and states may have long-term stewardship responsibility for some "Superfund lead" sites on the CERCLA NPL. Implementation of long-term stewardship across this broad spectrum of sites will require states to develop their own, independent capability to provide long-term stewardship.

5.4 – The Department issued the National Defense Authorization Act (NDAA) Report, entitled A Report to Congress on Long-term Stewardship, in January 2001 (DOE/EM-0563). The Report to Congress and the Study were prepared as separate documents because the required scope for each was different. The primary focus of the Report to Congress was site-specific requirements; the primary focus of the Study was common national issues. Nonetheless, the two reports are complementary to one another, and the public is encouraged to read both documents. The Report to Congress can be useful for certain common long-term stewardship analyses, such as evaluating long-term stewardship needs. Similarly, the Department has added a text box to Chapter 2 of the Study providing an overview of the overall scope of DOE's long-term stewardship responsibilities. The cost estimates from the Report to Congress have been incorporated into Section 8.1 of the Study. They were not in the Draft Study because the cost information in the Report to Congress was not final prior to publication of the Draft Study. The Department anticipates that life-cycle cost estimates will improve over time as DOE moves forward with planning and implementing long-term stewardship. For the Report to Congress, each site was strongly encouraged to work with local stakeholders during the preparation of site-specific cost estimates. The Study is not the appropriate document to respond to specific comments on the Report to Congress or on the public comment process used to develop the Report. The Department encourages members of the public to comment on their respective site's cost estimate through established public involvement mechanisms at each site.

As DOE moves forward with the next steps of LTS policy planning and development, it is of paramount importance that the public and stakeholders be engaged and involved in decisions from the very beginning. DOE must also make a long-term commitment to provide opportunities for meaningful public participation in future cleanup and stewardship decisions. This means providing information, as discussed in the Study, but also providing for regular meetings and hearings with stakeholders. The Study notes the importance of working with other federal agencies, states, Tribal governments and local governments, and we wish to emphasize that in members of the public in affected communities need to be present at the decision-making tables as well. Building strong local public involvement is possibly the most essential element of ensuring survivability and sustainability of LTS. People need to know what happened at these sites – what materials were handled, what contamination levels exist, what health risks exist, etc. and they need to know that they share responsibility for protecting their communities with a say in setting cleanup standards, choosing remediation and monitoring technologies, and establishing zoning restrictions etc.

5.5 5.5 – See response to Comment 5.1.

ANA believes that the primary purpose of LTS should be to protect human health. Certainly, this must be a primary reason why DOE currently spends so much effort and attention on cleanup. With this focus in mind, we suggest the following:

1) Information provided to the public, including databases, fact sheets etc. should also include information about possible disease outcomes related to contamination and health risks;
2) Physicians and public health providers should be specifically targeted with this information;
3) With full public participation, health monitoring plans should be developed in appropriate communities;
4) The DOE LTS Office should work with the DOE Office of Environment, Safety and Health and other federal, state, Tribal and local health agencies to develop a public health LTS plan at each site.

5.6 5.6 – The Department acknowledges this comment in Section 5.3 of the Study. The Department agrees that the primary purpose of LTS is continued protection of human health and the environment. The Department agrees that in some cases, site-specific LTS plans may need to include provisions for distributing public health information to affected parties, and, where appropriate, plans for health monitoring. A new text box at the end of Chapter 2 of the Study discusses the importance of public health concerns during long-term stewardship. With respect to care and compensation, such decisions would need to be made on a case-by-case basis.

Even with the best redundant and robust LTS plans, we know that there will be failures. Some of these failures may require emergency medical response (an explosion for instance), but some failures may lead to health affects over time (failure to contain seeping groundwater plumes leading to contamination of the water supply, for example) and may require a longer-term public health response. When failures of LTS lead to disease outcomes such as cancer or other illness, the federal government should provide adequate care and compensation to those people. Tracking illnesses and caring for people over the long-term should be seen as part of LTS. Any funding mechanism should also provide funds for this.

5.7 5.7 – See response to Comment 5.6.

ANA would like to offer a specific comment to the issue of *"How will Long-term Stewardship be managed at sites with ongoing missions other than cleanup." (Sec. 4.3)* Between the two options - transferring to the DOE program responsible for the ongoing mission, or EM (or successor organization) taking responsibility- we recommend that EM (or successor organization) take responsibility for LTS at the site. We do not believe that the other line programs of DOE would put equal focus into the LTS mission because this goal could often conflict with, or compete against, production and other missions. This is especially a concern at National Nuclear Security Agency (NNSA) sites, where it is unclear who will have authority over environmental management issues. Regardless of the option chosen, it is of particular importance that LTS planning and activities be coordinated with adequate project management oversight in one office within DOE. We recognize this is a relatively short-term issue, but we believe it is very significant in getting the initial LTS planning off on the right track. DOE should make sure that LTS is not viewed as an afterthought and addressed in a fragmented, ad hoc manner, but rather is the singular priority of one office.

5.8 5.8 – See response to Comment 5.3.

As DOE continues with its LTS planning, we urge a careful look at the sites on the "1995 List of Sites Reviewed for Possible Past Involvement in Nuclear Weapons and Nuclear Energy Related Activities (Also known as the FUSRAP List)." Sorting out these sites is an important and difficult task. We urge the DOE to continue work on this list – specifically creating a database that will provide information about each site. The lack of currently available information about many of these sites should also serve as a lesson in how not to do LTS. An analysis of the elements missing in the FUSRAP list may help to avoid pitfalls in future LTS Planning.

5.9 5.9 – The Department acknowledges this comment in a text box in Section 7.2 of the Study. Section 7.2 of the Study also notes that on February 11, 2001, the Department made public a list of sites, including beryllium vendors, DOE sites that used radioactive materials, and facilities where atomic weapons workers may have been employed (66 FR 4003). The Department is working on a database for these sites. The Study focuses on common issues and challenges that exist across many sites rather than focusing on one particular subset of these sites. The Department also notes that long-term stewardship is not limited to DOE sites, or even sites where the federal government has some responsibility. For example, local governments are already responsible for the long-term stewardship of closed municipal landfills. Many of the issues that pertain to DOE sites are likely to pertain to closed landfills as well.

Thank you for the opportunity to participate in this hearing. ANA and our member organizations are still in the process of reviewing the Study and we will likely submit additional comments prior to December 15, 2000.

Submitted November 30, 2000

Kathy Crandall
Interim Program Director
Alliance for Nuclear Accountability

Tri-Valley CAREs

Communities **A**gainst a **R**adioactive **E**nvironment

2582 Old First Street, Livermore, CA 94550 • (925) 443-7148 • Fax (925) 443-0177

Peace Justice Environment since 1983

December 12, 2000

Steven Livingstone, Project Manager
Office of Long-Term Stewardship, (EM-51)
Office of Environmental Management
U.S. Department of Energy, P.O. Box 45079
Washington, D.C. 20026-5079

Subject: Comments regarding the DOE/EM/LTS "Long-Term Stewardship Study Draft" dated October 2000.

Dear Mr. Livingstone:

Enclosed find comments of Tri-Valley CAREs (TVC) and Western States Legal Foundation (WSLF) on the Draft Long-Term Stewardship Study. We would like to compliment you on the thoroughness of this draft study and its ease of reading. Our comments address some of the issues that were raised in the study and some that we think should be added.

Sincerely,

Marylia Kelley

Marylia Kelley
Executive Director,
Tri-Valley CAREs

1. The highest priority should be placed on selecting remedies that protect the long-term safety and health of the community and of the environment surrounding the DOE facility. All aspects of establishing, maintaining and funding long-term stewardship activities should be considered during the remedy selection process. Wherever possible, we prefer that DOE facilities are cleaned up to a level that allows unrestricted use and avoid the need for long-term stewardship. Where cleanup to such a level is not practical due to current technical constraints, we want commitments inserted into final remedy decision documents detailing the stewardship plan and funding. 6.1 6.2

2. Long-term stewardship activities at each site should include distribution of health information and a health-monitoring plan. After remedy selection, we believe that the long-term stewardship should include the following activities: 1) distribution to the public of information, databases, and fact sheets about possible disease outcomes related to contamination; 2) distribution to local public health providers about possible disease outcomes related to contamination; 3) development of health monitoring plans in appropriate communities. 6.3

3. We strongly advise that DOE develop a mechanism where local communities will be involved throughout the long-term stewardship decision making process. Building strong local public involvement is possibly the most essential element of ensuring survivability and sustainability of long-term stewardship. This should include involvement in initial long-term stewardship activities and any changes to those activities that may occur as a result of re-evaluation or modification of the remedy. The community should also be involved in periodic reviews, such as the five-year review cycle under CERCLA to re-evaluate the effectiveness and performance of long term stewardship activities. Additionally, independent technical expertise should be provided to communities to assist them in wading through the many technical documents that form the basis for key decisions. DOE should provide funding for this expertise. 6.4

4. Develop Contingency Plans at the Time Cleanup Decisions are Made. The National Research Council recommended that "DOE should plan for uncertainty and fallibility" of some aspects of the long-tern stewardship program; including developing plans "to maximize follow-through on phased, iterative and adaptive long-term institutional management approaches at sites where contaminants remain." We believe that these plans should be developed concurrent with cleanup decisions, and should be periodically revisited. 6.5

5. Develop firm funding commitments for long-term stewardship. Funding for stewardship activities must be adequate. When the final remedy is agreed to at a site, full funding for stewardship activities should be defined, including the role of the parties who will manage the funding and the funding sources. 6.6

6. Periodically re-evaluate the remedy. DOE (or subsequent federal managers) should implement a systematic process for re-evaluating and if needed, modifying existing LTS activities to ensure that developments in science, technology and performance are incorporated. This reevaluation should consider the following: changes in health standards associated with contaminants that are left in place, changes in technology that were not available at the time when initial cleanup decisions were made but if implemented would eliminate the need for long-term stewardship activities, and 6.7

6.1 – Long-term stewardship planning (see Chapter 4 of the Study) and remedy selection decisions are done on a site-specific basis with input from regulators, stakeholders, and the public. As noted in Exhibit 3-1of the Study, the criteria used to evaluate remedial alternatives include long-term effectiveness and cost-effectiveness. The long-term effectiveness of institutional controls is one of the criteria for evaluating long-term stewardship requirements during remedy selection that have been suggested in guidance developed by DOE, EPA, and the Department of Defense (DoD) and in recommendations forwarded to the Department (see Exhibits 3-2 and 3-3 in the Study). The Department also has identified the need to promote new science and technology development to help address the uncertainties associated with maintenance of institutional and engineered controls. The Department acknowledges the public concerns about long-term effectiveness in a text box in Section 3.2 of the Study. The issue of uniform or national standards for cleanup is beyond the scope of this Study because this document focuses on long-term stewardship.

6.2 – As noted in Chapter 4 of the Study, current DOE policy requires facilities to begin their planning for long-term stewardship in final remedial decision documents. Decision documents from remedies requiring long-term stewardship will set the direction for a final site-wide plan and subsequent agreements with stakeholders, local governments, and environmental regulators.

6.3 – The Department acknowledges this comment in Section 5.3 of the Study. The Department agrees that the primary purpose of LTS is continued protection of human health and the environment. The Department agrees that in some cases, site-specific LTS plans may need to include provisions for distributing public health information to affected parties, and, where appropriate, plans for health monitoring. A new text box at the end of Chapter 2 of the Study discusses the importance of public health concerns during long-term stewardship. With respect to care and compensation, such decisions would need to be made on a case-by-case basis.

6.4 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process allow for meaningful Tribal and public involvement.

6.5 – As noted in Section 4.2.2 of the Study, site-specific long-term stewardship plans are required by law for uranium mill tailings sites and must be approved by the Nuclear Regulatory Commission. The Department also requests the development of a site-specific long-term stewardship plan before accepting long-term stewardship responsibilities for any site. As the EM mission at a site is completed, current plans call for the EM program and the site landlord (if different from EM) to develop a long-term stewardship baseline for each site. The baseline will describe the scope of applicable long-term stewardship requirements, the technical activities and the projected schedule to meet these requirements, and expected costs. The Department acknowledges these comments in a text box in Section 4.2 of the Final Study and will consider the recommendations they provide in developing the guidance that will specify the format and content for site-specific long-term stewardship plans. In addition, the specific example provided in the Study was not meant to imply that other styles or formats for conceptual site models were not effective.

6.6 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. The Department currently relies on the annual appropriations process to fund long-term stewardship. This is not likely to change in the near term. As noted in Section 8.1 of the Study, a separate Project Baseline Summary (PBS) for long-term stewardship at each site will help the Department improve its estimates of annual long-term stewardship funding requirements. Developing an alternative funding mechanism will require additional study and eventually Congressional action. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) current difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

6.7 – The Department acknowledges this comment in a text box in Section 10.2 of the Study. The Department agrees that remedies may need to be reassessed periodically in light of changing circumstances and information. Section 10.2 of the Study includes a discussion of these points.

performance of the remedy in place. The community should be involved in these re-evaluations.

7. DOE should develop a program to look for solutions that would minimize or eliminate the need for long-term stewardship. We are aware that some contaminants will have to be "stored" in place or at the site for long periods of time. This may be true for many radionuclides and some chemicals, often when they are in the form of dense-non-aqueous phase liquids (DNAPLs). We also believe that once decisions are made to leave a contaminant in place, it is difficult to continue research on how the contaminant could be safely treated, avoiding the need for long-term stewardship measures. We propose that DOE form a dedicated program that keeps an eye towards the future, and continually looks for solutions to these problems. We think that this program should be coordinated with the Office of Long-Term Stewardship.

8. A reliable, up-to-date record management facility accessible to the community is required. DOE must fully characterize, document, and disclose all environmental contamination at its sites in case failures occur. Because of the long-term nature of contaminants found at many of the sites, DOE should develop a record management system that will always be accessible near the location of the stewardship activities, from a regional access point (such as the state archive or library) and from the National Archive system. In cases such as waste burial areas (e.g., Waste Isolation Pilot Project), DOE should submit records to international archives as well.

9. Develop policy and regulations on property transfers. One of the more difficult aspects of this program is deciding how to handle property transfers and the obligations of DOE and the new owner after the transfer. We strongly advise that this be addressed as policy and specific regulation, which contains the premise that DOE is responsible for a site in perpetuity unless the new owner has altered the property (e.g., drills through a landfill), violated a legal deed restriction, or contaminates the environment. If the owner is insolvent, then liability should revert back to DOE.

10. When institutional controls or land-use controls are part of the remedy, DOE should be required to monitor and enforce compliance with those controls. If property is transferred to another entity, DOE should develop a system whereby it will monitor compliance with any land-use restrictions/institutional controls, and enforce compliance when necessary.

11. Avoid transferring hazardous substances. Transferring waste adds the complication of transportation and reclamation of the former site, while still maintaining the burden of long-term stewardship activities. We are also concerned that some locations with lax standards could become the dumping ground for many long-lived hazardous materials.

12. All cleanups that fall under the LTS program should use the CERCLA regulatory framework. There are many cleanups conducted pursuant to non-CERCLA authority. We propose that DOE take the initiative to form a consistent regulatory mechanism for the LTS program, and that CERCLA is the method that provides the most opportunity for community involvement in decision making.

13. When contaminants are left in place, DOE should compensate local governments. Compensation to fund protective equipment, emergency preparedness, and sophisticated record keeping should be available to all local governments where long-

6.8 – The Department acknowledges these comments in a text box in Section 4.2.4 of the Final Study. As noted in Section 4.2.4 of the Final Study, the Department's process for developing and implementing new science and technology includes developing a long-term stewardship science and technology roadmap that will (1) identify science and technology needs; (2) identify existing capabilities to meet these needs both within and external to DOE; (3) determine research and development priorities; and (4) direct specific efforts to meet these needs. The Department agrees that research into a number of key areas is needed, including the long-term effectiveness and reliability of engineered and institutional controls; surveillance and monitoring; and information management. Advances in science and technology may provide future generations with the ability to cost-effectively achieve unrestricted use at some sites. The Department's Long-term Stewardship Working Group recently identified the policy issue as to whether the ultimate goal of new science and technology should be to improve the ability to maintain the existing end state (i.e., the end state established during cleanup) or should be to "improve" the end state more closely toward unrestricted use as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee.

6.9 – The Department acknowledges this comment in Section 7.2 of the Study. The Department has begun a process to more clearly identify and develop a consensus on long-term stewardship information needs and develop guidance for long-term stewardship information and records management. Some information management guidance will be included in the guidance for site-specific long-term stewardship plans currently under development by the Department. This comment will be considered in these efforts.

6.10 – This comment is acknowledges in a text box in Section 6.2 of the Study. Section 6.2 of the Study recognizes the many issues, public concerns, and uncertainties associated with ensuring the continued provision of long-term stewardship after property transfers. The Department's Long-term Stewardship Working Group recently identified the issue of how DOE will ensure adequate protection of human health and the environment at sites transferred to the private sector as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This comment will be provided to the Executive Steering Committee for their consideration.

6.11 – The Department acknowledge this comment in Section 5.3 of the Study. Current laws and regulations do require DOE to monitor and enforce compliance with institutional controls.

6.12 – The decision to clean up to unrestricted use, or to meet other specific land use requirements, is made on a site-specific basis with input from regulators, stakeholders, and the public. It is both DOE and EPA policy that cleanup remedies should be consistent with the intended future use of the affected areas. Chapter 2 of the Study includes a new text box that provides a more formal statement on the scope of long-term stewardship and why it is required (i.e., the inability to achieve unrestricted use and the nature of residual hazards). The goal of long-term stewardship is to ensure continued protection of human health and the environment consistent with applicable requirements. The Department recognizes the many issues and public concerns associated with the uncertainties with planning for, documenting, and funding long-term stewardship throughout the Study and acknowledges this comment by including it in a text box in Section 3.2 of the Study.

6.13 – The Department acknowledges these comments in a text box in Section 4.1 of the Final Study. The specific mechanisms available for oversight and enforcement of long-term stewardship vary according to the applicable regulatory regime(s) and state laws on a site-specific basis. The Department has not developed a policy on potential alternative regulatory regimes at specific sites. These comments will be provided to the senior management Long-term Stewardship Executive Steering Committee for their consideration.

6.14 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. As noted in Section 8.2 of the Study, developing an alternative funding mechanism will require additional study and eventually Congressional action. Section 8.2 of the Study also provides a summary of the recent study of Trust Funds by Resources for the Future. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

term stewardship activities fall under their jurisdiction. Even with the best plans, we know that there will be failures. Some of these failures may require emergency medical response due to sudden events (e.g., explosion), but many may lead to negative health affects due to non-sudden events (e.g., failure to contain seeping groundwater plumes leading to contamination of the water supply). Aside from direct compensation, we believe that DOE should provide an insurance policy for each site. This insurance should be similar to Environmental Impairment Liability policies required by the Resource Conservation Recovery Act (RCRA). These policies are required by EPA regulations for privately held sites that treat, store, or dispose of hazardous waste. We suggest that the Office of Long-Term Stewardship investigate various mechanisms to fund such insurance.

14. DOE Office of Environmental Management (or its successor organization) should take responsibility for long-term stewardship at the site. We do not believe that the other line programs of DOE would put equal focus into the mission and goal of adequate long-term stewardship. We are especially concerned that sites within the new National Nuclear Security Agency would not coordinate well with non-NNSA functions. It is of particular importance that long-term stewardship planning and activities are coordinated with adequate project management oversight and authority in one office within DOE.

6.15 – As noted in Exhibit 4-2 of the Study, it is DOE's current policy that at sites where non-EM missions are expected to continue, the site landlord programs will take responsibility for long-term stewardship after EM finishes its cleanup mission.

15. DOE should integrate prior studies into its assessment of long-term stewardship needs. Assessing the sites on the "1995 List of Sites Reviewed for Possible Past Involvement in Nuclear Weapons and Nuclear Energy Related Activities" is an important and difficult task. We urge DOE to continue work on this list - specifically creating a database that will provide information about each site and long-term stewardship needs. Additionally, coordination between this study and the long-term stewardship analyses (site specific and national) currently being conducted by DOE for Congress should be improved.

6.16 – The Department acknowledges this comment in a text box in Section 7.2 of the Study. Section 7.2 of the Study also notes that on February 11, 2001, the Department made public a list of sites, including beryllium vendors, DOE sites that used radioactive materials, and facilities where atomic weapons workers may have been employed (66 FR 4003). The Department is working on a database for these sites. The Study focuses on common issues and challenges that exist across many sites rather than focusing on one particular subset of these sites. The Department also notes that long-term stewardship is not limited to DOE sites, or even sites where the federal government has some responsibility. For example, local governments are already responsible for the long-term stewardship of closed municipal landfills. Many of the issues that pertain to DOE sites are likely to pertain to closed landfills as well.

Citizens Advisory Board

Idaho National Engineering and Environmental Laboratory

00-CAB-084

November 22, 2000

Steven Livingstone, Project Manager
Office of Long-Term Stewardship (EM-51)
Office of Environmental Management
U.S. Department of Energy
P.O. Box 45079
Washington, DC 20026-5079

Chair:
Stanley Hobson

Vice Chair:
Jan M. Edelstein

Members:
Wynona Boyer
James Bondurant
Karen Corrigan
Annemarie Goldstei
Andy Guerra
Robert D. Kaestner
David Kipping
Patricia Klahr
Lawrence Knight
R.D. Maynard
Marilyn Paarmann
F. Dave Rydalch
Monte Wilson

Ex-officios:
Kathleen Trever
Wayne Pierre
Gerald C. Bowman

Jason Staff:
Carol Cole
Amanda Jo Edelmay
Kathy Grebstad
Wendy Green Lowe
Trina Pettingill
Teri Tyler

Dear Mr. Livingstone:

> **Note:** The Site-Specific Advisory Board for the Idaho National Engineering and Environmental Laboratory (INEEL), also known as the INEEL Citizens Advisory Board (CAB), is a local advisory committee chartered under the Department of Energy's (DOE) Environmental Management SSAB Federal Advisory Committee Act Charter.

The INEEL CAB has reviewed the Draft Long-Term Stewardship Study. We appreciate the opportunity to provide our comments to DOE on the draft document.

INEEL CAB Recommendation #78, titled "Long-Term Stewardship" (attached), transmits our comments on the Draft Study. We were largely impressed by the Draft Study, although we offer a few suggestions for improvement. We look forward to receiving the Final Long-Term Stewardship Study when it becomes available and hope to see that our comments have been incorporated.

Additional comments on DOE's broader Long-Term Stewardship Program are also included in the recommendation. In particular, we urge DOE to take immediate steps to move beyond studying this important subject and institutionalize Long-Term Stewardship.

INEEL CAB Recommendation #78 was reached through consensus at the INEEL CAB's November 2000 meeting, held in Idaho Falls, Idaho. We await your response.

Sincerely,

Stanley Hobson, Chair
INEEL CAB

cc: David Kipping, INEEL CAB Stewardship Committee Chair
Beverly Cook, DOE-ID
Carolyn Huntoon, DOE-HQ
Martha Crosland, DOE-HQ
Fred Butterfield, DOE-HQ
Governor Dirk Kempthorne
Larry Craig, U.S. Senate
Mike Crapo, U.S. Senate
Mike Simpson, U.S. House of Representatives
Helen Chenowith, U.S. House of Representatives
Robert Geddes, President Pro-Tem, Idaho Senate
Laird Noh, Chair, Idaho Senate Resources and Environment Committee
Bruce Newcomb, Speaker, Idaho House of Representatives
Golden C. Linford, Chair, Idaho House Resources and Conservation Committee
Jack Barraclough, Chair, Idaho House Environmental Affairs Committee
Gerald Bowman, DOE-ID
Kathleen Trever, State of Idaho INEEL Oversight
Wayne Pierre, U.S. Environmental Protection Agency Region X
John Sackett, Argonne National Laboratory - West

Jason Associates Corporation • 477 Shoup Avenue, Suite 201 • Idaho Falls, Idaho 834 02
Phone • (208) 522-1662 Fax • (208) 522-2531
http://www.ida.net/users/cab

Citizens Advisory Board
Idaho National Engineering and Environmental Laboratory

LONG-TERM STEWARDSHIP

The Idaho National Engineering and Environmental Laboratory (INEEL) Citizens Advisory Board (CAB) recently received copies of the Draft Long-Term Stewardship Study prepared by the Department of Energy's (DOE's) Office of Long-Term Stewardship. The Draft Study was prepared in partial compliance of a December 1998 Settlement Agreement that resolved a lawsuit filed by the Natural Resources Defense Council (and other plaintiffs) against DOE regarding the Programmatic Environmental Impact Statement for the complex-wide waste management program. We appreciate the opportunity to provide our recommendations regarding the Draft Study and DOE's Long-Term Stewardship Program.

DRAFT STUDY

The INEEL CAB would like to compliment the DOE Office of Long-Term Stewardship on the Draft Study. It addresses a very complex and often confusing subject and breaks it down into a manageable set of topics and issues. We noted that the Draft Study identified more questions than answers, but it appears to have done a very thorough job of identifying the most relevant questions. In addition, the Draft Study did an excellent job of integrating the comments received from the public during the scoping period into the Draft Study. The addition of excerpts from the study conducted by the National Research Council and accounts of experiences from other government agencies lend additional perspective and balance to the document. We conclude that the Study's primary contribution at this time results from the effort to consolidate information about the subject. This document, along with the recently prepared *Report to Congress*, provides an excellent starting point to support enhancement of the public's understanding of this important topic. 7.1

The INEEL CAB understands that the Study is not being prepared to support a federal decision-making process. Nevertheless, **the INEEL CAB recommends that DOE make every effort to delineate alternative possible future courses of action as clearly as possible in the Final Study and providing objective analysis of the various pros and cons of each alternative.** Good examples of where DOE has already taken this approach are presented in Section 6.1.3 (page 60), Exhibit 5-4 (page 48) and especially Exhibit 8-3 (pages 86-87). 7.2

One criticism of the Draft Study relates to an apparent lack of commitment to conducting meaningful public participation activities during Long-Term Stewardship planning and implementation. DOE's commitment to meaningful public involvement should be reinforced through the addition of appropriate language in several sections. The following is a partial listing of suggestions for where public participation should be addressed in the Study: 7.3

7.1 – The Department appreciates this comment. Thank you.

7.2 – Where possible, the Study identifies alternatives for addressing long-term stewardship.

7.3 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend the public participation process will allow the Tribes and the public to express their views on long-term stewardship activities at DOE sites. The Department notes that the public involvement issue is identified as an additional issue in the overall introduction to the Study, but not specifically in Chapter 2. In addition, the Department notes that existing laws and regulations require public involvement in the remedy selection process, which defines end states and cleanup strategies, and DOE selects remedies in compliance with these laws and regulations. The Department understands the request from the commenter for the Study to be more specific in identifying how public involvement will occur during long-term stewardship. However, the Study cannot establish policy such as altering the list of requirements for site-specific plans or change the list of activities conducted during self-assessment.

The discussion of issues related to long-term stewardship in Chapter 2 is incomplete. One issue refers to the need for public access to information (Section 2.5); another refers to the importance of continued partnerships with state, local and Tribal governments (Section 2.7). DOE should include another "issue" that reflects the need for a meaningful role for the public in long-term stewardship decision-making.
A commitment to involving the public in defining appropriate end states for each site and selection of cleanup strategies that will allow such end states would similarly strengthen the introduction to Chapter 3 (page 11). DOE should add appropriate language.
Public participation should be added to the list of requirements of site-specific long-term stewardship plans (in Section 4.2.2 on page 32).
Public participation should be added to the list of activities conducted during self-assessments conducted in preparation for the transition to long-term stewardship (in Section 4.2.2 on page 33).
There may be other places in the document that should be changed as well to more completely reflect a commitment to providing a role for stakeholders.

The INEEL CAB is puzzled by the fact that INEEL is not listed in the table on page 40. Because INEEL has many continuing non-EM missions, we do not understand why it does not appear. **The INEEL CAB recommends that DOE include INEEL in the table on page 40 or provide a very clear explanation why inclusion is not appropriate.** 7.4

LONG-TERM STEWARDSHIP

The INEEL CAB recommends DOE move beyond studying this important subject and take immediate steps to institutionalize Long-Term Stewardship by clearly identifying the Department's requirements for field offices. 7.5

Although they are perhaps beyond the scope of the Long-Term Stewardship Study, we have additional comments to help ensure DOE's success in implementing a Long-Term Stewardship Program. We urge the Office of Long-Term Stewardship to address the following on a priority basis.

Roles and Responsibilities. **The INEEL CAB recommends that DOE enhance the delineation of long-term stewardship responsibilities.** We suggest that all responsibilities that will fall within the purview of DOE-Headquarters and/or Field Offices be assigned appropriately. We additionally suggest that those tasks that will require public input and/or collaboration with others be similarly identified. The public might be provided an opportunity to help set priorities for those activities that would fall within DOE's responsibility. 7.6

Funding mechanisms. We understand that DOE awarded a grant to Resources for the Future, an independent non-profit research organization, to assess potential alternative long-term stewardship funding mechanisms. The Draft Plan included an excellent discussion of alternative funding mechanisms in Section 8.2 (pages 84-89). That discussion serves as a starting point. **The INEEL CAB recommends that DOE immediately embark on a more extensive study of funding mechanisms (based on detailed proposals for implementation). In particular, we** 7.7

7.4 – INEEL is not in Exhibit 4-2 because it is an EM landlord site, and the exhibit refers to sites where a Principal Secretarial Office other than EM is the landlord. Argonne National Laboratory - West, which is located within INEEL, is included in Exhibit 4-2 because the Office of Nuclear Energy, Science, and Technology is the landlord at that site.

7.5 – The Department acknowledges this comment in a text box in Section 4.2 of the Study. The Department's Long-term Stewardship Working Group recently identified the need for a corporate vision for long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. The corporate vision includes the appropriate organizational structure for long-term stewardship within the Department. The Department also recognizes that it is important to define long-term stewardship roles and responsibilities both within DOE and between DOE and other entities, including other federal agencies, states, Tribes, and regional governments. The Executive Steering Committee is developing a Strategic Plan for long-term stewardship; part of that effort will include identifying roles and responsibilities within DOE. The Department also notes that long-term stewardship as an issue is broader than DOE sites. For example, states and local governments already have long-term stewardship responsibilities at municipal landfills, and states may have long-term stewardship responsibility for some "Superfund lead" sites on the CERCLA NPL. Implementation of long-term stewardship across this broad spectrum of sites will require states to develop their own, independent capability to provide long-term stewardship.

7.6 – The Department acknowledges this comment in a text box in Section 4.2 of the Study. The Department's Long-term Stewardship Working Group recently identified the need for a corporate vision for long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. The corporate vision includes the appropriate organizational structure for long-term stewardship within the Department. The Department also recognizes that it is important to define long-term stewardship roles and responsibilities both within DOE and between DOE and other entities, including other federal agencies, states, Tribes, and regional governments. The Executive Steering Committee is developing a Strategic Plan for long-term stewardship; part of that effort will include identifying roles and responsibilities within DOE. The commenters expressed varied opinions on the appropriate balance between federal vs. non-federal leadership, and between a strong central organization vs. independent field organizations. The Department notes that a balance that may work well for one site may not work well for other

7.7 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. As noted in Section 8.2 of the Study, developing an alternative funding mechanism will require additional study and eventually Congressional action. Section 8.2 of the Study also provides a summary of the recent study of Trust Funds by Resources for the Future. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

recommend thorough consideration of the statutory authority that would be required to enable each alternative funding mechanism and how such authority could be achieved.

The INEEL CAB recommends that DOE immediately pursue establishment of an adequate and reliable funding source for long-term stewardship activities. Consistent with the draft recommendations (not yet approved or adopted) developed by representatives of ten Site Specific Advisory Boards at a recent workshop in Denver, Colorado, **the INEEL CAB further recommends that DOE make guaranteed funding for stewardship a national priority, removed from the annual Congressional appropriations process, and maintained off-budget.** We agree with the workshop participants that stewardship funds must be protected from the demands of other programs. Stakeholders must be involved in the development of a fair allocation process. To meet these objectives, DOE must develop authorizing legislation for submittal to Congress.

7.8 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. The Department currently relies on the annual appropriations process to fund long-term stewardship. This is not likely to change in the near term. As noted in Section 8.1 of the Study, a separate Project Baseline Summary (PBS) for long-term stewardship at each site will help the Department improve its estimates of annual long-term stewardship funding requirements. Developing an alternative funding mechanism will require additional study and eventually Congressional action. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) current difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

Institutionalization of Long-Term Stewardship. Most of the details of long-term stewardship must, by their nature, be site-specific. However, it is clear that there is an urgent need for the Office of Long-Term Stewardship to continue to draft national policy and provide guidance to sites in developing long-term stewardship plans. **The INEEL CAB recommends that the Office take steps to institutionalize long-term stewardship immediately.** For example, we suggest that DOE issue DOE orders mandating specific requirements and responsibilities for Long-Term Stewardship planning at each site. Suggestions for consideration during development of requirements and responsibilities include those listed in the box titled "Remedy Monitoring Plan" (page17), the related discussion of "enhanced Remedy Monitoring Plan" further down that page, and the criteria discussed in Section 3.3 (page 18). Specific requirements must include directives regarding public involvement and information management. With the imminent change in the Federal administration, this recommendation is of particular urgency.

7.9 – See response to Comment 7.5.

Expansion of Long-Term Stewardship throughout DOE. Long-Term Stewardship should not be considered just the next step after cleanup. **The INEEL CAB recommends that the principles and approaches developed by the Office of Long-Term Stewardship be incorporated into all DOE activities, including those under the auspices of other major organizations within DOE, like Nuclear Energy, Defense Programs, etc.** The Office of Long-Term Stewardship should not restrict its support to the Environmental Management Program. DOE should implement the program consistently across all national programs. Long-Term Stewardship should be considered in all life-cycle-planning endeavors. **In addition, Long-Term Stewardship should be emphasized as an essential component of all new programs and facilities as well as ongoing activities.**

7.10 – This comment is acknowledged in a text box in Section 6.1.3 of the Study. The Department agrees that the language used in the Draft Study did not adequately communicate the distinction between "pollution prevention" in the traditional sense and as applied to long-term stewardship. The Department has revised Section 6.1.3 of the Study to indicate the importance of both pollution prevention principles and the concept of Environmental Management Systems to help minimize the future long-term stewardship consequences of current mission activities. The Department also has added a footnote in Section 6.1.3 to clarify use of the term "pollution prevention."

KENNETH M. REIM, P.E.
2733 Billy Casper Drive
Las Vegas, NV 89134-7814

November 28, 2000

Mr. Steven Livingstone, Project Manager
U.S. Department of Energy
P.O. Box 45079
Washington, D.C. 20026-5079

Re: October 2000 Draft Report on Long-Term Stewardship Study

Gentlemen:

Some general observations and comments on the above report, and program are as follows:

1. **The draft LTS report is long, confusing, lacks simplicity and clarity; with the ordinary reader unable to understand it. A good report is short, clear and to the point. This report does not do this - is this the objective of DOE?** 8.1

2. **There is a lack of clarity in regard to remediation (cleanup) completion, versus when stewardship is initiated. Most government agency personnel, and the public, do no understand this distinction. Stewardship needs to be very clearly defined, so that the man-on-the-street can understand it - this is not the present case.** 8.2

3. **Every effort should be made to make the LTS program simple and clear. Complexity adds to confusion.** 8.3

4. **The LTS program organization should maximize the personnel assigned to field work (budget), and minimize the administrative staff (organization-budget).** 8.4

5. **If federal, state and local regulatory requirements do not significantly contribute to doing or completing the LTS mission, move to revise or eliminate such.** 8.5

6. **LTS programs should be subject to aggressive benefit/cost analyses, maximizing the benefit/cost ratio.** 8.6

One could comment on the various sections of the report, however, that would simply add to making the document more confusing. I seriously question if anyone person will read the whole document and understand it. These documents should be readable by a significant cross section of government personnel and the public.

Thanks for the opportunity to comment.

Sincerely,

Kenneth M. Reim

8.1 – In response to public comments, DOE tried to make the Study as clear as possible.

8.2 – The Department acknowledges this comment in a text box in Section 2.1 of the Study. In the Paths to Closure documents, the Department defined completion of cleanup projects explicitly as the situation in which "deactivation or decommissioning of all facilities currently in the EM program has been completed, excluding any long-term surveillance and monitoring; all releases to the environment have been cleaned up in accordance with agreed-upon cleanup standards; groundwater contamination has been contained, or long-term treatment or monitoring is in place; nuclear material and spent fuel have been stabilized and/or placed in safe long-term storage; and "legacy" waste (i.e., waste produced by past nuclear weapons production activities and related research and development, with the exception of high-level waste) has been disposed of in an approved manner." Therefore, long-term stewardship responsibilities clearly begin when cleanup ends. The start of long-term stewardship is relatively easy to define at a relatively small site with a single cleanup project, but it is more difficult to define at large, complex sites with multiple cleanup projects that may span decades. Exhibit 5-3 of the Study also addresses this issue. The Department agrees that the distinction between completion of cleanup and start of LTS is not always clear in the site Project Baseline Summaries (PBS) and similar systems, especially at large sites with multiple areas undergoing remediation. The Department agrees with the comment that LTS planning begins before the start of cleanup; this is discussed explicitly in Section 6.1.3 of the Study. The Department's Long-term Stewardship Working Group recently identified the issue of developing a consistent, consensus definition of long-term stewardship, including when long-term stewardship begins, as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee.

8.3 – The Department acknowledges this comment in a text box in Section 4.2 of the Study.

8.4 – The Department acknowledges this comment in a text box in Section 4.2 of the Study. The Department's Long-term Stewardship Working Group recently identified the need for a corporate vision for long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. The corporate vision includes the appropriate organizational structure for long-term stewardship within the Department. The Department also recognizes that it is important to define long-term stewardship roles and responsibilities both within DOE and between DOE and other entities, including other federal agencies, states, Tribes, and regional governments. The Executive Steering Committee is developing a Strategic Plan for long-term stewardship; part of that effort will include identifying roles and responsibilities within DOE.

8.5 – The Department acknowledges these comments in a text box in Section 4.1 of the Final Study. The specific mechanisms available for oversight and enforcement of long-term stewardship vary according to the applicable regulatory regime(s) and state laws on a site-specific basis. The Department has not developed a policy on potential alternative regulatory regimes at specific sites. These comments will be provided to the senior management Long-term Stewardship Executive Steering Committee for their consideration.

8.6 – The Department acknowledges this comment in a text box in Section 8.1 of the Study. The Department agrees that more information is needed on the scope of future long-term stewardship activities and better life-cycle cost estimates are needed. The Study incorporates the cost estimates from the Report to Congress on Long-term Stewardship and discusses the basis for these estimates. Accurate cost estimates are critical for long-term stewardship, particularly for ensuring accountability for the technical scope of the program. The Report to Congress on Long-term Stewardship is only the first step in developing the necessary cost figures. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites. This comment will be forwarded to the Executive Steering Committee for their consideration.

Sam and Laurie Booher

Sam & Laurie Booher
4387 Roswell Dr
Augusta, GA 30907

Phone 706-863-2324
Fax 706-863-2324
Email sbooher@aol.com

10 December 2000

Mr. Steve Livingstone
Project Manager, Office of Long Term Stewardship
Office of Environment Management
US DOE, Box 45079
Washington, DC 20026-5079

Subject: Public Comment to Draft Long-Term Stewardship Study

Dear Mr. Livingstone,

I have two basic comments that should be and are not addressed under the topic of Long-Term Stewardship of DOE sites. However first let me say I am retired and have never been employed by DOE or any of its subordinate companies nor have I ever been anything more than a concerned member of the public. Also, I participated in the writing of the CAB (Citizen Advisory Board) By-Laws for SRS and have ever since participated in the CAB Committee work. I am currently a member of SRS, CAB Long-Term Stewardship SubCommittee.

First -- Your program barely mentions once and does not bring out sufficiently the following:

At some point in the future the United States will have a critical need for DOE to establish sites such as SRS for a new purpose that is critical to this countries survival. At that time it will be all but impossible to acquire new sites such as SRS due to expansion and growth of the public sector. DOE should not be in a mad rush to divest itself of SRS. Reading this report leads me to think you already are in a rush to make this mistake. I offer that the ecology found in the buffer zone that currently provide both safety and security on SRS is already a recognized as a National Environmental Research Park (NERP). Several federally endangered species and the work done by the Savannah River Ecology Laboratory, part of the University of Georgia, should be part of the justification for keeping SRS under some federal entities to be available to meet future national security needs.

9.1 9.1 – This comment focuses on site-specific issues. Where these issues have identified general issues for long-term stewardship, the Department has attempted to communicate these issues in both the Draft and Final Study. This comment has been forwarded to the Department's long-term stewardship representatives at the appropriate sites; however, the long-term stewardship study is not the appropriate document for addressing site-specific issues.

Second -- No where in this report do you even mention the following:

Currently DOE is allowing public landfill operations on SRS and possibly other DOE sites that are daily polluting DOE sites. This pollution is taking place and will in the future cause problems that will take more than 30 years to clean up. These public landfill operations are daily bring pollution to the site that is polluting underground water and will eventually pollute surface water. However, at this time existing detection methods in place down stream from the landfill on SRS have not detect any pollution. However we all know that it is not a question of "if" it is only a question of "when" it be so bad it can not help but be noticed. Because this is a public landfill on SRS, local DOE operations are taking no responsibility. However, when it

9.2 9.2 – See response to Comment 9.1.

comes time to eventually recognize the responsibility to clean up this polluted site, no one will tell me at SRS who will be responsible. Will the polluting party, will DOE or will the American Tax payer pay the cost for allowing this landfill on SRS? I have read the Public and DOE MOUs and other agreements. I have asked for clarification but still do not have an answer.

Additional Recommendation:
In the not two distant future, our future generations of Americans will find it very difficult to see wildlife in America outside of city zoos. Currently some DOE sites have Biological Resource Management Plans. These plans are used to manage wetland and other sensitive habitat and monitor the wildlife. All DOE sites should be mandated as part of any Long-Term Stewardship Program to establish such programs and insure these plans are incorporated into the Site Comprehensive Plans. Then if DOE does decide to transfer these sites to other federal entities or nongovernment entities then these agencies must be better equipped than DOE to take care of these public natural resources and the transfers must include legal agreements that bind this commitment to long-term stewardship to protect America's Last Wild Places.

Sam Booher

Mr. Livingstone – I would like to be considered for a position or at least and advisory position with the DOE Advisory Group for Long-Term Stewardship (see page 27, your draft plan)

9.3 – As noted in Section 4.2.2 of the Study, site-specific long-term stewardship plans are required by law for uranium mill tailings sites and must be approved by the Nuclear Regulatory Commission. The Department also requests the development of a site-specific long-term stewardship plan before accepting long-term stewardship responsibilities for any site. As the EM mission at a site is completed, current plans call for the EM program and the site landlord (if different from EM) to develop a long-term stewardship baseline for each site. The baseline will describe the scope of applicable long-term stewardship requirements, the technical activities and the projected schedule to meet these requirements, and expected costs. The Department acknowledges these comments in a text box in Section 4.2 of the Final Study and will consider the recommendations they provide in developing the guidance that will specify the format and content for site-specific long-term stewardship plans.

9.4 – The Department recommends that you make this request through established public involvement processes.

Campbell, Kathleen

From: Steven Livingstone [Steven.Livingstone@EM.DOE.GOV]
Sent: Monday, December 11, 2000 2:30 PM
To: Girod, Brenda
Subject: RE: Comments on Draft Long-Term Stewardship Study

Mark:

Thank you for reviewing the study. Your comments will be addressed.

Steve

-----Original Message-----
From: Mark.Plessinger@doegjpo.com [mailto:Mark.Plessinger@doegjpo.com]
Sent: Monday, December 11, 2000 1:36 PM
To: Livingstone, Steven
Subject: Comments on Draft Long-Term Stewardship Study

Steve,

I have noted a couple of picky minor errors that should be corrected in the document. I expect the GJO to submit comments formally, but just in case they are too late you will have these.

Page 12: In the shaded box under the first bullet the words "privately owned" should be replaced with the words "under active NRC License" to make the statement a little more correct. | 10.1

10.1 – The phrase "under active NRC license" has been added to the text in response to this comment.

Footnote number 9: In the second sentence the cleanup actions by DOE are not conducted under NRC license, only the stewardship activities.(Technically, any cleanup action resulting from a failure during the stewardship phase would be done under NRC license but the initial cleanup where DOE does the cleanup is not under NRC license). | 10.2

10.2 – The subject footnote has been changed to address this comment.

Also at the end of footnote 9, the Hallam, Nebraska and Piqua, Ohio sites are not under NRC license, as stated in the footnote. | 10.3

10.3 – These sites have been removed from the footnote.

Overall this document is impressive. It is extremely comprehensive and I believe it does demonstrate that DOE is seriously considering the ramifications of stewardship. The document is indicative of a tremendous amount of hard work. | 10.4

10.4 – The Department appreciates this comment. Thank you.

Mark

Committee to Minimize Toxic Waste

December 15, 2000

Steven Livingstone, Project Manager
James Werner, Director
Office of Long-Term Stewardship, EM51
Office of Environmental Management
U S Department of Energy
P. O. Box 45079
Washington D.C. 20026-5079

Re: Comments on DOE/EM/LTS "Long-Term Stewardship Study" Oct. 2000 Draft.

Dear Mr. Livingstone:

We would like to thank DOE's Office of Environmental Management for arranging the workshop on the Long-Term Stewardship Study in San Francisco on December 14, 2000 and affording our citizen organization an opportunity to comment.

The Committee to Minimize Toxic Waste is a Berkeley based citizens' group that monitors Lawrence Berkeley National Laboratory's (LBNL) use of radioactive and hazardous substances, generation of radioactive, mixed and hazardous waste, handling of legacy waste and the Lab's impacts on our local community.

We concur with the comments submitted by Tri-Valley CARE's and Western States Legal Foundation and would like to sign-on to their official statement and especially emphasize the following points:

11.0 – Please see responses to comment letter 6.

1. All cleanups for sites, that fall under the Long-Term Stewardship Program, such as LBNL, should use the CERCLA regulatory framework. CERCLA is the method that provides the most opportunity for substantive community involvement in decision

public health impacts are treated by LBNL as public relations matters.

11.1 – The Department acknowledges these comments in a text box in Section 4.1 of the Final Study. The specific mechanisms available for oversight and enforcement of long-term stewardship vary according to the applicable regulatory regime(s) and state laws on a site-specific basis. The Department has not developed a policy on potential alternative regulatory regimes at specific sites. These comments will be provided to the senior management Long-term Stewardship Executive Steering Committee for their consideration. The general issue of public involvement has been identified to the senior management Long-term Stewardship Executive Steering Committee.

Note: You should be aware that the Berkeley City Council passed a resolution in November 1999 requesting public inclusion at LBNL's Site Restoration (RCRA) quarterly meetings. To date, LBNL has adamantly refused this request for critical public participation.

2. LBNL is the oldest of the DOE's federal facilities and has a long history of environmental contamination (including uranium, curium, tritium and other radioactive soil contamination. This fact was excluded from Exhibit 9 on p. 30 of DOE's October 1999 "From Cleanup to Stewardship" document). Consequently, LBNL has a serious legacy waste/contamination problem, which has never been discussed in an open public process. (See enclosure: Radioactive Contamination Chronicle of LBNL.)

11.2 – This comment focuses on site-specific issues. Where these issues have identified general issues for long-term stewardship, the Department has attempted to communicate these issues in both the Draft and Final Study. This comment has been forwarded to the Department's long-term stewardship representatives at the appropriate sites; however, the long-term stewardship study is not the appropriate document for addressing site-specific issues.

3. DOE's LBNL operations are unique because of the lab's urban setting in the Strawberry Canyon watershed without any buffer zone to the community. Due to LBNL's long history in the community, issues of legacy waste cleanup, decontaminations and decommissioning (D&D) activities are of paramount concern to the residents in Berkeley and Oakland. We believe that leaving contamination in place is not an option for LBNL.

11.3 – See response to Comment 11.2.

4. Lack of proper characterization of LBNL's radioactive legacy waste is obviously problematic to identifying potential radioactive waste from the ongoing decommissioning activities. In Berkeley, the decommissioning activities have so far resulted in more than 40,000 tons of concrete shielding blocks and metallic equipment from decommissioned accelerators such as the Bevatron and the HILAC. Thus far, DOE has not calculated the costs associated with the potential radioactive legacy waste generated by these activities or the environmental consequences. In fact, DOE's own Tiger Team in 1991 reported that "LBL has not characterized known uranium contamination remaining underground from decontamination and decommissioning activities associated with the 184-inch Cyclotron". Very little has changed in the last decade.

11.4 – See response to Comment 11.2.

5. Lastly, we have a great concern over the continuing generation of legacy waste and environmental contamination. As an example, LBNL's National Tritium Labeling Facility generates most of the Lab's radioactive and mixed waste, most of its annual radioactive emissions and consequently most of the environmental impacts. There is also continuing and vocal political opposition to these activities and DOE should evaluate whether the benefits of retaining the activity outweigh those of terminating it in the interest of eliminating the disproportionate amount of management time and resources devoted to it.

11.5 – See response to Comment 11.2.

We recognize that if the NTLF operations ceased today, LBNL's growing tritium legacy waste/contamination would decay in 125 years. The generation of legacy waste/contamination and their associated costs from current operations should be evaluated as part of the Long-Term Stewardship Program.

11.6 – See response to Comment 11.2.

Again, we want to thank you for your efforts in this critical issue of long-term environmental management. If you would like more detailed information, please don't hesitate to contact me.

Sincerely,

Pamela Sihvola
Co-chair CMTW
P.O. Box 9646
Berkeley, CA 94709

cc: Laurence McEwen, Oakland DOE/Long-Term Stewardship
Hemant Patel, DOE Oakland Operations, EM

-----Original Message-----
From: Stephen Dycus [mailto:SDYCUS@vermontlaw.edu]
Sent: Friday, December 15, 2000 9:29 AM
To: Livingstone, Steven
Cc: jsapple@indiana.edu
Subject: PEIS LTS draft study

TO: Steven Livingstone, Project Manager

FROM: Stephen Dycus

DATE: December 14, 2000

RE: Draft Long-Term Stewardship Study

The October 2000 draft Long-Term Stewardship Study, prepared by DOE pursuant to the settlement agreement in Natural Resources Defense Council v. Richardson, is a marvelous, uniquely valuable survey of issues and current planning for long-stewardship of the nuclear weapons complex. It provides a good picture of work to date on this subject and lays a foundation for future efforts. The following comments suggest minor refinements. 12.1

The study should place even greater stress on the importance of ensuring that DOE sites already closed or currently undergoing cleanup develop the same kinds of long-term stewardship plans that will be adopted for new sites. See p. 16. That is what existing law requires. 12.2

Even though it may be "difficult to estimate life-cycle costs" in monetary terms (p. 19), non-monetary costs (such as risks to public health) and uncertainties must be clearly articulated in the process of selecting cleanup strategies. 12.3

On page 29, you note the assumption of continuing responsibility for long-term stewardship at various sites by different DOE offices. But this national concern with broad intergenerational consequences demands unified management by a single office accountable to all the people. Delegation to several offices is also bound to be inefficient. 12.4

In the middle of page 43, you say, "Permits do not affect property rights." This sentence is inaccurate and should be deleted. 12.5

Don't RCRA and the 1990 Pollution Prevention Act, along with the related 1993 executive order, already require DOE to minimize the generation of hazardous wastes? See Environmental Management 1994 (DOE/EM-0119), at 5; and Pollution Prevention Program: Technology Summary (DOE/EM-0137P) (1994). Your statement at the bottom of page 60 suggests otherwise. 12.6

Concerning information management (Chapter 7), the study should make clearer the need to designate an institutional manager for this task. State land records, which form a critical link in the information/stewardship process, are notoriously unreliable and need to be augmented by a federal recording system. Finally, information in these records must be periodically reviewed, updated (to reflect new physical data, advances in science and technology), translated (to accounted for changes in language), and rerecorded to ensure the durability of the recording medium. 12.7 12.8

I appreciate the opportunity to comment on this important work.

12.1 – The Department appreciates this comment. Thank you.

12.2 – As noted in Section 4.2.2 of the Study, site-specific long-term stewardship plans are required by law for uranium mill tailings sites and must be approved by the Nuclear Regulatory Commission. The Department also requests the development of a site-specific long-term stewardship plan before accepting long-term stewardship responsibilities for any site. As the EM mission at a site is completed, current plans call for the EM program and the site landlord (if different from EM) to develop a long-term stewardship baseline for each site. The baseline will describe the scope of applicable long-term stewardship requirements, the technical activities and the projected schedule to meet these requirements, and expected costs. The Department acknowledges these comments in a text box in Section 4.2 of the Final Study and will consider the recommendations they provide in developing the guidance that will specify the format and content for site-specific long-term stewardship plans.

12.3 – The Department acknowledges this comment in a text box in Section 8.1 of the Study. The Department agrees that more information is needed on the scope of future long-term stewardship activities and better life-cycle cost estimates are needed. The Study incorporates the cost estimates from the Report to Congress on Long-term Stewardship and discusses the basis for these estimates. Accurate cost estimates are critical for long-term stewardship, particularly for ensuring accountability for the technical scope of the program. The Report to Congress on Long-term Stewardship is only the first step in developing the necessary cost figures. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites. This comment will be forwarded to the Executive Steering Committee for their consideration.

12.4 – The Department acknowledges this comment in a text box in Section 4.2 of the Study. The Department's Long-term Stewardship Working Group recently identified the need for a corporate vision for long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. The corporate vision includes the appropriate organizational structure for long-term stewardship within the Department. The Department also recognizes that it is important to define long-term stewardship roles and responsibilities both within DOE and between DOE and other entities, including other federal agencies, states, Tribes, and regional governments. The Executive Steering Committee is developing a Strategic Plan for long-term stewardship; part of that effort will include identifying roles and responsibilities within DOE. The commenters expressed varied opinions on the appropriate balance between federal vs. non-federal leadership, and between a strong central organization vs. independent field organizations. The Department notes that a balance that may work well for one site may not work well for other sites.

12.5 – Text has been deleted.

12.6 – This comment is acknowledged in a text box in Section 6.1.3 of the Study. The Department agrees that the language used in the Draft Study did not adequately communicate the distinction between "pollution prevention" in the traditional sense and as applied to long-term stewardship. The Department has revised Section 6.1.3 of the Study to indicate the importance of both pollution prevention principles and the concept of Environmental Management Systems to help minimize the future long-term stewardship consequences of current mission activities. The Department also has added a footnote in Section 6.1.3 to clarify use of the term "pollution prevention."

12.7 – The Department acknowledges this comment in Section 7.2 of the Study. The Department has begun a process to more clearly identify and develop a consensus on long-term stewardship information needs and develop guidance for long-term stewardship information and records management. Some information management guidance will be included in the guidance for site-specific long-term stewardship plans currently under development by the Department. This comment will be considered in these efforts.

12.8 – See response to Comment 12.7.

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DOE OVERSIGHT DIVISION
761 EMORY VALLEY ROAD
OAK RIDGE, TENNESSEE 37830-7072

December 12, 2000

Steven Livingstone
Project Manager
US Department of Energy
PO Box 45079
Washington DC 20026-5079

Dear Mr. Livingstone

STATE OF TENNESSEE COMMENTS ON THE *DRAFT LONG TERM STEWARDSHIP STUDY,* DTD OCTOBER 2000

The Tennessee Department of Environment and Conservation, DOE Oversight Division (TDEC/DOE-O) has received and reviewed the above referenced draft study. The State submits these comments with the expectation that either the study will be revised or a response to the comments will be generated.

GENERAL COMMENTS

The document adequately frames many of the issues related to long-term stewardship that have been raised to DOE over the past several years. However, this study is only a single step in ultimately implementing an acceptable long-term stewardship program. Issues such as funding, information management, and technology development are identified as needing more extensive evaluation and development. DOE should continue the work that has been identified in this study. Because long-term stewardship will require the participation of other parties (e.g. state and local governments, local communities, etc), the State strongly recommends adequate stakeholder involvement in the review and approval phase of any stewardship plans that DOE develops in the future. 13.1 13.2

The State of Tennessee has a bias for cleanup. DOE should in their development of policies, guidance and procedures for planning and implementing long-term stewardship emphasize a preference for permanent remedies. Maximum effort to achieve unrestricted use of DOE property will minimize the need for long-term stewardship and resulting "buffer" zones. The State's preference is to avoid long-term stewardship except in cases where cleanup to unrestricted use is not practical due to current technical restraints or unreasonable costs. 13.3

Furthermore, if and when technology becomes available to economically achieve unrestricted use, the State would expect DOE to achieve this "end state." 13.4

13.1 – The Department acknowledges this comment in a text box in Section 4.2 of the Study. The Department's Long-term Stewardship Working Group recently identified the need for a corporate vision for long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. The corporate vision includes the appropriate organizational structure for long-term stewardship within the Department. The Department also recognizes that it is important to define long-term stewardship roles and responsibilities both within DOE and between DOE and other entities, including other federal agencies, states, Tribes, and regional governments. The Executive Steering Committee is developing a Strategic Plan for long-term stewardship; part of that effort will include identifying roles and responsibilities within DOE. The Department also notes that long-term stewardship as an issue is broader than DOE sites. For example, states and local governments already have long-term stewardship responsibilities at municipal landfills, and states may have long-term stewardship responsibility for some Superfund lead sites on the CERCLA NPL. Implementation of long-term stewardship across this broad spectrum of sites will require states to develop their own, independent capability to provide long-term stewardship.

13.2 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process to allow for meaningful Tribal and public involvement.

13.3 – The decision to clean up to unrestricted use, or to meet other specific land use requirements, is made on a site-specific basis with input from regulators, stakeholders, and the public. It is both DOE and EPA policy that cleanup remedies should be consistent with the intended future use of the affected areas. Chapter 2 of the Study includes a new text box that provides a more formal statement on the scope of long-term stewardship and why it is required (i.e., the inability to achieve unrestricted use and the nature of residual hazards). The goal of long-term stewardship is to ensure continued protection of human health and the environment consistent with applicable requirements. The Department recognizes the many issues and public concerns associated with the uncertainties with planning for, documenting, and funding long-term stewardship throughout the Study and acknowledges this comment by including it in a text box in Section 3.2 of the Study.

13.4 – The Department acknowledges these comments in a text box in Section 4.2.4 of the Final Study. As noted in Section 4.2.4 of the Final Study, the Department's process for developing and implementing new science and technology includes developing a long-term stewardship science and technology roadmap that will (1) identify science and technology needs; (2) identify existing capabilities to meet these needs both within and external to DOE; (3) determine research and development priorities; and (4) direct specific efforts to meet these needs. The Department agrees that research into a number of key areas is needed, including the long-term effectiveness and reliability of engineered and institutional controls; surveillance and monitoring; and information management. Advances in science and technology may provide future generations with the ability to cost-effectively achieve unrestricted use at some sites. The Department's Long-term Stewardship Working Group recently identified the policy issue as to whether the ultimate goal of new science and technology should be to improve the ability to maintain the existing end state (i.e., the end state established during cleanup) or should be to "improve" the end state more closely toward unrestricted use as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee.

SPECIFIC COMMENTS

1. **Chapter 4, Page 32**
"Long-term stewardship is budgeted and managed in different ways at different sites across the DOE complex. Some sites have established long-term stewardship as a specific project with a distinct budget. Other sites include long-term stewardship as part of each cleanup project..."
The budgeting and management of the long-term stewardship projects should be handled uniformly throughout the complex thereby enabling meaningful (equitable) cost and resource allocation measures for those sites yet to go through cleanup and closures. 13.5

2. **Page 63, Gray Box, Third Bullet**
"*Surplus facilities at the Oak Ridge East Tennessee Technology Park have been leased under this authority*" (Hall amendment).
This is not technically true. DOE has resisted leasing under the Hall amendment and is doing a pilot under a Hall amendment equivalent process in partnership with EPA. 13.6

3. **Chapter 8, Funding and Financial Management**
Cost analysis should be extended for time periods equivalent to the longevity of the contaminant and consequent institutional controls. The present-worth method does nothing more than hide the actual long-term costs of providing stewardship. 13.7

4. **Chapter 10, Page 109, Bullets One**
"*Focus on managing the problem rather than trying to solve the problem.*"
The State of Tennessee strongly disagrees with this statement as a "principle." Cleanup is the goal, not management of a problem. "Managing the problem" should programmatically be listed as a last resort guidance only when source removal options are exhausted. On a site-specific basis, this approach should be used only under the most stringent of justifications or when natural attenuation will eliminate risk in a specific time period. This "principle" is fundamentally inconsistent with our views and is expressly rejected. 13.8

Questions or comments concerning the contents of this letter should be directed to Randy Young or John Owsley at the above address or by phone at (865) 481-0995.

Sincerely

John Owsley for

Earl C. Leming
Director

xc: Justin Wilson - Governor's Policy Office
John Leonard - BOE
Myrna Redfield - DOE
Ralph Skinner - DOE
Rodney Nelson - DOE
Jim Werner - DOE
Ann Beauchesne - NGA
Denise Griffin - NCSL

Ecl565.99

13.5 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. The Department currently relies on the annual appropriations process to fund long-term stewardship. This is not likely to change in the near term. As noted in Section 8.1 of the Study, a separate Project Baseline Summary (PBS) for long-term stewardship at each site will help the Department improve its estimates of annual long-term stewardship funding requirements. Developing an alternative funding mechanism will require additional study and eventually Congressional action. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) current difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

13.6 – This box has been significantly changed to reflect this comment; Mound is the current example.

13.7 – The Department acknowledges this comment in a text box in Section 8.1 of the Study. The Department agrees that more information is needed on the scope of future long-term stewardship activities and better life-cycle cost estimates are needed. The Study incorporates the cost estimates from the Report to Congress on Long-term Stewardship and discusses the basis for these estimates. Accurate cost estimates are critical for long-term stewardship, particularly for ensuring accountability for the technical scope of the program. The Report to Congress on Long-term Stewardship is only the first step in developing the necessary cost figures. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites. This comment will be forwarded to the Executive Steering Committee for their consideration.

13.8 – The Department acknowledges this comment in a text box in Section 10.2 of the Study. The Department agrees that remedies may need to be reassessed periodically in light of changing circumstances and information. Section 10.2 of the Study includes a discussion of these points. Chapter 2 of the Study includes a discussion of why cleanup to unrestricted use is not always possible. Advances in science and technology may provide future generations with the ability to cost-effectively achieve unrestricted use at some sites.

Campbell, Kathleen

From: Girod, Brenda
Sent: Monday, December 18, 2000 1:54 PM
To: Campbell, Kathleen
Subject: FW: NRC staff review of DOE draft study on long-term stewardship

-----Original Message-----
From: Steven Livingstone [mailto:Steven.Livingstone@EM.DOE.GOV]
Sent: Wednesday, December 13, 2000 4:35 PM
To: 'Robert L. Johnson'
Cc: 'bgirod@icfconsulting.com'
Subject: RE: NRC staff review of DOE draft study on long-term stewardship

Robert:

Thank you for kind words, we will make the correction as you noted.

Steve

-----Original Message-----
From: Robert L. Johnson [mailto:RLJ2@nrc.gov]
Sent: Wednesday, December 13, 2000 3:29 PM
To: Livingstone, Steven
Cc: Garrett Smith; James Lieberman; Larry Camper; Scott Moore
Subject: NRC staff review of DOE draft study on long-term stewardship

Steve Livingstone,

The NRC staff reviewed DOE's October 2000 draft study entitled "Long-Term Stewardship Study" in response to DOE's request for public comment. The staff found the draft study to be a useful background document for the NRC staff to understand what DOE is current planning to do for its own sites, including the issues it must address. Many of these issues are also relevant to future decommissioning and institutional controls for NRCs' licensed sites that are planning license termination with restricted use. The staff has the following minor comment:

14.1 – The Department appreciates this comment. Thank you.

Footnote 78 on page 68 and footnote 90 on page 78 both contain an outdated reference to NRC's draft Decommissioning Standard Review Plan (SRP). These footnotes should be revised to reflect the reference for the recently published SRP: "NMSS Decommissioning Standard Review Plan, Chapter 16.0 Restricted Use/Alternate Criteria, U.S. Nuclear Regulatory Commission, NUREG-1727, September 2000."

14.2 – These footnotes have been changed to reflect this comment.

If you have any questions, please give me a call on (301) 415-7282.
Please confirm in an email reply to me that you have received this comment. Thanks

Robert L. Johnson 12/13/00

Dec 13, 2000

Steven Livingstone, Project Manager
DOE, Office of Long Term Stewardship (EM-51)
PO Box 45079
Washington, DC 20026

Dear Steven Livinstone,

In regards to the "Draft Long-term Environmental Stewardship Study:"

- The highest priority should be placed on selecting remedies that protect the long-term safety and health of the community. This includes sufficient and adequate funding to cleanup to a level that allows unrestricted use and avoids the need for long-term stewardship. 15.1

- Development a means where local communities will be in long-term stewardship decisions. 15.2

- Avoid transferring or relocating hazardous substances. When contaminants are left in place, compensate local governments for protective equipment, emergency preparedness, and record keeping. 15.3

Sincerely,

Thomas Family
147 St. Germain Lane
Pleasant Hill, CA. 94523

15.1 – The decision to clean up to unrestricted use, or to meet other specific land use requirements, is made on a site-specific basis with input from regulators, stakeholders, and the public. It is both DOE and EPA policy that cleanup remedies should be consistent with the intended future use of the affected areas. Chapter 2 of the Study includes a new text box that provides a more formal statement on the scope of long-term stewardship and why it is required (i.e., the inability to achieve unrestricted use and the nature of residual hazards). The goal of long-term stewardship is to ensure continued protection of human health and the environment consistent with applicable requirements. The Department recognizes the many issues and public concerns associated with the uncertainties with planning for, documenting, and funding long-term stewardship throughout the Study and acknowledges this comment by including it in a text box in Section 3.2 of the Study.

15.2 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process to allow for meaningful Tribal and public involvement.

15.3 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. As noted in Section 8.2 of the Study, developing an alternative funding mechanism will require additional study and eventually Congressional action. Section 8.2 of the Study also provides a summary of the recent study of Trust Funds by Resources for the Future. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

KEN SALAZAR
Attorney General

CHRISTINE M. ARGUELLO
Chief Deputy Attorney General

ALAN J. GILBERT
Solicitor General

STATE OF COLORADO
DEPARTMENT OF LAW

OFFICE OF THE ATTORNEY GENERAL

STATE SERVICES BUILDING
1525 Sherman Street - 5th Floor
Denver, Colorado 80203
Phone (303) 866-4500
FAX (303) 866-5691

December 13, 2000

Steven Livingstone, Project Manager
U. S. Department of Energy
P.O. Box 45079
Washington, DC 20026-5079

RE: Comments on Draft Long-Term Stewardship Study

Dear Steve:

Thank you for the opportunity to comment on the Long-Term Stewardship Study draft. In general, I think that the document does an excellent job of outlining the difficult issues related to implementing long-term care of residual contamination at the Department of Energy's weapons complex and other contaminated facilities. I have the following comments on the draft.

16.1 – The Department appreciates this comment. Thank you.

1. The report notes that the potential decommissioning impacts of new facilities are too speculative to evaluate in the early stages of the planning process in an Environmental Impact Statement (p. 58). I disagree. Private entities routinely develop decommissioning plans prior to constructing new facilities, and incorporate pollution prevention concepts into the design of new facilities and processes. DOE must do the same. This nation spent approximately $300 billion to create the nuclear weapons stockpile. DOE estimates that it will cost another $200 billion to "address" the contaminated sites and facilities that we created along the way. "Address" does not mean "permanently clean up." As the study notes, we can expect that some of the engineering and institutional remedies we have adopted at these sites will fail in the long run. Given the tremendous, and largely irreversible, environmental damage caused by operation of the nuclear weapons complex during its first fifty years of existence, it is imperative that DOE ensure that the weapons complex of the future does not result in additional intractable long term stewardship needs.

16.2 – This comment is acknowledged in a text box in Section 6.1.3 of the Study. The Department agrees that the language used in the Draft Study did not adequately communicate the distinction between "pollution prevention" in the traditional sense and as applied to long-term stewardship. The Department has revised Section 6.1.3 of the Study to indicate the importance of both pollution prevention principles and the concept of Environmental Management Systems to help minimize the future long-term stewardship consequences of current mission activities. The Department also has added a footnote in Section 6.1.3 to clarify use of the term "pollution prevention." As the Department develops facilities for handling long-term stewardship issues, DOE will evaluate projected impacts of those facilities through an environmental impact statement (EIS) or other appropriate NEPA document.

2. In my comments on the scope of the study, I made the following suggestion: "One reason that institutional controls fail is that, over time, the controls are forgotten. One way to perpetuate knowledge of residual contamination at former DOE facilities would be to dedicate part of each such facility as a historic site or museum that would describe the site's role in the weapons complex (or other function). The study should evaluate dedicating part of each nuclear weapons production facility in this manner as a tool to assist in maintaining long-term knowledge of site history and residual contamination." The draft study states that this comment is out of scope. I disagree. Chapter 7 contains a good discussion on the

16.3 – This comment is acknowledged in a text box in Section 7.2 of the Study. The Department agrees that museums may be a way to meet legal requirements to maintain an information repository and to provide knowledge about sites to communities during long-term stewardship. Museums already exist at certain DOE sites (e.g., Sandia National Laboratory, Los Alamos National Laboratory, Oak Ridge National Laboratory, and the Hanford Site), although information management is not currently part of their mission. The advantages and disadvantages of establishing a museum need to be assessed on a site-specific basis, since museums are not appropriate for all sites. The establishment of an information repository is a separate mission but could be incorporated with the development of a museum, visitor's center, or library. The Department agrees with the specific comment that a discussion of museums is not "out of scope" and has included such a discussion in Section 7.2 of the Study. Any decision to establish a museum at a specific site would need to consider issues such as mission, location, and funding sources, but the Department has not developed a policy on this. This comment will be provided to the senior management Long-term Stewardship Executive Steering Committee for their consideration.

difficulty of maintaining awareness of long-term stewardship information needs over time, and describes actions that DOE is taking or could take to address information management. It specifically notes that "A system should be developed to enable a person with limited knowledge of DOE sites to be able to easily search, find, and understand relevant information." Again, on page 108, the report states that "Educational organizations that focus on transferring institutional knowledge from generation to generation, targeted at communities surrounding DOE sites, could reduce the possibility that remaining site hazards are forgotten."

These are precisely the functions of museums, and they serve it well. Such museums could be modeled after the many excellent Presidential libraries in this country, which frequently have both museum and research facilities. Both aspects would be useful in the long-term stewardship context. In addition to maintaining information and enhancing community awareness, such a facility could perform the long-term monitoring and remedy reassessment functions that the report acknowledges will be required. By maintaining a physical presence at each site, DOE could help avert the possibility that stewardship concerns will be forgotten over time. As noted above, creation of the nuclear weapons arsenal also created vast amounts of potentially irreparable environmental contamination and a huge complex of aging facilities whose decommissioning is problematic, to say the least. It is important that the citizens of this country be reminded of these consequences so that we do not repeat the mistakes of the past.

16.4 – See response to Comment 16.3.

3. The report notes the importance of evaluating institutional controls early in the remedy selection process. In addition to evaluating the true costs of implementing long-term stewardship, the environmental decision-maker should also analyze the legal enforceability of any proposed institutional controls. Because institutional controls depend on state law, the environmental regulator (or DOE) should request a written opinion from the state attorney general as to whether the proposed method is legally enforceable by the relevant environmental regulator against subsequent owners of the land. Further, the analysis of institutional controls should include an analysis of the consequences of failure of institutional or engineering controls.

16.5 – Long-term stewardship planning (see Chapter 4 of the Study) and remedy selection decisions are done on a site-specific basis with input from regulators, stakeholders, and the public. As noted in Exhibit 3-1 of the Study, the criteria used to evaluate remedial alternatives include long-term effectiveness and cost-effectiveness. The long-term effectiveness of institutional controls is one of the criteria for evaluating long-term stewardship requirements during remedy selection that have been suggested in guidance developed by DOE, EPA, and the Department of Defense (DoD) and in recommendations forwarded to the Department (see Exhibits 3-2 and 3-3 in the Study). The Department also has identified the need to promote new science and technology development to help address the uncertainties associated with maintenance of institutional and engineered controls. The Department acknowledges the public concerns about long-term effectiveness in a text box in Section 3.2 of the Study. The issue of uniform or national standards for cleanup is beyond the scope of this Study because this document focuses on long-term stewardship. In addition, DOE routinely reviews the enforceability of any control as part of the transfer process and the development of deeds, easements, restrictions, or notifications. Institutional controls are subject to the required periodic assessments to ensure the remedy remains effective.

4. The study does not adequately recognize the role that states will play in monitoring and enforcing institutional controls. Institutional controls will be imposed as part of cleanup decisions rendered by states and by EPA. Like any other aspect of a cleanup decision, they must be enforceable by the environmental regulator that made the decision. Therefore, the document should recognize that states will be among the primary enforcers of institutional controls.

16.6 – The Department acknowledges this comment in Section 5.3 of the Study. The discussion of the role of state governments in long-term stewardship in Section 4.2.3 of the Study has been modified to note that states may be responsible for the enforcement of some institutional controls. However, state law may or may not provide states with enforcement powers. This will have to be addressed on a site-specific basis, since it is beyond the scope of this Study to resolve.

5. On page 47, the report states that deed restrictions are not relevant for sites that will remain in DOE ownership. It is true that the federal government would continue to be bound by institutional controls imposed in a legally binding decision document under an environmental law, even if the land is transferred from DOE to another federal agency. A proprietary control, such as a deed restriction is primarily necessary to ensure an institutional control can be enforced against subsequent owners of the land. However, because federal agencies may grant easements to private parties, such as utilities, over land that remains in federal ownership, it may still be necessary to impose a proprietary institutional control on land that

16.7 – The Department acknowledges this comment in Section 5.3 of the Study. The Department agrees that deed restrictions may not be relevant while DOE or the federal government are responsible for managing the property. The Department disagrees with the second part of this comment. Easements on federal property to non-governmental entities are usually allowed only for roads and utilities and have no impact on easement rights retained during a transfer unless they are on the same parcel. The rights that are retained or transferred are handled on a parcel level basis, and a "one size fits all" policy could not address all variations.

will remain in federal ownership to ensure that the control will be binding on the holder of any such easement.

6. The report should address the potential advantages of centralizing responsibility for implementing long-term stewardship requirements such as monitoring, maintenance, and continued research and development in a single-special purpose agency whose sole mission would be long-term stewardship. Such an agency would help address the problems related to the ability of organizations to maintain vigilance in executing a given function over time. (These problems are highlighted in the National Research Council study on Long-term Institutional Management of DOE Legacy Waste Sites at pages 79-81).

Sincerely,

DANIEL S. MILLER
First Assistant Attorney General
Natural Resources and Environment Section
(303) 866-5110
(303) 866-3558 (FAX)

16.8 – The Department acknowledges this comment in a text box in Section 4.2 of the Study. The Department's Long-term Stewardship Working Group recently identified the need for a corporate vision for long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. The corporate vision includes the appropriate organizational structure for long-term stewardship within the Department. The Department also recognizes that it is important to define long-term stewardship roles and responsibilities both within DOE and between DOE and other entities, including other federal agencies, states, Tribes, and regional governments. The Executive Steering Committee is developing a Strategic Plan for long-term stewardship; part of that effort will include identifying roles and responsibilities within DOE. The Department also notes that long-term stewardship as an issue is broader than DOE sites. For example, states and local governments already have long-term stewardship responsibilities at municipal landfills, and states may have long-term stewardship responsibility for some "Superfund-lead" sites on the CERCLA NPL. Implementation of long-term stewardship across this broad spectrum of sites will require states to develop their own, independent capability to provide long-term stewardship. Potential options to consider include a centralized agency to steward Federal sites. However, a detailed discussion of the advantages and disadvantages of such a centralized agency is beyond the scope of the Study, which is required to focus on DOE sites. The Department's Long-term Stewardship Working Group has recommended to the senior management Executive Steering Committee that DOE should undertake to interact with other federal agencies to develop a consensus approach to long-term stewardship across the federal government.

CITY OF ARVADA

OFFICE OF THE CITY MANAGER
303 431-3000 PHONE ▲ 303 431-3911 FACSIMILE
TDD: 303 431-3917

December 14, 2000

Mr. Steven Livingstone
Project Manager
Office of Long Term Stewardship
U.S. Department of Energy
P.O. Box 45079
Washington, DC 20026

via fax with confirming letter by mail

Long-Term Stewardship Study Draft for Public Comment

Dear Steve:

On behalf of the Rocky Flats History Project, I would like to submit the following comments on the Long-Term Stewardship Study Draft for Public Comment.

Thank you for the obvious hard work and high level of effort that went into preparation of the document. We hope to have the opportunity to work with you in the future.

Please contact me if you have any questions or would like more information.

Sincerely,

Carol E. Lyons

Carol E. Lyons
Rocky Flats Coordinator
Coordinator, Rocky Flats History Project

attachment
cc: Rocky Flats History Project Distribution

Long-Term Stewardship Study Draft for Public Comment

Comments from:
Rocky Flats History Project
c/o Carol E. Lyons
City of Arvada
P.O. Box 8101
Arvada, CO 80001

A safe and thorough cleanup of contaminated sites is the first priority. We recommend that, to every extent feasible, contaminated sites be cleaned so that no long term stewardship is necessary. If that is not possible, then cleanup should be implemented which minimizes long term stewardship requirements. 17.1

17.1 – The decision to clean up to unrestricted use, or to meet other specific land use requirements, is made on a site-specific basis with input from regulators, stakeholders, and the public. It is both DOE and EPA policy that cleanup remedies should be consistent with the intended future use of the affected areas. Chapter 2 of the Study includes a new text box that provides a more formal statement on the scope of long-term stewardship and why it is required (i.e., the inability to achieve unrestricted use and the nature of residual hazards). The goal of long-term stewardship is to ensure continued protection of human health and the environment consistent with applicable requirements. The Department recognizes the many issues and public concerns associated with the uncertainties with planning for, documenting, and funding long-term stewardship throughout the Study and acknowledges this comment by including it in a text box in Section 3.2 of the Study.

We share the Department of Energy's concern that successful long-term, environmental remediation and stewardship hinge on the sustainability of the long-term stewardship process itself. We agree with the Draft Study that effective long-term stewardship must provide for ongoing community support, open and public access to information, and the continuous oversight of the long-term monitoring which must be done as part of the cleanup process.

Public and Community Support

Long-term public support and understanding is a necessary precondition for the success of long term stewardship; as important as the technical feasibility of the various remediation technologies being investigated or the successful acquisition of stable, long-term funding for stewardship.

As stated in the Draft Study, "...the extent to which long-term stewardship can remain effective will depend in large part on the degree of understanding and appreciation that local communities have for potential environmental risks and benefits....." (p. 93) To achieve an adequate "degree of understanding and appreciation," we recommend that DOE provide support to the local community to fulfill DOE's obligations for the long term. We recommend that DOE's long term stewardship program incorporate the design and implementation of substantive, ongoing, active public education for the local and regional communities. 17.2

17.2 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process to allow for meaningful Tribal and public involvement.

Open Access to Information

We support the Draft Study's recommendation that stewardship be implemented to provide open access to information and cultural resources. We further agree that public access to information at each DOE site is also critical, as noted on page 8: "Successful implementation of long-term stewardship will be aided by open public access to the specific information about the residual hazards at DOE site, including how they were generated..." 17.3

17.3 – The Department acknowledges this comment in Section 7.2 of the Study. The Department has begun a process to more clearly identify and develop a consensus on long-term stewardship information needs and develop guidance for long-term stewardship information and records management. Some information management guidance will be included in the guidance for site-specific long-term stewardship plans currently under development by the Department. This comment will be considered in these efforts.

We recommend that DOE work with the local community to assure that this is implemented, and provide the long term funding and necessary in-kind support to implement this recommendation. 17.4

17.4 – See response to Comment 17.3.

Long-term Monitoring and Data Repository

The Draft Study indicates that DOE understands the importance of distinct organizations for implementation of long term stewardship oversight and education, as noted on page 108: "...[it is critical to] separate the responsibilities for implementing long-term stewardship from responsibilities to educate the public about the residual hazards at sites and the rationale for long-term stewardship..."

We recommend that DOE provide support to the community to satisfy the stewardship requirements for ongoing community support and open access to information, including a central facility for maintaining the information related to ongoing stewardship activities. This would include a long-term, accessible data repository in support of post-closure monitoring requirements and a facility to house and administer real time environmental data collection of land, air and water quality.

17.5 – See response to Comment 17.3.

Funding and Implementation

We recommend that DOE establish the broad range of procedures, processes, mechanisms, strategies necessary to address the requirements for effective long term stewardship unique to each contaminated site. This process will require new and different mechanisms for funding, as well. Future funding may need to be provided through programs that DOE (and the federal government) is not familiar with, but long term stewardship requires new strategies (see Exhibits 8-4 and 8-5, pages 90-91).

17.6 – The Department acknowledges this comment in a text box in Section 4.2.1 of the Study. As noted in Section 4.3 of the Study, it is current DOE policy that long-term stewardship responsibilities at sites with ongoing, non-EM missions will transfer to the site landlord organization when the EM cleanup mission is completed and several conditions are met. The Study in several sections notes existing guidance and guidance under development that address one or more aspects of long-term stewardship. In addition, the senior management Long-term Stewardship Executive Steering Committee has begun to develop a Strategic Plan for long-term stewardship. The Strategic Plan will be the basis for additional program planning documents, including any future policies, procedures, processes, mechanisms, and strategies. The Executive Steering Committee will provide recommendations for the resolution of specific issues, including paths forward and timetables, as appropriate. This comment will be forwarded to the Executive Steering Committee for their consideration.

We recommend that DOE work with local communities and organizations and with state governments and organizations to develop and implement the methods for long term future funding to pay for long term stewardship. One method may be to direct funding and support to existing or new organizations involved in related activities, which could also fulfill DOE's obligations as part of a broader charter.

17.7 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. The Department currently relies on the annual appropriations process to fund long-term stewardship. This is not likely to change in the near term. As noted in Section 8.1 of the Study, a separate Project Baseline Summary (PBS) for long-term stewardship at each site will help the Department improve its estimates of annual long-term stewardship funding requirements. Developing an alternative funding mechanism will require additional study and eventually Congressional action. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) current difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

Museum, research, and library facilities, separately and combined, provide the possible framework for implementation of DOE requirements. A multipurpose facility like a Presidential Library, with a museum accessible to the general public to help interpret significant historical events of each President's term in office and house detailed historical records available to professional historians, is an appropriate model. Such a facility may also host ongoing scientific research into new technologies which could be applied to future cleanup efforts and could reduce DOE's stewardship mortgage. It is critical to successful long-term stewardship that institutional memory be maintained over generations. A living, active community center that addresses both historical and environmental concerns about the site and educates new visitors to the site, could serve this very important role.

17.8 – The Department acknowledges this comment in Section 7.2 of the Study. The Department has begun a process to more clearly identify and develop a consensus on long-term stewardship information needs and develop guidance for long-term stewardship information and records management. Some information management guidance will be included in the guidance for site-specific long-term stewardship plans currently under development by the Department. This comment will be considered in these efforts. In addition, the Department agrees that museums may be a way to meet legal requirements to maintain an information repository and to provide knowledge about sites to communities during long-term stewardship and has included such a discussion in Section 7.2 of the Study.

St. Charles County Government

Department of Community Health
and the Environment
Gil Copley, Director
Division of Environmental Services
Mike Duvall, Director

December 14, 2000

Steven Livingstone, Project Manager
Office of Long-Term Stewardship (EM-51)
Office of Environmental Management
U.S. Department of Energy
P.O. Box 45079
Washington, D.C. 20026-5079

Subject: Public Comment on Draft long-term Stewardship Study of October 2000

Dear U.S. Department of Energy:

We appreciate the opportunity to review and comment on this document. We have found the document to more satisfactorily address some concerns our local government previously had in reviewing long-term stewardship documents provided by Department of Energy for our local site, the Weldon Spring Site Remedial Action Project (WSSRAP) in St. Charles, Missouri.

We would suggest that the draft include a section by which individual DOE stewardship documents omit terms "should" or "may" when referring to activities that will be necessary to ensure site safety in succeeding generations. Language in site stewardship documents would more effectively use terms "shall," "will" or "must" when referring to activities known to be required. 18.1

18.1 – We appreciate your comment and we will consider it in the future as we develop long-term stewardship documents.

Due to the long-term nature of stewardship, we propose that language be placed in a document saying that DOE has both the authority and obligation to provide financial assistance to state and local governments regarding stewardship activities. 18.2

18.2 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. As noted in Section 8.2 of the Study, developing an alternative funding mechanism will require additional study and eventually Congressional action. Section 8.2 of the Study also provides a summary of the recent study of Trust Funds by Resources for the Future. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

We praise you for your efforts so far, but ask you consider these comments carefully in developing the final document. Our office will remain in a local oversight position for WSSRAP and we look forward to continuing these efforts with full resources available to serve the public.

Respectfully submitted,

M. Duvall

Michael Duvall, Director
St. Charles County Government
Division of Environmental Services

Mary A. Halliday

Mary A.Halliday
Environmental Program Educator
Division of Environmental Services

NGA *Center for Best Practices*

National Governors' Association
Center for Best Practices
444 North Capitol Street
Suite 267
Washington, D.C. 20001-1512

Telephone (202) 624-5300
http://www.nga.org/Center

December 14, 2000

Mr. Steve Livingstone
Project Manager
U.S. Department of Energy
P.O. Box 45097
Washington, D.C. 20026-5079

Dear Mr. Livingstone:

Thank you for providing the opportunity to comment on the Department of Energy's (DOE) Draft Long-Term Stewardship Study. I am writing on behalf of the NGA Federal Facilities Task Force, which has worked with DOE since the passage of the Federal Facilities Compliance Act (FFCA) in 1992, to convey the general LTS concerns/principles enumerated below. In addition to these general comments, states will also file their individual concerns under separate cover.

We would like to commend the Department on its articulation of a strong framework through which important stewardship questions can be addressed. Additionally, the comprehensive approach the Department has taken in the study will allow the document to serve as an important reference for policymakers at the federal, state, and local level.

19.1 – The Department appreciates this comment. Thank you.

I. The Importance of Long-Term Stewardship (LTS)

We would like to begin our comments by emphasizing the importance of LTS to DOE's Environmental Management (EM) program. DOE needs to ensure that LTS is fully institutionalized as a clearly identifiable DOE program that is both robust and enduring. As many sites will require extensive monitoring and maintenance into the indefinite future to ensure the effectiveness of today's risk reduction activities, addressing the question of long-term stewardship correctly is of paramount importance if we are to sustain any of the benefits yielded through DOE EM efforts to date. Moving forward with remediation decisions that rely on institutional controls and other LTS measures will require that questions regarding enforcement, monitoring, technological development, and funding be addressed in a thorough fashion.

19.2 – The Department acknowledges this comment in a text box in Section 4.2 of the Study. The Department's Long-term Stewardship Working Group recently identified the need for a corporate vision for long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. The corporate vision includes the appropriate organizational structure for long-term stewardship within the Department. The Department also recognizes that it is important to define long-term stewardship roles and responsibilities both within DOE and between DOE and other entities, including other federal agencies, states, Tribes, and regional governments. The Executive Steering Committee is developing a Strategic Plan for long-term stewardship; part of that effort will include identifying roles and responsibilities within DOE. The Department also notes that long-term stewardship as an issue is broader than DOE sites. For example, states and local governments already have long-term stewardship responsibilities at municipal landfills, and states will may long-term stewardship responsibility for some "Superfund lead" sites on the CERCLA NPL. Implementation of long-term stewardship across this broad spectrum of sites will require states to develop their own, independent capability to provide long-term stewardship.

II. The Role of State Governments in LTS

The Study notes "State governments also may assume a more prominent role in managing long-term stewardship information and in promoting education and training to ensure the continuity of long-term stewardship across multiple generations." We find the general tone concerning the role of the states in LTS to be overly constrained. Institutional controls will be imposed as part of cleanup decisions rendered by states and the EPA. Like any other aspect of a cleanup decision, institutional control must be enforceable by the environmental regulator that made the decision. The Study should therefore recognize that states will be among the primary enforcers of institutional controls. DOE should further expect that states will generally assume an active role in resolving a range of LTS issues, including the outreach and public education efforts that are necessary to ensure public support for, and involvement in, LTS planning and implementation. The states are committed to working with local and tribal governments throughout the LTS process.

19.3 – The Department acknowledges this comment in Section 5.3 of the Study. The discussion of the role of state governments in long-term stewardship in Section 4.2.3 of the Study has been modified to note that states may be responsible for the enforcement of some institutional controls. However, state law may or may not provide states with enforcement powers. The Study cannot assume any specific long-term stewardship roles for state, Tribal, or local governments in the absence of site-specific agreements.

III. Explicit LTS Requirements & Remediation Projects

States believe that the remedy selection process must include specified LTS criteria. While the present process does contain some LTS considerations, many important LTS elements are omitted. Without the clear inclusion of LTS considerations in the remedy selection process, it will be difficult for states to move forward with remediation decisions that are reliant on long-term institutional control. The Study should include a specific set of tasks that DOE will perform, with stakeholder participation, to establish uniform LTS criteria that can be used in the remedy selection process.

19.4 – The Department has not identified a specific set of tasks for this purpose, and the Study is not the appropriate place to do so. The Department acknowledges this comment in a text box in Section 3.2 of the Study.

A careful evaluation of clean up to unrestricted use, which would allow for avoidance of LTS costs, should serve as the point of departure for LTS evaluation. In addition to evaluating the true costs of implementing long-term stewardship, any ROD should also analyze the legal enforceability of any proposed institutional controls. Such analysis should include a written opinion from the state attorney general that the proposed method is legally enforceable by the relevant environmental regulator against subsequent owners of the land. The analysis of institutional controls should include an evaluation of the consequences of failure of institutional or engineering controls.

19.5 – The decision to clean up to unrestricted use, or to meet other specific land use requirements, is made on a site-specific basis with input from regulators, stakeholders, and the public. It is both DOE and EPA policy that cleanup remedies should be consistent with the intended future use of the affected areas. Chapter 2 of the Study includes a new text box that provides a more formal statement on the scope of long-term stewardship and why it is required (i.e., the inability to achieve unrestricted use and the nature of residual hazards). The goal of long-term stewardship is to ensure continued protection of human health and the environment consistent with applicable requirements. The Department recognizes the many issues and public concerns associated with the uncertainties with planning for, documenting, and funding long-term stewardship throughout the Study and acknowledges this comment by including it in a text box in Section 3.2 of the Study.

19.6 – The Department acknowledges this comment in Section 5.3 of the Study. The Department agrees that both DOE and affected parties should understand the enforceability of institutional controls in affected states, and Section 5.3 of the Study has been modified to note this. The Department also agrees with the last statement in this comment.

IV. Funding & LTS

LTS funding issues are of critical importance. While budget appropriations may sustain current stewardship activities, continuing uncertainty around long-term funding issues raises questions around the reliability of risk reduction efforts that are dependent on LTS measures. Until long-term funding mechanisms are in place, remedies that rely on institutional control and other LTS activities cannot be viewed as legitimate long-term solutions. Without a clear funding mechanism in place to ensure continued funding, regulatory officials and stakeholders are unable to select with confidence remediation measures that would rely on LTS. The Study should outline a specific set of tasks that DOE will perform in order to facilitate the resolution of LTS funding issues at sites.

19.7 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. The Department currently relies on the annual appropriations process to fund long-term stewardship. This is not likely to change in the near term. As noted in Section 8.1 of the Study, a separate Project Baseline Summary (PBS) for long-term stewardship at each site will help the Department improve its estimates of annual long-term stewardship funding requirements. Developing an alternative funding mechanism will require additional study and eventually Congressional action. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) current difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

V. Technology Development & LTS

The Study states "The majority of the EM program's science and technology effort is focused on supporting near and short term objectives, not long-term stewardship." Significant investment in LTS technologies will be required to ensure that DOE's obligations are effectively and efficiently fulfilled. Some areas that require additional investment can be easily identified. For example, as the Study notes, DOE is not taking the appropriate steps to assess the functional life and failure modes of subsurface barriers. The Department clearly needs to be gathering and evaluating this and other data so that it can gauge the effectiveness of various LTS technologies. More generally, DOE's research and development agenda needs to include information management technologies to ensure the effective long-term protection of LTS information.

19.8 – The Department acknowledges these comments in a text box in Section 4.2.4 of the Final Study. As noted in Section 4.2.4 of the Final Study, the Department's process for developing and implementing new science and technology includes developing a long-term stewardship science and technology roadmap that will (1) identify science and technology needs; (2) identify existing capabilities to meet these needs both within and external to DOE; (3) determine research and development priorities; and (4) direct specific efforts to meet these needs. The Department agrees that research into a number of key areas is needed, including the long-term effectiveness and reliability of engineered and institutional controls; surveillance and monitoring; and information management. Advances in science and technology may provide future generations with the ability to cost-effectively achieve unrestricted use at some sites. The Department's Long-term Stewardship Working Group recently identified the policy issue as to whether the ultimate goal of new science and technology should be to improve the ability to maintain the existing end state (i.e., the end state established during cleanup) or should be to "improve" the end state more closely toward unrestricted use as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee.

While some needs are readily apparent, it is of critical importance that DOE expeditiously complete its "roadmap" exercise and establish a LTS baseline against which science and technology investments can be assessed. Once this comprehensive baseline is available, investments must be carefully tailored to fulfill priorities that clearly relate to needs identified within this planning document.

19.9 – See response to Comment 19.8.

VI. LTS at NNSA sites

The Study notes "the recent creation of the NNSA, with independent lines of authority within DOE, may pose additional challenges to the implementation of long-term stewardship at sites where NNSA is the landlord." State concerns regarding LTS apply to all relevant sites, regardless of their internal DOE designation. DOE should ensure that questions regarding oversight and enforcement of LTS obligations are resolved in an expedited fashion. Additionally, DOE must take appropriate steps to provide for publicly accessible LTS information management at NNSA sites.

19.10

19.11

The Study states that the potential D&D impacts of new facilities are too speculative to evaluate in the early stages of the planning process in an EIS. We disagree. Private entities routinely develop decommissioning plans prior to constructing new facilities, and incorporate pollution prevention concepts into the design of new facilities and processes. Given the tremendous, and largely irreversible, environmental damage caused by operation of the nuclear weapons complex during its first fifty years of existence, it is imperative that DOE work harder to ensure that the weapons complex of the future does not result in additional intractable long term stewardship needs.

19.12

VII. Information Management

The Study does a good job describing the difficulties of maintaining public awareness of the need for LTS measures over the long term. It should evaluate the role that a series of "Cold War museums" could play in overcoming these difficulties. This is precisely the function of museums, and they serve it well. Such museums could be modeled after the many excellent Presidential libraries in this country, which have both museum and research facilities. By maintaining a physical presence at each site, DOE could help avert the possibility that stewardship concerns will be forgotten over time.

19.13

19.10 – The Department acknowledges this comment in a text box in Section 4.1 of the Study. The Department recognizes the importance of adequate mechanisms for oversight and enforcement of long-term stewardship requirements, particularly following a change in property ownership or the organization responsible for stewardship. The various requirements and approaches to oversight, enforcement, and public information updates for long-term stewardship will be addressed by the senior management Long-term Stewardship Executive Steering Committee during the Department's strategic planning process. This comment will be provided to the Executive Steering Committee for their consideration.

19.11 – The Department acknowledges this comment in Section 7.2 of the Study. The Department has begun a process to more clearly identify and develop a consensus on long-term stewardship information needs and develop guidance for long-term stewardship information and records management. Some information management guidance will be included in the guidance for site-specific long-term stewardship plans currently under development by the Department. This comment will be considered in these efforts.

19.12 – DOE's NEPA reviews for proposed facilities will analyze decommissioning as much as is reasonable, considering that some aspects of decommissioning are likely to be speculative when facilities are proposed because decommissioning would occur many years (e.g., 40 years or more) after a facility is proposed, and techniques available for eventual decommissioning are unknown at the time of a NEPA review. DOE, however, will always address the feasibility of decommissioning in its NEPA reviews for proposed facilities, so that DOE would not unknowingly create a unique problem, such as a new class of waste.

19.13 – This comment is acknowledged in a text box in Section 7.2 of the Study. The Department agrees that museums may be a way to meet legal requirements to maintain an information repository and to provide knowledge about sites to communities during long-term stewardship. Museums already exist at certain DOE sites (e.g., Sandia National Laboratory, Los Alamos National Laboratory, Oak Ridge National Laboratory, and the Hanford Site), although information management is not currently part of their mission. The advantages and disadvantages of establishing a museum need to be assessed on a site-specific basis, since museums are not appropriate for all sites. The establishment of an information repository is a separate mission but could be incorporated with the development of a museum, visitor's center, or library. The Department agrees with the specific comment that a discussion of museums is not "out of scope" and has included such a discussion in Section 7.2 of the Study. Any decision to establish a museum at a specific site would need to consider issues such as mission, location, and funding sources, but the Department has not developed a policy on this. This comment will be provided to the senior management Long-term Stewardship Executive Steering Committee for their consideration.

Thank you for the opportunity to comment on what we believe is a laudable effort to capture LTS issues across the DOE complex. If you have any questions regarding these comments, please feel free to contact me at 202/624-5370 or by e-mail at abeauchesne@nga.org.

Sincerely,

Ann M. Beauchesne

Program Director
Natural Resources Policy Studies Division

Davis South Campus Superfund Oversight Committee
Rt. 2 Box 2879
Davis, CA 95616
Ph. 530 753-9446-Fax 530 753-8220
E-mail Jroth@aol.com
Web site http://members.aol/dscsoc/dscsoc.htm

December 14, 2000

Steven Livingstone
Project Manager
Office of Long Term Stewardship (EM-51)
US Department of Energy
P.O. Box 45079
Washington, D.C. 20026-5079
Submitted via e-mail 12-15-00

Dear Mr. Livingstone,

DSCSOC wishes to thank the Department of Energy for the opportunity to comment on DOE's "Draft Long-Term Environmental Stewardship Study." DSCSOC is the US EPA TAG group for the UCD/DOE LEHR Superfund site on the UC Davis Campus.

DSCSOC submits the following comments:

- **The highest priority should be placed on selecting remedies that protect the long-term safety and health of the community and the environment surrounding the DOE facility. All aspects of establishing, maintaining and funding long-term stewardship should be considered during the remedy selection process that is part of the cleanup. Whenever possible, DOE facilities should be cleaned up to the level that allows unrestricted use and avoids the need for long-term stewardship. Where cleanup to such a level is not practical due to current technical constraints, DOE should include in the final remedy decisions documents details regarding the stewardship plan and funding.** 20.1 20.2
- **DOE should develop a program to look for solutions that would minimize or eliminate the need for long-term stewardship. If DOE leaves hazardous chemical contaminates in place, DOE should provide funding in its final remedy decisions to monitor these contaminates and to continue researching for a remedial treatment that destroys these contaminates to avoid the need for long-term stewardship.** 20.3 20.4
- **DOE should develop a mechanism including funding where local communities will be involved in long-term stewardship decisions. The** 20.5

20.1 – Long-term stewardship planning (see Chapter 4 of the Study) and remedy selection decisions are done on a site-specific basis with input from regulators, stakeholders, and the public. As noted in Exhibit 3-1 of the Study, the criteria used to evaluate remedial alternatives include long-term effectiveness and cost-effectiveness. The long-term effectiveness of institutional controls is one of the criteria for evaluating long-term stewardship requirements during remedy selection that have been suggested in guidance developed by DOE, EPA, and the Department of Defense (DoD) and in recommendations forwarded to the Department (see Exhibits 3-2 and 3-3 in the Study). The Department also has identified the need to promote new science and technology development to help address the uncertainties associated with maintenance of institutional and engineered controls. The Department acknowledges the public concerns about long-term effectiveness in a text box in Section 3.2 of the Study. The issue of uniform or national standards for cleanup is beyond the scope of this Study because this document focuses on long-term stewardship.

20.2 – The decision to clean up to unrestricted use, or to meet other specific land use requirements, is made on a site-specific basis with input from regulators, stakeholders, and the public. It is both DOE and EPA policy that cleanup remedies should be consistent with the intended future use of the affected areas. Chapter 2 of the Study includes a new text box that provides a more formal statement on the scope of long-term stewardship and why it is required (i.e., the inability to achieve unrestricted use and the nature of residual hazards). The goal of long-term stewardship is to ensure continued protection of human health and the environment consistent with applicable requirements. The Department recognizes the many issues and public concerns associated with the uncertainties with planning for, documenting, and funding long-term stewardship throughout the Study and acknowledges this comment by including it in a text box in Section 3.2 of the Study. In addition, site-wide future land use and LTS planning with locally affected parties is needed while site-specific decisions are being made.

20.3 – The Department acknowledges these comments in a text box in Section 4.2.4 of the Final Study. As noted in Section 4.2.4 of the Final Study, the Department's process for developing and implementing new science and technology includes developing a long-term stewardship science and technology roadmap that will (1) identify science and technology needs; (2) identify existing capabilities to meet these needs both within and external to DOE; (3) determine research and development priorities; and (4) direct specific efforts to meet these needs. The Department agrees that research into a number of key areas is needed, including the long-term effectiveness and reliability of engineered and institutional controls; surveillance and monitoring; and information management. Advances in science and technology may provide future generations with the ability to cost-effectively achieve unrestricted use at some sites. The Department's Long-term Stewardship Working Group recently identified the policy issue as to whether the ultimate goal of new science and technology should be to improve the ability to maintain the existing end state (i.e., the end state established during cleanup) or should be to "improve" the end state more closely toward unrestricted use as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee.

20.4 – See response to Comment 20.3.

20.5 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process to allow for meaningful Tribal and public involvement.

communities should be involved in initial long-term stewardship activities and any changes to those activities that may occur as a result of re-evaluation or modification of the remedy. The community should be involved in periodic reviews, such as the five-year review cycle under CERCLA and performance of the long-term stewardship activities. Additionally, independent technical expertise should be provided to communities to assist them in evaluating the many technical documents that form the basis for key decisions. 20.6

- **DOE should develop Contingency Plans at the time cleanup decisions are made. DOE should plan for uncertainty and fallibility of some aspects of its long-term stewardship program** 20.7
- **DOE should commit funding for long-term stewardship. When the final remedy is agreed upon at a site, full funding for stewardship activities should be defined, including the role of the parties who will manage the funding and the funding sources. The local community should have a role in managing the funds and in defining any future investigation, evaluations and testing at the site.** 20.8
- **Periodically re-evaluate the remedy. This re-evaluation should include changes in health/environmental standards associated with contaminants that are left in place, changes in technology that were not available at the time when initials cleanup decisions were made but if implemented would eliminate the need for long-term stewardship activities, and performance of the remedy in place. It should include funding to investigate and remediate contamination in place not previously considered to be a threat.** 20.9
- **DOE should provide a reliable, up-to-date record of the management at a facility that is fully accessible to the community.** 20.10
- **DOE should develop a policy and regulations on property transfers where DOE is responsible for perpetuity unless the new owner has altered the property, violated a legal deed restriction or contaminates the environment.** 20.11

Sincerely,

Julie Roth

Julie Roth, Ex. Dir.

20.6 – See response to Comment 20.5.

20.7 – Long-term stewardship planning (see Chapter 4 of the Study) and remedy selection decisions are done on a site-specific basis with input from regulators, stakeholders, and the public. As noted in Exhibit 3-1 of the Study, the criteria used to evaluate remedial alternatives include long-term effectiveness and cost-effectiveness. The long-term effectiveness of institutional controls is one of the criteria for evaluating long-term stewardship requirements during remedy selection that have been suggested in guidance developed by DOE, EPA, and the Department of Defense (DoD) and in recommendations forwarded to the Department (see Exhibits 3-2 and 3-3 in the Study). The Department also has identified the need to promote new science and technology development to help address the uncertainties associated with maintenance of institutional and engineered controls. The Department acknowledges the public concerns about long-term effectiveness in a text box in Section 3.2 of the Study. In addition, Section 5.4.2 of the Study notes the importance of managing and responding to uncertainties during long-term stewardship.

20.8 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. As noted in Section 8.2 of the Study, developing an alternative funding mechanism will require additional study and eventually Congressional action. Section 8.2 of the Study also provides a summary of the recent study of Trust Funds by Resources for the Future. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

20.9 – The Department acknowledges this comment in a text box in Section 10.2 of the Study. The Department agrees that remedies may need to be reassessed periodically in light of changing circumstances and information. Section 10.2 of the Study includes a discussion of these points.

20.10 – The Department acknowledges this comment in Section 7.2 of the Study. The Department has begun a process to more clearly identify and develop a consensus on long-term stewardship information needs and develop guidance for long-term stewardship information and records management. Some information management guidance will be included in the guidance for site-specific long-term stewardship plans currently under development by the Department. This comment will be considered in these efforts.

20.11 – This comment is acknowledged in a text box in Section 6.2 of the Study. Section 6.2 of the Study recognizes the many issues, public concerns, and uncertainties associated with ensuring the continued provision of long-term stewardship after property transfers. The Department's Long-term Stewardship Working Group recently identified the issue of how DOE will ensure adequate protection of human health and the environment at sites transferred to the private sector as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This comment will be provided to the Executive Steering Committee for their consideration.

LOC INC
Oak Ridge Reservation
Local Oversight Committee

December 14, 2000

Mr. Steven Livingstone
Project Manager
U.S. Department of Energy
P.O. Box 45079
Washington, DC 20026-5079

Subject: Endorsement of comments by Oak Ridge Site Specific Advisory Board (ORSSAB) on the draft Long Term Stewardship Study of October 2000

Reference: Letter of December 14, 2000 from Luther V. Gibson, Chair, ORSSAB, to Steven Livingstone, Project Manager; Subject - Comments on the draft Long Term Stewardship Study of October 2000

Dear Mr. Livingstone:

The Oak Ridge Reservation Local Oversight Committee (LOC) Citizens' Advisory Panel (CAP) has voted to endorse the comments on the Long Term Stewardship Study of October 2000 (see reference) that were transmitted to ORSSAB by its Stewardship Committee. Several CAP and LOC members have been active participants on the ORSSAB's Stewardship Committee and assisted in developing these comments. Please note that the LOC Board has not had the opportunity to review these comments, and so they should be considered as submitted by the CAP only.

The CAP additionally emphasizes the need for ongoing and meaningful public participation as DOE undertakes stewardship planning and activities. In particular, local governments must be included in the stewardship decision-making and implementation. This can be accomplished directly or through organizations like the LOC.

The LOC is a non-profit regional organization established to provide local government and citizen oversight of the environmental management activities and input into decision-making at the DOE's Oak Ridge Reservation. The Board of Directors of the LOC is composed of the elected and appointed officials of the seven surrounding counties and is chaired by the Mayor of the City of Oak Ridge. The Chair of the LOC's Citizens' Advisory Panel also serves on the LOC Board. Funding for the LOC is provided by the State of Tennessee under the Tennessee Oversight Agreement. Board members represent approximately 700,000 citizens.

Sincerely,

Norman A. Mulvenon
Chair, LOC Citizens' Advisory Panel

cc: LOC Document Register
LOC Board
LOC CAP
John Owsley, Director, TDEC DOE-O
Justin Wilson, Special Policy Advisor to the Governor
Leah Dever, Manager, DOE ORO
Ralph Skinner, DOE ORO
Pat Halsey, FFA Administrative Coordinator, DOE ORO
Luther Gibson, Chair, ORSSAB
James Werner, Office of Long-Term Stewardship, DOE HQ

21.1 21.1 – Please see responses to comment letter 22.

21.2 21.2 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process to allow for meaningful Tribal and public involvement.

Many Voices Working for the Community

Oak Ridge Site Specific Advisory Board

December 13, 2000

Mr. Steven Livingstone,
Project Manager
U.S. Department of Energy
P.O. Box 45079
Washington D.C. 20026-5079

Comments on the draft Long Term Stewardship Study of October 2000

Dear Mr. Livingstone:

This report is an excellent effort to illuminate the large issues for Department of Energy Long Term Stewardship (LTS) and to indicate the available broad policy directions. We did not detect a major point that is not covered somewhere at least by implication. A few ideas, however, were treated too lightly or indirectly to command the future attention they deserve. A few sentences changed or added could eliminate these residual concerns. 22.1

Citizen requests for better LTS coverage in Proposed Plans (PP) and Records of Decision (RODs) are dismissed on pages 15 and 17 in Section 3.2 with an argument based on a flawed statement of the request. Nobody expects a detailed stewardship plan in a ROD that would locate signs, fenceposts, the exact width of buffer zones, or list the botanical and biological species that will be monitored forever. Yet the impossibility of including such detail has been given as the reason for not including meaningful stewardship discussions in the crucial decision documents that describe the whole remediation strategy for an area (i.e., Proposed Plans and RODs). How can stewardship be considered in remedy selection (as the LTS study suggests on page 16) if these documents do not clearly commit to maintaining a level of remediation through time that is sufficient to achieve the chosen Remedial Action Objectives? Here, "remediation" includes all the monitoring, maintenance of both institutional and physical controls, information storage and retrieval, public education, and reconsideration of alternatives to which your Study refers. (An analogous issue must exist at sites not regulated under CERCLA.) We believe that a post-ROD document, to which the public has no formal input, is no place to be defining high level goals for long-term stewardship as is suggested near the end of page 17. 22.2

P.O. Box 2001, EM 90, Oak Ridge, TN 37831 • Phone 865-241-3665; 1-800-382-6938 • Fax 865-576-5333
E-mail: blacksl@oro.doe.gov • Web: http://www.oakridge.doe.gov/em/ssab

22.1 – The Department appreciates this comment. Thank you.

22.2 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process to allow for meaningful Tribal and public involvement. Note also that The Department agrees that Records of Decision and other decision documents should clearly identify problems, remedial objectives, and long-term stewardship implications to the extent feasible. Section 3.2 of the Study has been revised to emphasize this point.

On page 41 and Exhibit 5-1, the authors of the Study acknowledge that persons outside the originally contaminated area are protected from hazards primarily by "engineering controls" designed to stabilize the contaminants, rather than by "institutional controls" that keep people away from hazards. However, the rest of the report dwells far too much on the latter type of remedy. Unless contaminated properties are transferred to owners who prove to be complacent and uncooperative, the engineering controls and their maintenance will be the more important for DOE sites, just as they are for strip mines and old hazardous waste dumps that lack effective liners and caps. Where hazardous contamination will be left in place at weapons sites, engineered physical controls will be added; storms and floods are bound to challenge the halfway measures that must be used to control contaminant transport. We believe the Study should emphasize LTS for "engineering controls."

22.3 – The Department acknowledges this comment in Section 5.3 of the Study. The Department believes that Section 5.3 of the Study appropriately discusses the difficulties and challenges associated with ensuring the long-term maintenance of institutional controls, including roles and responsibilities for enforcement. The determination of the type of institutional controls and enforcement of these controls (e.g., by DOE or external parties) will be determined on a site-specific basis as part of remedy selection and long-term stewardship planning and may change over time.

On page 48 and particularly in Exhibit 5-4, the authors indicate the fragility and possible uselessness of land use control measures such as deed restrictions. We recall that the paper of Mary English, your Reference 49, indicates that easements and other deed restrictions have been found to fail over time unless the owner that originates the restrictions (here usually the federal government) consistently enforces the restrictions in the civil courts. This finding is very important, and suggests a strong and difficult condition for the usefulness of deed restrictions. We have found many references to deed restrictions in government regulations and decision documents, but recall only one case that indicated the intent of the agency to inspect and then enforce the restriction (groundwater licenses in Union Valley in Oak Ridge). If Ms. English is correct for an important fraction of the cases, this consistent enforcement caveat needs emphasis. It is just the type of condition that engineers and members of the public are unlikely to think of. (Another approach would be for the DOE to convince state legislatures to enable third party lawsuits to enforce deed restrictions for a class of lands that includes DOE sites. Local governments normally cannot and do not try to enforce such restrictions.)

22.4 – Please see response to comment letter 22.3

Please mention the significance of cost inflation to the considerations involving trust funds in Section 8 around page 91. The trust described in Exhibit 8-5 for stewardship of the Oak Ridge Reservation Environmental Management Waste Management Facility can succeed only if the terms of agreement are broadly interpreted to include using a portion of the trust income to increment the principal. This reinvestment would counteract the expected gradual increase over time in the dollar cost of maintenance and monitoring. The Tennessee trust fund agreement is a real breakthrough, and interestingly it is one in which the local public played no role except to be concerned before and to cheer after it was signed.

22.5 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. The text in Exhibit 8-3 was modified to note this point.

The likely importance of continuing local public involvement for effective LTS is introduced in the sidebar on page 91. We applaud those comments, but would go farther. We think some sort of citizen stewardship board will be needed at the highly contaminated sites. Successful organization of such boards will be difficult, and some encouragement by the federal government may be required. Local governments could combine to provide such informal oversight, but experience with county government suggests that long term problems rarely get the attention of local political leaders. Usually they are busy paving roads, operating jails, hiring school teachers, and pursuing economic development. Often, some citizen group must activate the elected leaders.

22.6 – Please see response to comment letter 22.2

P.O. Box 2001, EM 90, Oak Ridge, TN 37831 • Phone 865-241-3665; 1-800-382-6938 • Fax 865-576-5333
E-mail: blacksl@oro.doe.gov • Web: http://www.oakridge.doe.gov/em/ssab

We are pleased that the Natural Resources Defense Council lawsuit settlement has led to a useful overview of DOE's stewardship needs.

Sincerely,

Luther V. Gibson, Jr.

Luther V. Gibson, Chair

Cc: Pat Halsey, DOE/ORO
Connie Jones, EPA Region 4
Norman Mulvenon, LOC
Oak Ridge SSAB Stewardship Committee Members
John Owsley, TDEC
Myrna Redfield, DOE/ORO
Ralph Skinner, DOE/ORO

Department of Comprehensive Planning
Nuclear Waste Division

500 S Grand Central Pky • Ste 3012 • PO Box 551751 • Las Vegas NV 89155-1751
(702) 455-5175 • Fax (702) 455-5190

John L. Schlegel, Director Dennis Bechtel, Planning Manager

December 14, 2000

U.S. Department of Energy
PO Box 45079
Washington, DC 20026-5079

Attention: Steven Livingstone

Re: Comments by Clark County, NV to the Department of Energy (DOE) Long-Term Stewardship Study

Dear Mr. Livingstone:

Attached are comments from Clark County, NV to the draft Department of Energy draft Long-Term Stewardship Study.

The Office of Environmental Management, Office of Long-Term Stewardship is to be commended for producing a comprehensive analysis of stewardship issues. The study successfully captures major issues associated with long-term stewardship.

Our comments relate to process as well as degree of emphasis that we feel DOE needs to place on specific issues. The Nevada Test Site (NTS) in adjacent Nye County, is unique in that it is one of several sites throughout the nation whose future mission is unclear. Currently, the NTS is planned to retain an on-going mission of weapons testing.

Locally, we trust that this ongoing testing mission does not lead to ignoring the important stewardship requirements for the NTS site. Years of testing, of course, has lead to substantial contamination of subsurface soils and probably groundwater resources. While the NTS is an extremely large site, some testing did occur in areas (e.g., Pahute Mesa) adjacent to existing communities. Likewise, the areas of contamination are presently ill-defined.

23.1

23.1 – This comment focuses on site-specific issues. Where these issues have identified general issues for long-term stewardship, the Department has attempted to communicate these issues in both the Draft and Final Study. The specific comments in this section have been forwarded to the Department's long-term stewardship representatives at the appropriate sites; however, the long-term stewardship study is not the appropriate document for addressing site-specific issues.

It is important that stewardship needs, particularly the better characterization of areas of contamination and the definition of monitoring areas are not forgotten at sites like the NTS. This, I feel, fits proactively with your desire to plan stewardship activities concurrently with both cleanup and ongoing missions.

23.2

23.2 – See response to Comment 23.1.

Once again, thank you for your comprehensive treatment of these important issues. If there are questions about our comments, please don't hesitate to contact me.

Sincerely,

Dennis Bechtel
Planning Manager

Enclosures
c w/encs: John Schlegel

doe121499db

BOARD OF COUNTY COMMISSIONERS
BRUCE L. WOODBURY, Chairman • ERIN KENNY, Vice-Chair
YVONNE ATKINSON GATES • DARIO HERRERA • MARY J. KINCAID • LANCE M. MALONE • MYRNA WILLIAMS
DALE W. ASKEW, County Manager

U.S. Department of Energy
Long-Term Stewardship Study
Comments by Clark County, Nevada

General Comments

We would like to commend the Department of Energy (DOE) on the production of an important and comprehensive document on stewardship issues. We feel that it treats important concepts on stewardship topics that need to be addressed, particularly at those sites where dangers will exist for many generations. The following expresses our interests in stewardship as well as comments on specific topics associated with the long-term production of the public.

Clark County, Nevada, which includes the cities of Boulder City, Henderson, Las Vegas, Mesquite and North Las Vegas, has a population of almost 1.5 million, 70 percent of Nevada's population, and is its most productive economic area. Clark County is adjacent to Nye County, the site of the Nevada Test Site (NTS), and contributes more than 90 percent of the workers and support of NTS activities.

Clark County participates with Nye County and other citizens of Nevada on the NTS Community Advisory Board which, of course, coordinates with other site-specific advisory boards throughout the nation. We feel that stewardship activities are extremely important in maintaining the health and safety of our citizens and the sustainability of our environment.

The NTS, of course, is one of a number of sites that will continue to maintain an ongoing mission of testing the effectiveness of our nuclear weapons stockpile. We are also faced, however, with a need to better understand the residual contamination present at the site, and its effect on adjacent communities (e.g., Beatty, Armagosa Valley). While the NTS is an extremely large area, some of the testing, notably in the Pahute Mesa locale, is relatively close to inhabited areas.

Although the NTS is currently isolated, recent dramatic population growth in Southern Nevada makes even currently low-populated areas such as Nye and northern Clark County potential areas of expanded population growth over the next several decades. Stewardship needs, particularly contaminant characterization, monitoring, and potential cleanup, therefore, become extremely important. Likewise, there are a number of locations on the NTS, which are being considered for other non-nuclear uses that may need to be remediated or characterized to sustain this other development.

23.3

23.3 – See response to Comment 23.1.

Comments on Specific Issues

There are many opportunities available to improve DOE LTS performance. The following sections evaluate some overall strategic policy recommendations to ensure that LTS activities can be conducted effectively.

1. **National LTS Program.** A strong national program is needed to coordinate efforts among individual sites and provide more coherent guidance on LTS issues. This essentially runs counter to current DOE policy arrangements that permit individual sites to have strong control over crafting solutions for their individual problems. As DOE discovered belatedly with cleanup, however, greater efficiencies and reduced costs can be effectuated with headquarters coordinating research and deploying technologies for common problems. With great competition for funding both at the federal level and within DOE's broad assortment of missions, it is imperative that "lessons learned" at individual sites be available for application across the complex, and that this be coordinated by "headquarters".

23.4 – The Department acknowledges this comment in a text box in Section 4.2 of the Study. The Department's Long-term Stewardship Working Group recently identified the need for a corporate vision for long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. The corporate vision includes the appropriate organizational structure for long-term stewardship within the Department. The Department also recognizes that it is important to define long-term stewardship roles and responsibilities both within DOE and between DOE and other entities, including other federal agencies, states, Tribes, and regional governments. The Executive Steering Committee is developing a Strategic Plan for long-term stewardship; part of that effort will include identifying roles and responsibilities within DOE. The Department also notes that long-term stewardship as an issue is broader than DOE sites. For example, states and local governments already have long-term stewardship responsibilities at municipal landfills, and states will have long-term stewardship responsibility for "Superfund-lead" sites on the CERCLA NPL. Implementation of long-term stewardship across this broad spectrum of sites will require states to develop their own, independent capability to provide long-term stewardship.

2. **Stable Long-Term Funding.** As discussed previously, funding requirements for LTS may be well exceed the present estimates of cleanup costs. Total reliance on the annual appropriations process, however, will continue to result in inconsistent funding availability for LTS requirements. Evan a recognized, important program remediating, dangerous contamination at nuclear weapons sites has been subject to the vagaries of political whim and more immediate priorities. An example close to home in a related program, are the funding battles that are waged annually for Yucca Mountain site characterization. Although the Nuclear Waste fund generates over $700 million annually from a one mill fee per kilowatt hour fee charged to the users of nuclear power, and from a one-time charge to utilities, less than half of the amount is generally appropriated by Congress for studies and research. For FY 2001, Congress appropriated only $391 million of some $750 million potentially available. The remainder was used as an offset to the federal deficit.

   A more stable and dependable long-term funding source, therefore, is needed. A trust fund, with resources provided by the federal government and managed by an outside entity, may be one source of long-term funding stability.

23.5 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. As noted in Section 8.2 of the Study, developing an alternative funding mechanism will require additional study and eventually Congressional action. Section 8.2 of the Study also provides a summary of the recent study of Trust Funds by Resources for the Future. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

3. **Science and Technology (S & T).** More emphasis needs to be placed on S & T research to reduce the cost of future stewardship requirements. There are a host of contamination problems that either have no solution, or solutions that are so cost-prohibitive that they will be unable to be resolved given the competitiveness of the federal budgeting process. An example cited previously is the extensive groundwater contamination

23.6 – The Department acknowledges this comment in a text box in Section 4.2.4 of the Study. The Department has identified two preliminary goals for new science and technology for long-term stewardship: (1) reduce long-term stewardship costs, and/or (2) increase long-term stewardship effectiveness. These preliminary goals may change in the future as DOE gains more experience with long-term stewardship. Section 4.2.4 also notes that expertise and solutions may come from the private sector.

problems that are pervasive at almost every DOE site. Increasing funding to enable new technologies to be discovered and implemented is, therefore, a fundamental need.

Associates with this is providing more emphasis on capturing expertise available in the private sector (e.g., Superfund cleanup solutions are a possible source) both to encourage their involvement, and to learn from their experience in helping to resolve these complex cleanup issues.

4. **Institutional and Educational Structures.** Because the period of residual risk at many DOE sites can extend to centuries, it is important that institutional and educational capabilities are developed and maintained to perpetuate institutional and cultural memory. It should be remembered that a primary reason for the billions of dollars being spent on characterization costs is both a lack of adequate record keeping and the loss of institutional memory at most DOE sites. Ant his after only half a century of manufacturing and testing nuclear weapons.

Likewise, the educational system should have a role in ensuring that the dangers and problems associated with the nuclear weapons sites are not forgotten. DOE recognizes that the maintenance of institutional and educational capabilities is critical. In DOE's draft Strategic Plan it is noted that *"Actions will be taken to support efforts to maintain the necessary expertise (e.g., engineers and scientists) to manage LTS over at least the next century* ***and to develop and implement strategies for keeping LTS awareness and information exchange active.."*** Since the life of federal departments such as DOE are probably finite, strategies will also need to be developed to ensure that future agencies, perhaps at the local level, will be in existence to sustain the management of future sites.

23.7 – The Department acknowledges this comment in Section 7.2 of the Study. The Department has begun a process to more clearly identify and develop a consensus on long-term stewardship information needs and develop guidance for long-term stewardship information and records management. Some information management guidance will be included in the guidance for site-specific long-term stewardship plans currently under development by the Department. This comment will be considered in these efforts.

5. **Data and Information Needs.** Accurate and comprehensive information is fundamental in managing future stewardship activities. Richard Hengner, in his discussion titled *Managing Data for Long-Term Stewardship*, observed that *poor information management practices will make the transition from cleanup to LTS difficult,"* and, *"Affected parties will need open access to information about environmental conditions and historical production missions."* It is unfortunate that a considerable amount of useful LTS information has ei8ther been lost in the many decades of weapons development. Examples of this are all too prevalent. Witness the recently publicized situations at the Paducah in Kentucky and Hanford, Washington sites where DOE is trying to recreate an understanding of the contaminant levels and affected areas at these sites. It is, therefore, incumbent upon DOE to develop and manage information both to better understand cleanup and stewardship needs, and to inform the public and Congress about potential dangers.

23.8 – See response to Comment 23.7.

An associated problem is ensuring that the data is managed in such a way to assure that it will be available over the period of time of the potential risk. With the rapid change in technology, it is likely that data stored on a particular storage medium today will be unavailable for future research because of obsolescence. Ensuring data availability will be fundamental in managing future stewardship requirements. 23.8

6. **Lessons Learned.** There are a number of examples of stewardship being undertaken by other federal agencies from which DOE could benefit. Superfund activities undertaken by the U.S. Environmental Protection Agency, for example, and the numerous base closings by the Department of Defense offer valuable lessons on stewardship. Both federal branches have also had to deal with severe contamination problems, and in many cases have offered potentially relevant solutions. Utilizing the experience of these agencies. And others, can further reduce cost and time of implementation. 23.9

7. **Public Involvement.** Finally, DOE needs to maintain a strong public involvement program on stewardship issues. As noted previously, DOE has performed commendably during site cleanup by the creation of Site Specific Advisory Boards (SSAB), whose memberships comprise a broad spectrum of residents of communities surrounding sites. These Boards serve important roles in advising DOE on cleanup issues. There has been recent talk, however, of disbanding these groups once remediation activities are completed. DOE would be well advised to retain the SSAB's for LTS advice and recommendations. 23.10

As part of its LTS efforts, DOE also needs to develop a strategy for long-term public involvement to the communities at large including producing periodic informational updates on monitoring activities. 23.11

23.9 – The Department acknowledges this comment in a text box in Section 4.2 of the Study. The Study has included examples of successful efforts to assist individual sites in establishing these partnerships. Developing partnerships, however, is both difficult and time-consuming, and it may be years before partnerships function smoothly. Potential options for managing long-term stewardship include a centralized agency to steward Federal sites. However, a detailed discussion of the advantages and disadvantages of such a centralized agency is beyond the scope of the Study, which is required to focus on DOE sites.

23.10 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process to allow for meaningful Tribal and public involvement.

23.11 – See response to Comment 23.10.

Rocky Mountain Peace and Justice Center
P.O. Box 1156, Boulder, Colorado 80306 ph: 303-444-6981 fax: 303-444-6523

Comments on the Draft Long -Term Stewardship Study
December 15, 2000

Comments Prepared by Tom Marshall, Coordinator, Rocky Flats and Disarmament Program, Rocky Mountain Peace and Justice Center

Presented to: Mr. Steven Livingstone, Project Manager
U.S. Department of Energy,
P.O. Box 45079
Washington, D.C. 20026-5079

The Rocky Mountain Peace and Justice Center (RMPJC) appreciates the opportunity to comment on the *Draft Long -Term Stewardship Study* (*Draft Study*). RMPJC is a non-profit, public interest organization located in Boulder Colorado. Since our inception in 1983 we have had a focus on issues pertaining to the production and maintenance of nuclear weapons, and the health and environmental issues associated with the production of nuclear weapons. We maintain a particular focus on the Rocky Flats nuclear weapons plant (Rocky Flats), being located just eight miles from the facility.

The *Draft Study* along with report to Congress mandated by the National Defense Authorization Act signal a good beginning on the part of DOE to grapple with the challenge of long-term stewardship. The *Draft Study* does a good job of outlining the nature of the problem at DOE sites that necessitates long-term stewardship, and presenting the challenges and questions that need to be addressed in developing a long-term stewardship program for its facilities. RMPJC hopes that our comments will help to improve the *Draft Study* and further the Department of Energy's (DOE) efforts pertaining to long-term stewardship of its contaminated facilities throughout the country.

24.1 – The Department appreciates this comment. Thank you.

Political Commitment/Institutional Issues

DOE has stated that 108 sites will need some form of long-term stewardship after active remediation is done. Many of these sites cover large areas that will remain contaminated with a host of radioactive and other hazardous materials. In many cases remaining contamination will exist in soils, waters, and building or portions of buildings at sites. In some cases waste disposal facilities will exist on sites. Many of the contaminants will be long-lived. For example one of the primary contaminants of concern at Rocky Flats is plutonium which remains dangerously radioactive for 240,000 years. As the *Draft Study*

notes (as well as the National Research Council report *Long-Term Institutional Management of U.S. Department of Energy Legacy Waste Sites*), physical controls and institutional controls that will be left will fail during the dangerous life of long-lived contaminants. Building a robust long-stewardship program is essential if we are to protect the health of the surrounding public and of the environment.

The Department of Energy and the U.S. public face a number of challenges in developing a robust long-term stewardship program. Many of these including funding, regulatory challenges, transmitting information about hazards over extremely long periods of time, shortcomings in technology, and lack of precise knowledge about the nature of hazards at sites are addressed in the *Draft Study* and will be commented on later. However, in order to deal with all of these challenges it is imperative that there be a strong national commitment to developing a long-term stewardship program.

Developing this commitment will require a strong advocate within the federal government. it is not clear that DOE can be this advocate. The report *Long-Term Stewardship and the Nuclear Weapons Complex: The Challenge Ahead* puts the problem well:

> "The EM program is under tremendous pressure to show progress, and this means 'cleanup.' It will be difficult for the department to propose to Congress a new, expensive stewardship program to continue to take care of EM sites, when DOE has been pushing the notion that cleanup is done, or will be soon." (RFF p.21)

The assertion in the *Draft Study* that "cleanup," "end state," and "closure" do not imply removal of all hazards this is false. To most people including many decision makers in government these terms do have that implication. Only a small number of people who pay close attention to this issue understand that when DOE says "cleanup" it does not necessarily mean cleanup. In order to build the will to develop and support a long-term stewardship program it is important that the public and decision-makers learn the exact nature of the problem facing the nation. Language used to describe work that is occurring at DOE sites needs to accurately reflect the nature of the work, the problem being addressed, and remaining site hazards. This problem is particularly acute at sites such as Rocky Flats where the DOE is promising "cleanup" and "closure" by 2006, and yet where significant contamination problems will persist.

It is important that the Department of Energy, and its regulator begin to speak candidly and plainly about the nature of persisting hazards presented by DOE sites. It is not clear that DOE will be able to overcome the tensions created by the fact that they are actively "selling" cleanup as a solution to the Congress and the public. Another tension exists in the DOE's role in developing and maintaining nuclear weapons. Since these activities will likely create more contamination and new long-term stewardship needs and costs,

24.2

24.2 – The Department acknowledges this comment in a text box in Section 4.2 of the Study. The Department's Long-term Stewardship Working Group recently identified the need for a corporate vision for long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. The corporate vision includes the appropriate organizational structure for long-term stewardship within the Department. The Department also recognizes that it is important to define long-term stewardship roles and responsibilities both within DOE and between DOE and other entities, including other federal agencies, states, Tribes, and regional governments. The Executive Steering Committee is developing a Strategic Plan for long-term stewardship; part of that effort will include identifying roles and responsibilities within DOE. The Department also notes that long-term stewardship as an issue is broader than DOE sites. For example, states and local governments already have long-term stewardship responsibilities at municipal landfills, and states will have long-term stewardship responsibility for "Superfund-lead" sites on the CERCLA NPL. Implementation of long-term stewardship across this broad spectrum of sites will require states to develop their own, independent capability to provide long-term stewardship.

24.3

24.3 – The Department acknowledges this comment in a text box in Section 2.1 of the Study. The Department agrees that the terms "cleanup," "end state," and "closure" are less than ideal. The term "cleanup" is a common word usage that can be confusing. To help clarify the limits of current cleanup technologies and the overall scope of long-term stewardship, the Department has added a text box to Chapter 2 of the Study that describes the limitations and challenges that preclude remediating many sites to levels that would permit unrestricted use; the types of residual hazards that will require long-term stewardship; the time frames that may be involved in long-term stewardship; and the activities that may be involved in long-term stewardship. The Report to Congress on Long-term Stewardship provides additional site-specific information on the projected scope of long-term stewardship. The Department also maintains a Web Site (http://lts.apps.em.doe.gov) that provides public access to numerous documents describing the scope and challenges associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified the issue of developing a consistent, consensus definition of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee.

24.4

24.4 – The Department recognizes public concerns about residual site hazards and has acknowledged this comment in a text box in Section 3.2 of the Study. Information on the nature of residual hazards and their potential adverse effects on health, welfare, and the environment should be appropriately available to the public. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions.

DOE's role in promoting this program may deter the Department from being the advocate it should be for a robust long-term stewardship program. 24.4

Structural changes will be needed to create, implement and maintain a credible long-term stewardship program. In the short term DOE should maintain and strengthen the Office of Long -Term Stewardship at DOE headquarters. It should be noted that this office has done much to clearly communicate the nature of the problem necessitating a long-term stewardship program. The reports and presentations issued by this office have for the most part presented the issue in clear and graphic language. To the degree that this Office can be strengthened and isolated from the politics surrounding continuing nuclear weapons development and the current "cleanup" program we all win. DOE should consider establishing a Long-Term Stewardship program or strong agency within the Department. Each DOE site should have a strong office focusing on long-term stewardship. This does not currently exist at Rocky Flats. In the future it might be wise to consolidate all of the long-term stewardship responsibilities at federal facilities in a new entity focused on long-term stewardship. Such a move would eliminate the problem of competing missions, may enhance the political fortunes of a long-term stewardship program. Such a move might also increase the sharing of ideas an approaches to similar problems that may currently be impeded by institutional barriers. DOE should actively explore this possibility with other agencies and the public as it develops a long-term stewardship program.

24.5 24.5 – See response to Comment 24.2.

24.6 24.6 – See response to Comment 24.2.

As stated above, the Office of Long-Term Stewardship has been successful at developing very good information regarding the nature of the problem faced at DOE sites. One improvement for the *Draft Study* would be to incorporate more photographs and other images that graphically demonstrate the long-term and far reaching nature of the problems that long-term stewardship will have to address. DOE should also consider using more explicit language, such as that in the aforementioned National research Council report, to describe the gravity of the situation we are facing. Finally, the *Draft Study* should conclude by giving people a sense of where this issue goes from here.

24.7 24.7 – The Department evaluated the specific suggestion made in this comment but chose not to revise the Study in response.

24.8 24.8 – The Introduction to the Study provides an overview of what the Department is doing to address long-term stewardship issues.

"Cleanup" and Long-Term Stewardship

The *Draft Study* clearly states that "The need for long-term stewardship reflects the inadequacy of existing cleanup technologies." (p.36) Long-term stewardship is necessary because in many cases cleanup to pristine or non-hazardous levels cannot be achieved with existing technology in a way that is cost-effective or ecologically responsible. It is imperative, however, that long-term stewardship not become an excuse for less cleanup now. Sites should be remediated to the maximum state feasible at this point. It is important that the public be involved in and supportive of remediation efforts at DOE sites. Currently, this is not always the case as suggested on p.1 of the *Draft Study*. Since a number of research efforts including this *Draft Study* have concluded that engineered and institutional controls will likely fail at some point, the long-term goal for sites should be complete removal of dangerous contaminants.

24.9 24.9 – The decision to clean up to unrestricted use, or to meet other specific land use requirements, is made on a site-specific basis with input from regulators, stakeholders, and the public. It is both DOE and EPA policy that cleanup remedies should be consistent with the intended future use of the affected areas. Chapter 2 of the Study includes a new text box that provides a more formal statement on the scope of long-term stewardship and why it is required (i.e., the inability to achieve unrestricted use and the nature of residual hazards). The goal of long-term stewardship is to ensure continued protection of human health and the environment consistent with applicable requirements. The Department recognizes the many issues and public concerns associated with the uncertainties with planning for, documenting, and funding long-term stewardship throughout the Study and acknowledges this comment by including it in a text box in Section 3.2 of the Study.

Improving the condition of sites with goal of eliminating hazards needs to be a central component of a long-term stewardship program. The graphic on p. 112 of the *Draft Study*, "The Dynamic Nature of Long -Term Stewardship" captures the essence of this idea. Research should continue into new technology to improve the condition of sites, and this technology should be used when it is developed. There need to be frequent (shorter than five years) periodic assessments of new technologies and site conditions. It is not apparent is that there is a design for an active R&D program. Without such an active program it is likely that research and site improvement will not occur. 24.10

DOE should begin now to identify all R&D needs for long-term stewardship. At sites where hazards will remain DOE should document very clearly where remediation efforts leave residual contaminants, the nature of these contaminants, any problems they may pose, and the reason that these contaminants will be left (e.g. inadequate technology, cost, etc.). This record should be detailed but understandable to the lay person. It should also indicate clearly what technology needs exist to improve the condition of the site. These records can serve as baseline for research and development program aimed at better understanding the nature and behavior of contaminants at sites and at developing technology to improve the condition at sites. An R&D program should also consider monitoring and sampling techniques, improving institutional and engineered controls, and information management. It should be noted that DOE can begin building an R&D baseline and implementing the program before sites end active remediation. Upon the end of active site remediation records should be reviewed and updated. Long-term stewardship requirements should be an integral part of current R&D at the site and national level. To facilitate this effort, DOE should immediately provide a list of all current R&D efforts that pertain to long-term stewardship and describe what problem they address. 24.11 24.12 24.13 24.14

Current long-term stewardship research is being coordinated out of Idaho. This is not a wise approach. Research should be coordinated at the national level out DOE headquarters (or wherever long-term stewardship authority lays). However, DOE should also establish site level programs that involve local universities and colleges, members of the community, state and local government, and other federal entities. A site such as Rocky Flats , which is supposed to end active remediation soon could serve as a pilot project for such an R&D program. In addition to providing a better understanding of the hazards at the site, and possibly improving the condition of the site, a site level R&D program will help the community remember the hazardous nature of the site. This is an additional reason for having a site level R&D program as well as a national R&D program focused on long-term stewardship needs. 24.15

The *Draft Study* refers to technology and R&D needs, however, it does not clearly state what is being done to assess and fulfill these needs. This is an area that can strengthened in the *Draft Study*.

Cost and Funding

24.10 – The Department acknowledges this comment in a text box in Section 10.2 of the Study. The Department agrees that remedies may need to be reassessed periodically in light of changing circumstances and information. Section 10.2 of the Study includes a discussion of these points.

24.11 – The Department acknowledges these comments in a text box in Section 4.2.4 of the Study. As noted in Section 4.2.4 of the Study, the Department's process for developing and implementing new science and technology includes developing a long-term stewardship science and technology roadmap that will (1) identify science and technology needs; (2) identify existing capabilities to meet these needs both within and external to DOE; (3) determine research and development priorities; and (4) direct specific efforts to meet these needs. The Department agrees that research into a number of key areas is needed, including the long-term effectiveness and reliability of engineered and institutional controls; surveillance and monitoring; and information management. Advances in science and technology may provide future generations with the ability to cost-effectively achieve unrestricted use at some sites. The Department's Long-term Stewardship Working Group recently identified the policy issue as to whether the ultimate goal of new science and technology should be to improve the ability to maintain the existing end state (i.e., the end state established during cleanup) or should be to "improve" the end state more closely toward unrestricted use as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee.

24.12 – See response to Comment 24.11.

24.13 – See response to Comment 24.11.

24.14 – See response to Comment 24.11.

24.15 – See response to Comment 24.2.

Establishing a robust long-term stewardship program will require significant and assured funding. The best mechanism for this is not clear. However, it is important that dedicated funding be established by the federal government. Annual appropriations are not a reliable or responsible funding mechanism for this national obligation. It is important that the federal government own the responsibility for safeguarding contaminated DOE sites, and for funding any associated work. While this will be difficult, building the political will to make it happen will be easier if DOE and its regulators are clear about hazards at DOE sites.

24.16

24.16 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. The Department currently relies on the annual appropriations process to fund long-term stewardship. This is not likely to change in the near term. As noted in Section 8.1 of the Study, a separate Project Baseline Summary (PBS) for long-term stewardship at each site will help the Department improve its estimates of annual long-term stewardship funding requirements. Developing an alternative funding mechanism will require additional study and eventually Congressional action. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) current difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

Getting the best possible estimate of costs will be important in arranging dedicated funding. These estimates will clearly change as knowledge is gained regarding long-term stewardship needs. The cost estimates in the NDAA report should be incorporated into the *Draft Study*. Those estimated costs are approximately $100 million. It appears that this estimate is low, perhaps by a large margin. In part this may be due to reliance on sites to provide cost estimates. Sites such as Rocky Flats have an incentive to demonstrate low post-remediation costs. Therefore, DOE should commission an independent assessment of long-term stewardship costs.

24.17

24.17 – The Department issued the National Defense Authorization Act (NDAA) Report, entitled A Report to Congress on Long-term Stewardship, in January 2001 (DOE/EM-0563). The Report to Congress and the Study were prepared as separate documents because the required scope for each was different. The primary focus of the Report to Congress was site-specific requirements; the primary focus of the Study was common national issues. Nonetheless, the two reports are complementary to one another, and the public is encouraged to read both documents. The Report to Congress can be useful for certain common long-term stewardship analysis, such as evaluating long-term stewardship needs. Similarly, the Department has added a text box to Chapter 2 of the Study providing an overview of the overall scope of DOE's long-term stewardship responsibilities. The cost estimates from the Report to Congress have been incorporated into Section 8.1 of the Study. They were not in the Draft Study because the cost information in the Report to Congress was not final prior to publication of the Draft Study. The Department anticipates that life-cycle cost estimates will improve over time as DOE moves forward with planning and implementing long-term stewardship. For the Report to Congress, each site was strongly encouraged to work with local stakeholders during the preparation of site-specific cost estimates. The Study is not the appropriate document to respond to specific comments on the Report to Congress or on the public comment process used to develop the Report. The Department encourages members of the public to comment on their respective site's cost estimate through established public involvement mechanisms at each site.

Owning the responsibility for long-term stewardship at DOE sites means that the federal government should maintain ownership of theses sites. In some cases, there may be lease or other use arrangements with other entities. However maintaining ownership of the sites is important. This ownership should to extend to mineral rights that lie below the sites. At Rocky Flats the federal government does not own the mineral rights. The federal government needs to acquire these mineral rights in order to help ensure the success of a long-term stewardship program at the site.

24.18

24.18 – This comment is acknowledged in a text box in Section 6.2 of the Study. Section 6.2 of the Study recognizes the many issues, public concerns, and uncertainties associated with ensuring the continued provision of long-term stewardship after property transfers. The Department's Long-term Stewardship Working Group recently identified the issue of how DOE will ensure adequate protection of human health and the environment at sites transferred to the private sector as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This comment will be provided to the Executive Steering Committee for their consideration.

Information Management

Without significant advances in technology, information about hazards at sites will have to be passed far into the future. Since we cannot anticipate cultural, economic, or environmental changes that will affect peoples behavior or values pertaining to these sites in the future, it is best to think about establishing an iterative program that is passed from generation to generation. Establishing museums at sites is one way to begin this program. Rather than being passive curators of site memorabilia, these museums should be educational and research centers that work with the above mentioned site R&D programs. They should involve educational institutions, local governments, and community representatives in design and operation of their programs. One of their functions should be to explore the maintenance institutional controls and transmitting information far into the future. The basic idea is that an active program that involves the community is more likely to ensure that hazards are remembered than a passive program that relies on records stored in a variety of formats at different repositories. It is vital that affected communities be actively involved in this program and grappling with the problems posed by the sites in their area if the problem is to be addressed for the long-term.

24.19

24.19 – This comment is acknowledged in a text box in Section 7.2 of the Study. The Department agrees that museums may be a way to meet legal requirements to maintain an information repository and to provide knowledge about sites to communities during long-term stewardship. Museums already exist at certain DOE sites (e.g., Sandia National Laboratory, Los Alamos National Laboratory, Oak Ridge National Laboratory, and the Hanford Site), although information management is not currently part of their mission. The advantages and disadvantages of establishing a museum need to be assessed on a site-specific basis, since museums are not appropriate for all sites. The establishment of an information repository is a separate mission but could be incorporated with the development of a museum, visitor's center, or library. The Department agrees with the specific comment that a discussion of museums is not "out of scope" and has included such a discussion in Section 7.2 of the Study. Any decision to establish a museum at a specific site would need to consider issues such as mission, location, and funding sources, but the Department has not developed a policy on this. This comment will be provided to the senior management Long-term Stewardship Executive Steering Committee for their consideration.

Public Involvement

The public, and local and state governments should be actively involved in designing and maintaining a robust long-term stewardship program. In the near term, a system of community boards connected to a national board should help guide the development and implementation of long-term stewardship activities. Funding for these boards should be provided by DOE, but DOE should not direct these boards. In some instances current Citizen Advisory Boards may fill this function locally, but not in all cases. It is important that members of these local boards serve on the national board. Local governments should also be closely involved with long-term stewardship planning and implementation. 24.20

Implications For New and Continuing Facilities

Approximately fifty years of experience with nuclear weapons production demonstrates that contamination will result from these activities and this will necessitate long-term stewardship of these sites. Assessment of anticipated long-term stewardship needs should occur whenever DOE decides to construct and operate any new facility. At this time funding should be set aside for long-term stewardship activities. DOE should also conduct such an assessment on currently operating facilities and set aside adequate funds for long-term stewardship activities that will be required at these sites. 24.21

Again, the Rocky Mountain Peace and Justice Center appreciates the opportunity to comment on the *Draft Long-Term Stewardship Study*. We trust you will find these comments helpful. If you have any questions please contact Tom Marshall at 303-444-6981.

24.20 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process to allow for meaningful Tribal and public involvement.

24.21 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. As noted in Section 8.2 of the Study, developing an alternative funding mechanism will require additional study and eventually Congressional action. Section 8.2 of the Study also provides a summary of the recent study of Trust Funds by Resources for the Future. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

STATE OF MISSOURI
Roger B. Wilson, Governor • Stephen M. Mahfood, Director
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF THE DIRECTOR
P.O. Box 176 Jefferson City, MO 65102-0176

December 15, 2000

Mr. Steven Livingston, Project Manager
Office of Long-Term Stewardship (EM-51)
U. S. Department of Energy
P.O. Box 45079
Washington, D.C. 20026-5079

RE: Draft Long-Term Stewardship Study

Dear Mr. Livingston:

We welcome this opportunity to provide comments on the issue of long-term stewardship. Decisions on this critically important issue will directly impact the state of Missouri. Weldon Spring, the St. Louis city and county uranium refining wastes, the Kansas City Plant, and the uranium fuel fabrication plant in Jefferson County will all require long-term stewardship.

To meet our obligations to future generations, we must strive to return as many contaminated properties to unrestricted use as possible. We acknowledge it is not possible to achieve this goal at all sites due to technological and cost limitations. This is precisely why long-term stewardship plays such a key role in responsible care of the earth. Long-term stewardship is critical to preventing off-site migration of contamination. However, the general philosophy under which it is implemented will provide the basis for judgement by future generations of our success or failure as wise caretakers of the land. We must make careful, thoughtful choices to ensure the legacy all would desire. 25.1

With that in mind, long-term stewardship should be designed to provide the maximum protection of public health and environment for those sites whose complete remediation to unrestricted use is not feasible. Reliance on institutional controls should be minimized given the limited value they have shown in past experiences. Additionally, any stewardship plan should be dynamic and provide the maximum degree of adaptability to advances in technology. 25.2

To ensure consistency and commitment to agreed objectives of a stewardship program, the federal government needs to take the leadership role in these endeavors and partner with state and local entities to ensure goals are met. The federal government is in the best position to 25.3

25.1 – As noted in Section 4.2.2 of the Study, site-specific long-term stewardship plans are required by law for uranium mill tailings sites and must be approved by the Nuclear Regulatory Commission. The Department also requests the development of a site-specific long-term stewardship plan before accepting long-term stewardship responsibilities for any site. As the EM mission at a site is completed, current plans call for the EM program and the site landlord (if different from EM) to develop a long-term stewardship baseline for each site. The baseline will describe the scope of applicable long-term stewardship requirements, the technical activities and the projected schedule to meet these requirements, and expected costs. The Department acknowledges these comments in a text box in Section 4.2 of the Study and will consider the recommendations they provide in developing the guidance that will specify the format and content for site-specific long-term stewardship plans.

25.2 – The Department acknowledges this comment in Section 5.3 of the Study. The Department agrees that the primary purpose of LTS is continued protection of human health and the environment. The Department agrees that in some cases, site-specific LTS plans may need to include provisions for distributing public health information to affected parties, and, where appropriate, plans for health monitoring. A new text box at the end of Chapter 2 of the Study discusses the importance of public health concerns during long-term stewardship. With respect to care and compensation, such decisions would need to be made on a case-by-case basis.

25.3 – The Department acknowledges this comment in a text box in Section 4.2 of the Study. The Study has included examples of successful efforts to assist individual sites in establishing these partnerships. Developing partnerships, however, is both difficult and time-consuming, and it may be years before partnerships function smoothly. Potential options for managing long-term stewardship include a centralized agency to steward Federal sites. However, a detailed discussion of the advantages and disadvantages of such a centralized agency is beyond the scope of the Study, which is required to focus on DOE sites.

RECYCLED PAPER

evaluate the emergence of new technologies, record-keeping and monitoring methods and the general implementation of programs nationwide. This will help avoid duplication of pilot program and evaluation efforts and facilitate determining the best available methods for application at sites nationwide.

Past experiences have illustrated the need for careful planning to ensure sites requiring long-term stewardship are managed prudently now and in the future. As with any issue of such magnitude and importance, assurance of adequate resources to carry out the continuing responsibilities associated with these sites is of great importance. The federal government is in the best position to ensure adequate funding mechanisms are developed to aid stewardship partners in achieving long-term stewardship goals. 25.4

We applaud the work you and others within the Department of Energy have undertaken in producing the long-term stewardship study. It appears you have met the goals of clearly describing the stewardship issues and providing a forum for public input to the study. Department of Energy now needs to focus on its responsibility to implement policies for achieving a sound and sustainable stewardship plan. A robust long-term stewardship program, operated by the U.S. Department of Energy, is an integral part of the overall plan to address these sites. Paramount to laying the groundwork for the best possible program design is inclusion of the general public and state and local governments in planning, implementation and evaluation processes. Please consider and include this letter with attached comments as part of the official record and review of the Federal Register Notice, issued on October 31, 2000. 25.5

Enclosed are specific comments on the draft study. Our major recommendations for the study follow:

- Department of Energy needs to commit to issuing a policy that supports stewardship funding. An additional mechanism for funding to those shown on pages 86 and 87 would be the establishment of an entitlement fund or an Executive Order requiring sufficient funding. 25.6
- Ensuring the provisions of a stewardship plan are met needs to be a joint effort involving all stakeholders. This includes Department of Energy, state and local governments, the general public, and any other entities that are involved in a site stewardship plan. 25.7
- The Weldon Spring Site Remedial Action Project (WSSRAP) is cited as having a draft plan that includes the state as an "oversight steward." The State of Missouri and Department of Energy have yet to define the exact role of oversight steward. We look forward to discussing this issue with Department of Energy and coming to a mutually agreeable decision on this matter. 25.8

25.4 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. As noted in Section 8.2 of the Study, developing an alternative funding mechanism will require additional study and eventually Congressional action. Section 8.2 of the Study also provides a summary of the recent study of Trust Funds by Resources for the Future. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

25.5 – The Department appreciates this comment. Thank you.

25.6 – See response to Comment 25.4.

25.7 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process to allow for meaningful Tribal and public involvement.

25.8 – This comment focuses on site-specific issues. Where these issues have identified general issues for long-term stewardship, the Department has attempted to communicate these issues in both the Draft and Final Study. This comment has been forwarded to the Department's long-term stewardship representatives at the appropriate sites; however, the long-term stewardship study is not the appropriate document for addressing site-specific issues.

- The study rightfully recognizes public input during both plan development and implementation is necessary. Public involvement requirements, which are contained in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), should also be embodied in the stewardship plan.

- Any proposed transfer of Department of Energy land to other agencies or to the public should require a review and comment by the state first. This should be clarified in Exhibit G-1.

- The study notes the use of an activity-based cost approach for determining long-term stewardship costs. The state has not been given an opportunity to review or comment on how these costs are derived or whether they are all-inclusive. The stewardship study's companion document, "Long-term Stewardship Report," also provides figures that have not been shared with the Missouri Department of Natural Resources.

- Government land transfers should be eliminated except in those rare instances where the durability of institutional controls can be guaranteed. Compatible use by others (through leases perhaps) would be acceptable as long as the federal government retained ownership and control of and ultimate responsibility for the institutional controls and other stewardship safeguards.

The State of Missouri has several sites that will require long-term stewardship. For the protection of Missourians' health and the environment now and in the future, we must insist on playing an active role in all phases of the stewardship for these three sites. Again, thank you for developing this study and for Department of Energy's cooperation as we jointly move to the perpetual care of the Department of Energy wastes. Please contact me at (573) 751-4732 if you have questions about our comments or need additional information.

Sincerely,

DEPARTMENT OF NATURAL RESOURCES

Stephen Mahfood
Director

Enclosure

c: Governor Roger Wilson
Governor-elect Bob Holden
St. Louis FUSRAP Oversight Committee
Weldon Spring Citizens Commission

25.9 25.9 – See response to Comment 25.7.

25.10 25.10 – This comment is acknowledged in a text box in Section 6.2 of the Study. Section 6.2 of the Study recognizes the many issues, public concerns, and uncertainties associated with ensuring the continued provision of long-term stewardship after property transfers. The Department's Long-term Stewardship Working Group recently identified the issue of how DOE will ensure adequate protection of human health and the environment at sites transferred to the private sector as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This comment will be provided to the Executive Steering Committee for their consideration. Where required by law or regulation, states or their agencies are involved or coordinated with property transfers.

25.11 25.11 – See response to Comment 25.8.

25.12 25.12 – This comment is acknowledged in a text box in Section 6.2 of the Study. Section 6.2 of the Study recognizes the many issues, public concerns, and uncertainties associated with ensuring the continued provision of long-term stewardship after property transfers. The Department's Long-term Stewardship Working Group recently identified the issue of how DOE will ensure adequate protection of human health and the environment at sites transferred to the private sector as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This comment will be provided to the Executive Steering Committee for their consideration.

The Missouri Department of Natural Resources specific comments to the "Draft Long-term stewardship Study," October 2000, as noted in the Federal Register Notice, October 31, 2000.

1. Page 1: The inset definition of Long-term stewardship is not the same as given on page 4 of the Stewardship Report.

25.13 – The definition used in the Study is that specified in the Settlement Agreement (see Appendix A). The definition used in the Report to Congress on Long-term Stewardship is that specified in the Committee Report language that directed DOE to prepare the Report to Congress.

2. Page 34: The State of Missouri is noted in the inset as having an "oversight steward" role. There has been no definitive discussion with the state to describe what that role will be or how it will be financially supported.

25.14 – The text box in Section 4.2.3 of the Study has been modified to note that there is no final agreement between DOE and the State of Missouri concerning roles and responsibilities at the Weldon Spring Site.

3. Page 36: The inset here also describes local government as having an "oversight steward" role. Again, we are not aware of any discussion or description of what that role is or how it will be implemented.

25.15 – The inset now reads that the state of Missouri acts as an oversight steward but that no final agreement on roles has been reached.

4. Page 49: The inset should include Missouri as having Minuteman Missile Silo sites.

25.16 – We have added Missouri to the list. Thank you for bringing this omission to our attention.

5. Page 63: Under the **Potential legal restriction** bullet, a provision is needed to include the state as part of the concurrence of the transfer or deletion from the National Priority List (NPL).

25.17 – The text has been altered to reflect this comment in a footnote.

6. More effort needs to be taken under Chapter 6: Managing Real Property to portray the management of property already transferred to the public, but not cleaned up. Please refer to the following comment as an example:

The Section titled "Property Transfer" implies: 1) properties are not transferred out of Department of Energy control without cleanup, and 2) long-term institutional controls will be the responsibility of Department of Energy, unless the agency receiving that responsibility is licensed by Nuclear Regulatory Commission (NRC) or an agreement state. Properties not cleaned up are already under public control, short-term institutional controls have transferred to another agency without licensing, and some of the responsibility for short and long-term institutional control has already been transferred elsewhere.

Here's an example:
The St. Louis Formerly Utilized Sites Remedial Action Project (FUSRAP) sites are radiologically contaminated properties that are publicly owned. The cleanup is currently the responsibility of the United States Army Corps of Engineers (USACE). Department of Energy has no involvement with cleanup or controls of those sites. A Memorandum of Understanding (MOU) Department of Energy's exist giving short-term responsibility to USACE and long-term to Department of Energy, however, there is not sufficient specificity to determine how the MOU will be coordinated and implemented. While USACE provides for the removal of contaminated soils and offers radiological support to landowners wishing to make modifications to their site, they have no authority over any action the individual landowner might take. The same principle applies to the right-of-ways, easements, roads, and railroads. While federal support is made available, it is not enforceable. Controls have already become the responsibility of the landowner, the local governments, and utility companies. NRC has not licensed any of these entities and Missouri is not an agreement state.

25.18 – The Department acknowledges this comment in a text box in Section 6.2 of the Study. Section 7.1 of the Study also notes that on February 11, 2001, the Department made public a list of sites, including beryllium vendors, DOE sites that used radioactive materials, and facilities where atomic weapons workers may have been employed (66 FR 4003). The Department is working on a database for these sites. The Study focuses on common issues and challenges that exist across many sites rather than focusing on one particular subset of these sites.

7. Page 25: A list of principal drivers for existing long-term stewardship requirements at Department of Energy sites is shown. The list should include public and state concern as a driver because, without it, a good number of sites would not have the current federal "Stewardship" practices nor would the site be slated for future requirements. The St. Louis FUSRAP sites are examples of properties that would have no controls in place now or the future, were it not for citizens' concerns and participation.

25.19 – The Department recognizes public concerns about residual site hazards and has acknowledged this comment in a text box in Section 3.2 of the Study. Information on the nature of residual hazards and their potential adverse effects on health, welfare, and the environment should be appropriately available to the public. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions.

8. The last paragraph of page 56 states: "When the cleanup is complete, Department of Energy conducts appropriate long-term stewardship. If the property is no longer needed for a Department of Energy mission, Department of Energy may transfer it to other federal or non-federal entities." Please consider adding the following statement:

Please note the transference of property to public ownership prior to cleanups and enactment of institutional controls has occurred in the past. This has resulted in additional concerns, problems, and obstacles.

25.20 – The text has been altered to note that DOE may transfer property only when "DOE environmental, health, safety, and security, and other requirements are met."

General:

1. Costing of Stewardship has not been provided in any of the Record of Decision documents established for the sites in Missouri.

25.21 – See response to Comment 25.8.

2. Referencing comments 2 and 3 under the specific comments, similar concerns for the FUSRAP and Kansas City Plant Stewardship plans are noted.

3. The Department of Energy Grand Junction Office is indicated as having responsibility for the Weldon Spring Site once cleanup operations have been completed. We understand this may not necessarily be the case. The Department of Energy group responsible for the federal component of Stewardship at WSSRAP is a matter of major importance to the Missouri Department of Natural Resources in planning for the transition from the remediation group. This should be clarified.

25.22 – See response to Comment 25.8.

The draft Stewardship Plan for WSSRAP is cited as an example of one instance where state government Stewardship roles have been identified. While this document does indicate a role for the state of Missouri, the Department of Natural Resources considers this plan to be a preliminary attempt at preparation of a document that we anticipate will be much more detailed and expansive in final form. While it is true that Missouri has been identified as being an "oversight steward," there has not yet been an attempt to define a funding mechanism for the state or a clear statement of responsibilities for that role.

25.23 – See response to Comment 25.8.

The Missouri Department of Natural Resources has recently provided comments to the Department of Energy WSSRAP office on the draft Stewardship plan. Significant areas of concern expressed in those documents are:

25.24 – See response to Comment 25.8.

- The Stewardship Plan proposes to view the "Stewardship" issue from the perspective of 30 or 200 years depending on which regulation is referenced. Materials at the site will remain radioactive for many thousands of years. A responsible approach would seem to require

Department of Energy to take a longer view of Stewardship than that indicated in the document.

- The draft plan seems to view Stewardship as being implemented by someone with significant knowledge of historic and current site configuration, design details, remedial activities, and residual contaminants, i.e., one who has been involved with the site for many years. It is more reasonable to present this issue from the perspective of, and with the detail required by, the probable future user who will have responsibility for implementing long-term care of the site after remediation is completed. This user will not have the extensive background knowledge and detailed understanding or information that seems to be assumed in the current plan.

- A Stewardship Plan must be adaptable to operate effectively through the future. To effect this, significant review of the Plan and site conditions are tied to the CERCLA five-year review process. The Missouri Department of Natural Resources does not believe this is the most effective method to maintain currency of the plan or security of the site. In practice, the CERCLA review process has not been consistently enforced by Environmental Protection Agency (EPA) and is, therefore, not reliable for this purpose. A specific, detailed, and rigorous review process should be identified in the Plan that may be conducted concurrent with the CERCLA process, but is not dependent on it. The Missouri Department of Natural Resources recommends a comprehensive review after two years of post-closure operation and again three years later (after five years of post-closure operation). A five-year interval may be appropriate thereafter. The plan should indicate the review shall be conducted whether or not a CERCLA review is completed.

- The acknowledged limitations in current scientific understanding and technological capabilities also argue for a periodic review of the site status. As current technologies are assessed over long timeframes, new technologies are developed and additional understanding of site geology and hydrology is achieved, periodic reviews of the relative benefits of maintaining current status or renewed clean-up are recommended. Such reviews should be conducted by the Department of Energy or responsible federal party and the State and include public comment. Topics covered during such reviews should include monitoring, changes in status of the treatment and/or containment, and records.

  Periodic reviews also provide the opportunity to review new information of potential threats. As our understanding of the health consequences of exposure to chemicals has grown, so has the list of regulated chemicals. In contrast, a failure to provide for thorough periodic review limit the application of new knowledge to sites acknowledged as posing hazards for decades and centuries into the future.

- Often the terms "should" or "may" are used for activities, which are important to ensure site safety. Appropriate wording changes to incorporate terms such as "shall," "will," or "must" is recommended. Specific enforcement mechanisms, including meaningful penalties, needs to be identified should Department of Energy fail to meet its commitments under this Plan.

- What assurances and enforcement mechanisms are there which will require Department of Energy to continue to identify and ask for sufficient funding for the Weldon Spring Site? What funding does the Department of Energy intend to provide for state and local oversight agencies such as the Missouri Department of Natural Resources and the Weldon Spring Citizens Commission?

A funding mechanism for long-term monitoring and maintenance of engineered controls, such as periodic replacement of active and passive control mechanisms, and for contingency systems should be included in any Stewardship plan.

25.25 – See response to Comment 25.1.

Department of Energy currently estimates long-term stewardship cost by using an activity-based cost approach. This estimate does not include costs for significant unforeseen problems, such as disposal cell damage or leakage. A more appropriate approach for funding Stewardship activities into the future would be to develop a "fund" (trust fund, escrow account, etc.) for that purpose. This "fund" would grow with time and finance solutions to problems, as they arise as well as day-to-day costs of planned monitoring and maintenance. The annual federal budget appropriations process, based on activity-based costs, will not accomplish this, since unforeseen problems can not be anticipated. The state of Tennessee perpetual care investment fund is an example of how provisions can be made for planned monitoring and maintenance by a state agency. This concept should be expanded to include funding for contingencies and to provide site-specific funds irrespective of which government agency (local, state, or federal) has been entrusted with Stewardship responsibilities.

25.26 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. The Draft Study may not have adequately distinguished between operational and contingency funding. Chapter 8 of the Study has been modified to discuss this distinction. Some of the cost estimates in the Report to Congress on Long-term Stewardship include contingency funding; others do not.

To: Steven Livingstone
U. S. Department of Energy

From: M. J. Plodinec, Director
Diagnostic Instrumentation and Analysis Laboratory
Mississippi State University
205 Research Boulevard
Starkville MS 39759

SUBJECT: COMMENTS ON LONG-TERM STEWARDSHIP STUDY

Dear Mr. Livingstone:

I appreciate the opportunity to comment on the *Draft Study*. When adopted, this should provide an excellent start for DOE's Stewardship program. In the following, I have provided comments primarily directed toward implementation and sustainability of the Stewardship program. They are intended to supplement the approach described in the *Draft Study*.

1. Role of Headquarters. The *Draft Study* does not clearly identify an active role for DOE Headquarters. If DOE Headquarters does not play an active role:

- The current crazy quilt of decisions in DOE's waste management program will be repeated in the Stewardship program. Once again, sites will make important decisions in an inconsistent manner, often with little regard for what makes sense technically. This has proven to be inefficient and costly in the waste management program - is there any real likelihood this pattern would not be repeated in the Stewardship program?

- DOE Headquarters - the primary point of contact with Congress - will have difficulty defending the Stewardship program's budget. 26.1

- The public's involvement in the program will be haphazard, which will ultimately put both schedules and budgets at risk. The cleanup of the silo'ed waste at Fernald is a good case in point. Decisions were made by DOE and its contractors independent of the public and other stakeholders. The public's ire led to delays and a program which ultimately will cost many times what it should in terms of the hazards being mitigated.

The problem, of course, is that the field worries that DOE Headquarters will not understand the local regulatory climate, and, as a result, will make decisions or take actions that are locally untenable. A role for Headquarters which would avoid the field's concern is for Headquarters to mandate a structured process (such as that in Exhibit 9-1 in the *Draft Study*) for Stewardship decision-making and implementation, and then monitor compliance. While decisions would still be made at the local level, they would be made in a consistent fashion, and thus would be more easily defended. They would reflect input from the public and other stakeholders, and thus be more likely to achieve continued funding.

2. Funding. The *Draft Study* quite rightly expresses concern over the sustainability of funding for Stewardship. If we remain on the present path, it is all too likely that funding for Stewardship will become similar to funding for emergency management: an inadequate baseline punctuated by high-dollar spikes reflecting extreme weather events (e.g., the $25B for cleanup after Hurricane Andrew). However, there are some actions which DOE can take to avoid this fate:

- Formally involve the public in the planning and implementation process. This will help build a constituency for Stewardship. 26.2

26.1 – The Department acknowledges this comment in a text box in Section 4.2 of the Study. The Department's Long-term Stewardship Working Group recently identified the need for a corporate vision for long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. The corporate vision includes the appropriate organizational structure for long-term stewardship within the Department. The Department also recognizes that it is important to define long-term stewardship roles and responsibilities both within DOE and between DOE and other entities, including other federal agencies, states, Tribes, and regional governments. The Executive Steering Committee is developing a Strategic Plan for long-term stewardship; part of that effort will include identifying roles and responsibilities within DOE. The Department also notes that long-term stewardship as an issue is broader than DOE sites. For example, states and local governments already have long-term stewardship responsibilities at municipal landfills, and states will have long-term stewardship responsibility for "Superfund-lead" sites on the CERCLA NPL. Implementation of long-term stewardship across this broad spectrum of sites will require states to develop their own, independent capability to provide long-term stewardship.

26.2 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. As noted in Section 8.2 of the Study, developing an alternative funding mechanism will require additional study and eventually Congressional action. Section 8.2 of the Study also provides a summary of the recent study of Trust Funds by Resources for the Future. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration. The Working Group also identified public involvement as an important issue for the Executive Steering Committee.

• Closely and consistently monitor the costs of Stewardship, and use these cost data as a means to drive R/D and the adoption of better technologies. The ECES system described in the *Draft Study* can be the tool DOE uses to do this. Congress will be pleasantly surprised to see a program of this magnitude being driven by measurable performance indicators. This is very consistent with the "rolling Stewardship" concept.

• Use life-cycle accounting. In many cases, life-cycle accounting will indicate the use of more capital-intensive solutions because of their lower operating costs.

3. Five Key Principles (§4.2). These are excellent! The NRC is to be commended for these. My only quibble is that these should include getting information to stakeholders in a consistent and effective manner, and involving the affected public in the long-term institutional management of each Stewardship site. 26.3

4. DOE's Science and Technology Investments (§4.2). This section is disappointing. It does not seem to recognize that much of the necessary S&T has been developed or is being developed by other agencies (DOD, NASA, EPA, even DOT), not DOE. The *Draft Study* also projects the national labs into the equation when it is not clear that they have the expertise to cost-effectively resolve some of the more important needs. For example, the national labs do not have as much to offer for structural monitoring as some university research organizations. Why should DOE fund the national labs to catch up? There needs to be much greater attention given to inter-agency cooperation. In particular, DOD and DOE share common problems, why not use the same technologies? 26.4

I am also concerned about the apparent reliance of the Stewardship program on the Focus Areas. The current arrangement is too much like DOE's typical "give me a rock" approach which seldom works. The Stewardship program needs to develop a coherent research program, and then work with the Focus Areas to ensure that it is carried out. 26.5

This is a good place to emphasize the importance of structural monitoring. DOE will stabilize activity in place in many facilities, and then rely on the integrity of the structures to prevent releases of activity. Tools are needed to detect changes in structures, thus warning of the potential for release of activity.

5. "Rolling stewardship" (§10.2). This is an excellent concept, which will allow DOE to take advantage of lessons learned. However, to be truly effective, this concept must include monitoring of financial performance as well. Such monitoring will spotlight opportunities / needs for better technologies, incorrect programmatic assumptions, and problems at specific sites in a unique way not likely to be matched by any other method. It is imperative that DOE monitor actual costs and use these data as an important part of program planning. In particular, the personnel costs associated with monitoring must be closely followed. For waste management, personnel costs typically represent 70+% of the total cost. We need to do better for the Stewardship program. 26.6

6. Long-term monitoring program. A comprehensive and consistent approach to long-term monitoring is needed across the DOE complex. The following goes a long way toward providing DOE with a cost effective and publicly-acceptable long-term monitoring program for DOE sites. This suggested approach for long-term monitoring will help focus DOE management, the technical community and other stakeholders on the risks associated with each site, and will lead to cost effective solutions which are acceptable to all. Elements of this approach are: 26.7

• Develop a risk-based process for identifying long-term monitoring needs. This process will include public involvement as a cornerstone. Use of risk as the determinant of what is needed will

26.3 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process to allow for meaningful Tribal and public involvement. The Department notes, however, that the five principles are quoted from a report prepared by the National Academy of Sciences, a copy of which is available on the long-term stewardship web page (http://lts.apps.em.doe.gov).

26.4 – The Department agrees that the EM program, or DOE itself, will not be the only source of new science and technology for LTS. The language in Section 4.2.4 of the Study has been modified to reflect this. The Department acknowledges this comment in a text box in Section 4.2.4 of the Study.

26.5 – See response to Comment 26.4.

26.6 – Thank you for your comment. The Department will do its best to monitor actual costs and use them in data program planning.

26.7 – The Department acknowledges this comment in Section 5.3 of the Study. The Department believes that Section 5.3 of the Study appropriately discusses the difficulties and challenges associated with ensuring the long-term maintenance of institutional controls, including roles and responsibilities for enforcement. The determination of the type of institutional controls and enforcement of these controls (e.g., by DOE or external parties) will be determined on a site-specific basis as part of remedy selection and long-term stewardship planning and may change over time.

ensure that a consistent approach is taken across the entire DOE complex. The success experienced in the UK in gaining public acceptance of waste management decisions will also be utilized to reduce the danger of public perception hindering progress toward solutions.

• Select monitoring systems for each site which can detect any change in the condition of contaminated waste materials - whether the contamination is radioactive or chemical - in a timely fashion. The Stewardship program will do the same for monitoring the integrity of closed buildings. The Stewardship program is the only entity with the responsibility and the capability to optimize system costs, so it must take the lead in helping individual sites. However, because much of the requisite technology is outside the DOE community, involvement of such groups as the Army Corps of Engineers, NASA, and the USGS is a necessity.

• Establish an RD&D program to develop monitoring systems to fill any gaps identified through site-specific technology selection.

• Develop a monitor performance tracking program which will follow reliability, availability, maintainability, and performance of monitoring systems. This will be used to facilitate future cost and performance improvements through focused R/D.

• DOE's Stewardship program will establish an ongoing web-based system - similar to that in use in the UK (see www.aeat.co.uk/netcen/airqual/data/index.html) - which will allow any member of the public to have access to all of the monitoring data at a given site. Through this public involvement, public confidence will be greatly enhanced. Both site managers and the public should see that, if followed, this approach will lead to effective and cost-controlled monitoring of closed sites and facilities. Through use of the approach, initial costs will be minimized, and there will be a path toward reducing the long-term mortgage without diminishing the performance of the monitoring system. The use of risk will ensure a consistent approach across the Department, and thereby avoid some of the problems which have occurred in managing the same types of wastes at different sites. Most importantly this approach will allow DOE to reassure the public that DOE is doing the right thing, assure Congress that present costs are being held down and that DOE is on a path which will lead to enhanced performance (better information at lower cost) in the future.

I appreciate the opportunity to comment on the *Draft Study*.

Nez Perce
ENVIRONMENTAL RESTORATION & WASTE MANAGEMENT
P.O. BOX 365 · LAPWAI, IDAHO 83540-0365 · (208) 843-7375 / FAX: 843-7378

December 15, 2000

Steven Livingston
Project Manager
U.S. Department of Energy
P.O. Box 45079
Washington, D.C. 20026-5079

Re: Draft Long-Term Stewardship Study (LTS)

Dear Mr. Livingston:

Since 1855, reserved treaty rights of the Nez Perce Tribe in the mid-Columbia have been consistently recognized and affirmed by the federal courts. These actions protect Nez Perce treaty-reserved rights to utilize our usual and accustomed resources and resource areas in places such as the Hanford Reach of the Columbia River. Accordingly, the Nez Perce Tribe, Environmental Restoration and Waste Management Program (ERWM) respond to actions that impact the Hanford ecosystem. The protection of the cultural and natural resources at Hanford is of great concern to the Nez Perce Tribe, and it is in regard to these resources that we write this letter.

Tribes have been here since time immemorial. Stewardship began thousands of years ago for the Nez Perce. We were here when the Manhattan Engineer Works was created, removed and denied access to cultural resource sites along the Columbia River, and now we monitor the cleanup of the Hanford Reservation. The Nez Perce Tribe is not responsible for the nuclear waste activities, but now we share in the responsibility to restore the damage that was done to the landscape.

The development of the Long-Term Stewardship program is a monumental task, which impacts Tribes, States, local communities and future generations. Residual contamination will remain at Hanford and will preclude unrestricted future access to cultural resource sites and land use creating long-term stewardship responsibilities. This document is a good analysis of the activities that are required to determine the final environmental remedy decision or long-term stewardship solution.

The Nez Perce Tribe is committed to long-term stewardship but we must first minimize residual contamination, reducing future long-term stewardship costs. In the beginning we were naïve that science was fail-safe, now we must embrace all communities in an effective plan, develop policy, and implement the responsibilities of the long-term stewardship of the federal government.

27.1 27.1 – The Department appreciates this comment. Thank you.

Tribes

The DOE Affected Tribes have a responsibility to protect, preserve, and perpetuate cultural resources and resource sites on the Hanford Reach. The Nez Perce Tribe must present the technical and political considerations of the Department of Energy (DOE) technologies against the array of tribal legal, cultural, political, and natural resource considerations. We commend the DOE and LTS document supporting its federal trust responsibility and obligations to the affected Tribes. 27.2

27.2 – The Department appreciates this comment. Thank you.

Land Use

The transference of property, institutional control and stewardship responsibilities to non-federal ownership can lead to negligence of human and environmental protection. The International City/County Management Association states that nearly 75% of local governments are unable to implement or maintain institutional controls. As a result, the stewardship of unrestricted sites should be maintained and the responsibility of the Department of Energy. 27.3

27.3 – This comment is acknowledged in a text box in Section 6.2 of the Study. Section 6.2 of the Study recognizes the many issues, public concerns, and uncertainties associated with ensuring the continued provision of long-term stewardship after property transfers. The Department's Long-term Stewardship Working Group recently identified the issue of how DOE will ensure adequate protection of human health and the environment at sites transferred to the private sector as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This comment will be provided to the Executive Steering Committee for their consideration.

Funding

Funding is a critical issue of Long-Term Stewardship. Congressional funding may not guarantee program missions and goals. We recommend a combination of options two and three listed in Exhibit 8-3. Provide funding in multi-year contributions, through the sale or lease of the DOE's assets to a trust fund, escrow account or investment fund establishing a mechanism for the Stewardship Program. This method has successfully been employed at restored Department of Defense and Energy sites. 27.4

27.4 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. As noted in Section 8.2 of the Study, developing an alternative funding mechanism will require additional study and eventually Congressional action. Section 8.2 of the Study also provides a summary of the recent study of Trust Funds by Resources for the Future. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

Records Management

It is important to retain and easily access all pertinent data on hazardous contaminants still present on site. Current policies dictate that records are destroyed after a specific period of time. This policy has resulted in considerable problems tracking and identifying contaminants present on site. All pertinent records should be retained as long as they may pose a risk to human and ecological health. It is imperative that the records be easily accessible to the all involved stakeholders. 27.5

27.5 – The Department acknowledges this comment in Section 7.2 of the Study. The Department has begun a process to more clearly identify and develop a consensus on long-term stewardship information needs and develop guidance for long-term stewardship information and records management. Some information management guidance will be included in the guidance for site-specific long-term stewardship plans currently under development by the Department. This comment will be considered in these efforts.

Human and Ecological Risk

Section 9.1 Footnote 103 should discuss the Hanford Biological Resources Management Action Plan (BRMaP), which is used at Hanford. This plan is specific to the management of natural resources and even though it is in the draft stage and has been used by the Hanford site contractors since 1996. 27.6

27.6 – The Hanford Biological Resources Management Action Plan is now mentioned in the corresponding footnote.

Cleanup decisions must also include biological monitoring at remediated sites to ensure contaminants are not being incorporated into the food chain. Sampling of biota needs to be conducted before and after cleanup to determine if contaminants still exist at a given 27.7

27.7 – As the EM mission at a site is completed, current plans call for the EM program and the site landlord (if different from EM) to develop a long-term stewardship baseline for each site. The baseline will describe the scope of applicable long-term stewardship requirements, the technical activities and the projected schedule to meet these requirements, and expected costs.

site. This type of sampling is specific to each waste site but needs to be incorporated at all sites to ensure that natural resources are being protected.

Long-Term stewardship should also recognize the importance of developing and incorporating mitigation and restoration plans into waste site remediation efforts. In any cases, clean-up budgets do not include the expense of restoration and/or mitigation efforts. 27.8

27.8 – The point is noted and is consistent with Departmental procedures.

We thank you for this opportunity to be involved in this document review, and look forward to continuing involvement and development of Long-Term Stewardship policy and implementation plan. We believe that the natural and cultural resources at Hanford can better be preserved, protected and perpetuated by committing to a positive responsible stewardship action. If you have any questions regarding this issue, please contact Kristie Baptiste-Eke at 208-843-7375 or email: kristieb@nezperce.org.

Sincerely,

Patrick Sobotta, Director

CC: Keith Klein, DOE-RL Manager
Kevin Clarke, DOE-RL
Dee W. Lloyd, DOE-RL
Russell Jim, YIN
Bill Burke, CTUIR
Greg Hughes, USFWS
State and Tribal Government Working Group

STGWG

State and Tribal Government Working Group

Member Tribes
Confederated Tribes of the Umatilla Indian Reservation
Isleta Pueblo
Navajo Nation
Nez Perce Tribe
Pueblo de San Ildefonso
Santa Clara Pueblo
Seneca Nation of Indians
Shoshone-Bannock Tribes
Yakama Indian Nation

Member States
California
Colorado
Georgia
Idaho
Illinois
Kentucky
Missouri
Nevada
New Mexico
New York
Ohio
Oregon
South Carolina
Tennessee
Texas
Washington

Member Organizations
National Association of Attorneys General
National Conference of State Legislatures
National Governors' Association

Standing Committees
Decommissioning and Decontamination
Integration and Disposition
Stewardship
Transportation
Tribal Issues

December 15, 2000

Steven Livingstone, Special Assistant for
Long-Term Stewardship
Office of Environmental Management
U. S. Department of Energy (EM-51)
1000 Independence Ave., SW
Washington, DC 20585

Comments on the Draft Long-Term Stewardship Study, October 2000

Dear Mr. Livingstone:

The State and Tribal Government Working Group (STGWG) appreciates the opportunity to comment on the Draft Long-Term Stewardship Study dated October 2000. STGWG congratulates the DOE on the quality and responsiveness of this document. The document is well structured, well written and very readable. The efforts that have obviously gone into responding to the scoping comments are apparent and are appreciated. The report sets a standard that subsequent DOE reports should strive to emulate. 28.1

28.1 -- The Department thanks STGWG for this comment.

The report emphasizes in several places the public processes for addressing long-term stewardship issues, and STGWG concurs with the importance of this concept. **Indeed, the report should go farther in specifying the advantage to DOE in involvement beyond strict regulatory requirements.** According to the DOE Openness Advisory Panel (draft report, 11/12/00), DOE's success in fulfilling their mission is dependent upon their relations with the local community, and "each site must tailor its approach to reconcile the nature of its mission with the makeup and interests of its own community." Particularly in the long-term stewardship arena, where success is defined in community terms, not DOE's, the need to meaningfully involve local and regional stakeholders is paramount. While laws and regulations specify limited community involvement in remedy decisions, the DOE needs to go beyond these minimal requirements to achieve active support for their decisions with long-term implications, or recognize that the lack of this support undermines the effectiveness of the remedy. **Of particular importance is the need for inclusivity regarding tribal nations and local governments. In these communications, DOE needs to acknowledge the special government-to-government nature of interactions with sovereign Tribes.** 28.2 28.3

28.2 -- The public comment process for developing the Study has identified an important issue facing LTS. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, do not clearly articulate the role of public involvement in the activities and decisions that follow the selection of a remedy (ROD). At the same time, the Department recognizes that the ultimate success of LTS depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage LTS activities. The Study identifies this as an additional key challenge associated with LTS. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management LTS Steering Committee.

28.3 -- The Final Study notes the special government-to-government relationship between the federal government and sovereign Tribes in a footnote in section 4.1 and in several places in Chapter 9. The Final Study also notes the importance of ensuring that DOE's obligations under the Federal Indian Trust Responsibility are met during LTS in section 4.1, as a key bullet in section 6.2, and in several places in Chapter 9.

Coordinated by the National Conference of State Legislatures,
through a cooperative agreement with the U.S. Department of Energy, Denise Griffin, NCSL Staff
1560 Broadway, Suite 700 Denver, Colorado 80202 (303) 830-2200, ext. 184 www.em.doe.gov/stgwg

While the report discusses the need for enforceability of the requirements of long-term stewardship, no solutions are offered. **STGWG remains skeptical of the effectiveness of self-regulation and asks that DOE investigate what is required to establish external regulation of stewardship requirements.** ROD modifications and five-year reviews under CERCLA are performed by the DOE and do not require state (or community) acceptance. The need for openness and involvement described above must go hand-in-hand with external enforceability in order to create an acceptable and effective long-term stewardship program.

28.4 -- The Department recognizes the importance of adequate mechanisms for oversight and enforcement of LTS requirements, particularly following a change in property ownership or the organization responsible for LTS. Sites will need to understand the regulatory and legal mechanisms available for oversight and enforcement and ensure that appropriate mechanisms are in place. The process of determining appropriate oversight and enforcement mechanisms should include: (1) Determining the regulatory requirements for LTS at each site; (2) Establishing LTS requirements into enforceable agreements with environmental regulators and local governments; (3) Replicating records at multiple locations (federal, state, local); and (4) Developing appropriate performance metrics.

The report discusses the need for determining likely future site use in order to define remedy objectives. This is a logical approach to remedy development, but the approach must also incorporate the ability of a remedy to achieve unrestricted use through the treatment or removal of contamination. Unrestricted use is the goal of cleanup. Wherever unrestricted use is not achieved, long-term stewardship is required. **The report should more formally identify that the driver for long-term stewardship is whether unrestricted use is achieved by a remedy.**

28.5 -- The Study includes a new text box in Chapter 2 that provides a more formal statement on the scope of LTS and why LTS is required (i.e., the inability to achieve unrestricted use and the nature of residual hazards).

The report presents a relatively comprehensive discussion of cost and funding for long-term stewardship. However, two issues emerge as requiring resolution before the implementability of long-term stewardship can be determined: estimation of long-term costs and assurance of funding. Current cost estimating techniques fail to provide a basis for the comparison of near-term costs with long-term costs. Even the NDAA Report to Congress truncated costs at 70 years in the future, clearly demonstrating the need for new methodology to properly account for costs lasting hundreds of years or more. **The report needs to stress this research need, and concur that remedy comparison in the absence of this information is incomplete.**

28.6 -- The Department acknowledges this comment in a text box in Section 8.2 of the Study. As noted in Section 8.2 of the Study, developing an alternative funding mechanism will require additional study and eventually Congressional action. Section 8.2 of the Study also provides a summary of the recent study of Trust Funds by Resources for the Future. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

Neither the DOE nor any other federal agency can commit to future funding for long-term stewardship. Thus, assurances that long-term requirements will be funded are without substance and cast doubt on the permanence of any remedy with critical long-term attributes. **The report should address this uncertainty and specify reevaluation of selected remedies and continued funding on an ongoing basis, not just on the CERCLA five-year interval.** This issue ties to the external enforceability of long-term requirements discussed above.

28.7 -- See response to Comment 28.6.

While the report does address the roles of other parties in long-term stewardship, it does not directly address what role, if any, the DOE should have. For sites (or portions of sites) with no continuing DOE mission, it is unlikely that DOE will manage the property over the long term. Even where residual contamination or land disposal exists, there is no compelling reason for DOE to continue management, if other agencies are better suited to these tasks. Most federal agencies have ownership of contaminated sites requiring long-term management, and it is likely that a central long-term stewardship agency could do a better job of managing these sites and obtaining funding to ensure that long-term requirements are met. Such a centralized agency could possibly be more effective in managing information for these sites, as well as directing research into technologies that would improve the implemented remedies. **The report needs to raise this question of the DOE's role in long-term stewardship in order to allow airing of the issue and to promote conscious decision making for continued DOE management.** 28.8

28.8 – The Department received many comments that reflected varied opinions on the appropriate organizational structure for LTS. Opinions differ on the appropriate balance between federal vs. non-federal leadership, and between a strong central organization vs. independent field organizations. A balance that may work well for one site may not work well for other sites. DOE needs to consider these different opinions as it works on identifying roles and responsibilities for LTS. The Department's Long-term Stewardship Working Group recently identified the issue of how LTS should be managed within DOE and across the federal governments as one of the most important issues that should be addressed by the senior management LTS Steering Committee.

We believe that this report has significant value both within DOE and externally. Should you have any questions regarding these comments, please contact me at 303-692-3423.

We encourage you to finalize this document in a timely manner to avoid the interruptions that can delay projects during the transition of an administration.

Sincerely,

Steve Tarlton/dgp

Steve Tarlton, Chair
STGWG Stewardship Committee
State of Colorado

cc: Armand Minthorn, STGWG Co-Convenor
Tom Winston, STGWG Co-Convenor
STGWG Stewardship Committee
James Werner, DOE
Martha Crosland, DOE
Catherine Volk, DOE
Ann Beauchesne, NGA

STATE OF COLORADO

Bill Owens, Governor
Jane E. Norton, Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado

HAZARDOUS MATERIALS AND WASTE MANAGEMENT DIVISION
http://www.cdphe.state.co.us/hm/

4300 Cherry Creek Dr. S.
Denver, Colorado 80246-1530
Phone (303) 692-3300
Fax (303) 759-5355

222 S. 6th Street, Room 232
Grand Junction, Colorado 81501-2768
Phone (970) 248-7164
Fax (970) 248-7198

Colorado Departm
of Public Health
and Environmen

December 15, 2000

Mr. Steven Livingstone, Project Manager
U. S. Department of Energy
P.O. Box 45079
Washington, DC 20026-5079

Comments on the
Draft Long-Term Stewardship Study, October 2000

Dear Mr. Livingstone:

The Colorado Department of Public Health and Environment is pleased to provide comments on the Draft Long-Term Stewardship Study. The document is extremely well-written and far above the average DOE report in readability and effective communication of information. The demonstration of responsiveness to scoping comments is exemplary, and should serve as a model for other DOE reports. The associated efforts at informing the interested stakeholders in stewardship issues are also excellent and need to be maintained, particularly the Long-Term Stewardship Web Site. 29.1

29.1 – The Department appreciates this comment. Thank you.

Although the document's intent was not to develop policy or provide recommendations, it does summarize many of DOE's current and anticipated attempts at implementing long-term stewardship. One of the attributes that permeates the DOE system is the overriding failure of self-regulation; and therefore, the stewardship "policy" and "guidance" activities undertaken by DOE are not expected to be sustained without further external impetus. It is hoped that the background provided in this report helps to entrench both stakeholder and Congressional support for more enduring and permanent implementation of long-term stewardship. Congressional support is necessary to meet stewardship funding commitments, to possibly change federal laws in support of long-term stewardship and in determining what organization(s) should have responsibilities for long-term stewardship at federal facilities. 29.2

29.2 – The Department acknowledges this comment in a text box in Section 4.1 of the Study. The Department recognizes the importance of adequate mechanisms for oversight and enforcement of long-term stewardship requirements, particularly following a change in property ownership or the organization responsible for stewardship. The various requirements and approaches to oversight, enforcement, and public information updates for long-term stewardship will be addressed by the senior management Long-term Stewardship Executive Steering Committee during the Department's strategic planning process. This comment will be provided to the Executive Steering Committee for their consideration.

Specific comments

1. p. iii, last two bullets: The PBS and site-specific stewardship plans are appropriate and necessary, but how will DOE Headquarters enforce these requirements on the sites? Recent experiences with the NDAA Submittal have demonstrated the difficulties in causing the sites to address such issues in the manner Headquarters feels is appropriate. 29.3

2. p. 11, 1st par: The last sentence notes that stewardship requirements are dependent on cleanup strategy, end state and future use. Certainly these are factors, but post-closure restrictions will necessarily apply to any site where contamination remains above an unrestricted use level. The overwhelming driver for leaving contamination at most DOE sites is cost rather than technical feasibility or community values. Thus, stewardship requirements are largely dependent upon the near-term availability of cleanup funds. 29.4

3. Section 3.1: While the section discusses the remedy objectives, no mention is made of the DOE and NRC requirements for cleanup to "as low as reasonably achievable" or ALARA. These requirements mandate cleanup of contamination to below remedy objectives if technically and financially feasible and would eliminate long-term activities. This conservatism is based on the uncertainties in estimating unrestricted use contamination levels. 29.5

4. Section 3.2, 1st par: Concerns about being able to specify stewardship requirements at the ROD stage result from a failure to explicitly define the problem being remedied and the remedy objectives. A well-defined objective will allow definition of long-term requirements, even if the specifics of implementation are unresolved. 29.6

5. p 17, 1st par: Defining the long-term requirements at the ROD stage or in remedy selection is necessary because the administrative framework for implementing the remedy can change after the ROD. For example, EPA guidance specifies that CERCLA RODs can be modified without state approval. In the case of DOE sites, DOE is the lead regulator under CERCLA and can modify the ROD with EPA approval. The requirements specify much less stakeholder involvement in post-ROD activities; therefore, long-term stewardship issues must be addressed forthrightly in the ROD. The process can defeat the State and stakeholder interests in the ROD unless they are championed by DOE or EPA. To date across the Complex, it appears that state and stakeholder interest in long-term stewardship issues has far outweighed DOE's, and EPA involvement has been minimal. It is critical that states, tribes and communities have the ability to address stewardship issues at all selection, modification and implementation stages. 29.7

29.3 – See response to Comment 29.2.

29.4 – The decision to clean up to unrestricted use, or to meet other specific land use requirements, is made on a site-specific basis with input from regulators, stakeholders, and the public. It is both DOE and EPA policy that cleanup remedies should be consistent with the intended future use of the affected areas. Chapter 2 of the Study includes a new text box that provides a more formal statement on the scope of long-term stewardship and why it is required (i.e., the inability to achieve unrestricted use and the nature of residual hazards). The goal of long-term stewardship is to ensure continued protection of human health and the environment consistent with applicable requirements. The Department recognizes the many issues and public concerns associated with the uncertainties with planning for, documenting, and funding long-term stewardship throughout the Study and acknowledges this comment by including it in a text box in Section 3.2 of the Study.

29.5 – The focus of this Study is to discuss the challenges the Department will need to address for sites with long-term stewardship responsibilities.

29.6 – The Department agrees that site-specific long-term stewardship planning and decision documents should clearly identify problems, remedial objectives, and long-term stewardship implications to the extent feasible. Section 3.2 of the Study has been revised to emphasize this point. The Department acknowledges this comment in a text box in Section 3.2 of the Study. Chapter 4 of the Study discusses DOE's current policy requiring sites to conduct long-term stewardship planning.

29.7 – See response to Comment 29.6.

6. p. 17, insert: The guidance "recommends" development of a remedy monitoring plan. As is the case with most self-regulated activities of the DOE, if external pressure is not exerted, guidance is often ignored or slighted. 29.8

7. p. 17, last par: The high level goal for long-term stewardship is the remedy objective established in the remedy selection process. Other community goals, such as economic development, historic preservation or natural resource management may be worthy, but go beyond regulatory-based protection of human health and the environment from the residual contamination. 29.9

8. p. 18, last bullet: This paragraph promotes the evaluation of the full life-cycle cost of each alternative; however, the NDAA submittal requirements developed by DOE HQ do not account for the full life cycle costs of remedies, allowing truncation in the year 2070. This limitation on the ability to grasp full life cycle costs demonstrates the need for research into costing and cost comparison methodology that accounts for such long-term expenditures. 29.10

9. Exhibit 3-3: This presentation is extremely valuable and would be enhanced by the addition of the NRC requirements. In many ways, the NRC regulations are more explicit about how to implement long-term aspects of remedies. 29.11

10. p.27, last par: It remains difficult to discuss the future enforceability of applicable requirements at DOE and federally owned sites. The persistent failure of self-regulation by DOE and its predecessors, and the uncertainties surrounding future regulatory structure raise unanswerable questions and further undermine the credibility of long-term controls. Furthermore, the enforcement of current regulations and requirements is difficult enough to cast doubt on the ease of future enforcement. 29.12

11. p. 34, Section 4.2.3: Other sections do note that state and local land use regulations are not applicable at federally owned sites, and reiterating this fact in the discussion of the roles of external parties would be appropriate. 29.13

12. p. 44, second bullet: Human intrusion is another potential mechanism for cover failure. 29.14

13. p. 45: Long-term stewardship begins once each remedy is implemented, not when a bureaucratic system changes the project title from "closure". This is a project-specific definition, not a sitewide one. Ignoring this distinction has misdirected funds from closure, and obscured our ability to develop real estimates of stewardship costs from currently ongoing stewardship activities at sites like Rocky Flats. 29.15

29.8 – See response to Comment 29.2.

29.9 – The Department agrees with the comment to select only remedies that meet the goal of protectiveness of human health and the environment as required by environmental laws. However, the Development also recognizes LTS must consider many other factors as well.

29.10 – The Department issued the National Defense Authorization Act (NDAA) Report, entitled A Report to Congress on Long-term Stewardship, in January 2001 (DOE/EM-0563). The Report to Congress and the Study were prepared as separate documents because the required scope for each was different. The primary focus of the Report to Congress was site-specific requirements; the primary focus of the Study was common national issues. Nonetheless, the two reports are complementary to one another, and the public is encouraged to read both documents. The Report to Congress can be useful for certain common long-term stewardship analyses, such as evaluating long-term stewardship needs. Similarly, the Department has added a text box to Chapter 2 of the Study providing an overview of the overall scope of DOE's long-term stewardship responsibilities. The cost estimates from the Report to Congress have been incorporated into Section 8.1 of the Study. They were not in the Draft Study because the cost information in the Report to Congress was not final prior to publication of the Draft Study. The Department anticipates that life-cycle cost estimates will improve over time as DOE moves forward with planning and implementing long-term stewardship. For the Report to Congress, each site was strongly encouraged to work with local stakeholders during the preparation of site-specific cost estimates. The Study is not the appropriate document to respond to specific comments on the Report to Congress or on the public comment process used to develop the Report. The Department encourages members of the public to comment on their respective site's cost estimate through established public involvement mechanisms at each site.

29.11 – The Department evaluated the specific suggestion made in this comment but chose not to revise the Study in response.

29.12 – See response to Comment 29.2.

29.13 – This distinction has been addressed in the text.

29.14 – This point has been included in the text.

29.15 – The Department acknowledges this comment in a text box in Section 2.1 of the Study. In the Paths to Closure documents, the Department defined completion of cleanup projects explicitly as the situation in which "deactivation or decommissioning of all facilities currently in the EM program has been completed, excluding any long-term surveillance and monitoring; all releases to the environment have been cleaned up in accordance with agreed-upon cleanup standards; groundwater contamination has been contained, or long-term treatment or monitoring is in place; nuclear material and spent fuel have been stabilized and/or placed in safe long-term storage; and "legacy" waste (i.e., waste produced by past nuclear weapons production activities and related research and development, with the exception of high-level waste) has been disposed of in an approved manner." Therefore, long-term stewardship responsibilities clearly begin when cleanup ends. The start of long-term stewardship is relatively easy to define at a relatively small site with a single cleanup project, but it is more difficult to define at large, complex sites with multiple cleanup projects that may span decades. Exhibit 5-3 of the
Study also addresses this issue. The Department agrees that the distinction between completion of cleanup and start of LTS is not always clear in the site Project Baseline Summaries (PBS) and similar systems, especially at large sites with multiple areas undergoing remediation. The Department agrees with the comment that LTS planning begins before the start of cleanup; this is discussed explicitly in Section 6.1.3 of the Study. The Department's Long-term Stewardship Working Group recently identified the issue of developing a consistent, consensus definition of long-term stewardship, including when long-term stewardship begins, as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee.

14. Section 5.3: Continued federal ownership of DOE sites does not assure the continued funding of those sites at the DOE-budgeted level. Accurate estimates of stewardship costs should transcend agency "ownership". 29.16

15. p. 46, insert: Remedy selection often becomes a trade-off between the short-term availability of cleanup funds and long-term costs. Broad participation in this process is appropriate; however, the process needs to also evaluate who benefits and who pays for different remedy alternatives. Much of the DOE inclusion of local and state governments and tribal nations in the implementation of long-term stewardship appears to imply the sharing of the costs of these long-term activities, directly or indirectly. If the trade-off benefits the DOE by avoiding short-term DOE costs at the expense of costs to external parties, the DOE should pay these external costs. The remedy evaluation process should include all the costs and benefits and to whom they accrue. 29.17

16. p. 49, 2nd par: In the example, public access to the controlled site was as easy or easier than the controlling agency's access. The lesson from this example is that to be effective, the controlling entity must have a presence at the site at least equal to the public's. Thus, DOE needs to include "presence" in their evaluation of the implementability of institutional controls. 29.18

17. p. 57, 2nd note: DOE Order 435.1 may not specify stewardship, but it also does not specify when a radiologically contaminated material is <u>not</u> a radioactive waste. If the facilities were NRC regulated, sites with residual radioactive contamination would be required to be licensed to insure proper management. DOE must define the management of residual radioactive waste (radiologically contaminated material) and the long-term stewardship plan is the appropriate place to do this. 29.19

18. p. 61, last par: Nuclear weapons sites may also be transferred within the DOE to non-weapons mission activities. At Rocky Flats, a portion of the site was transferred from the Rocky Flats Field Office to the National Renewable Energy Laboratory. This transfer was conducted without removal of that portion of the site from the NPL listing, and without the approval of the State or EPA. 29.20

19. p. 67 2nd bullet: The last sentence should say, "implemented by DOE or the regulator..." 29.21

20. p. 69, Chapter 7: Of equal importance to the definition of areas with residual contamination is the definition of areas proven to be clean. Future uses in areas suitable for unrestricted use may require documentation, or re-surveying may be necessary. 29.22

21. p. 76, 1st bullet: Many sites may be able to incorporate libraries or information archives into site-based museums or visitor centers. Likewise the museum or 29.23

29.16 – This comment is acknowledged in a text box in Section 6.2 of the Study. Section 6.2 of the Study recognizes the many issues, public concerns, and uncertainties associated with ensuring the continued provision of long-term stewardship after property transfers. The Department's Long-term Stewardship Working Group recently identified the issue of how DOE will ensure adequate protection of human health and the environment at sites transferred to the private sector as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This comment will be provided to the Executive Steering Committee for their consideration. The Department agrees that accurate cost estimates should be independent of property ownership.

29.17 – Long-term stewardship planning (see Chapter 4 of the Study) and remedy selection decisions are done on a site-specific basis with input from regulators, stakeholders, and the public. As noted in Exhibit 3-1 of the Study, the criteria used to evaluate remedial alternatives include long-term effectiveness and cost-effectiveness. The long-term effectiveness of institutional controls is one of the criteria for evaluating long-term stewardship requirements during remedy selection that have been suggested in guidance developed by DOE, EPA, and the Department of Defense (DoD) and in recommendations forwarded to the Department (see Exhibits 3-2 and 3-3 in the Study). The Department also has identified the need to promote new science and technology development to help address the uncertainties associated with maintenance of institutional and engineered controls. The Department acknowledges the public concerns about long-term effectiveness in a text box in Section 3.2 of the Study. The issue of uniform or national standards for cleanup is beyond the scope of this Study because this document focuses on long-term stewardship.

29.18 – The Department acknowledges this comment in Section 5.3 of the Study. The Department agrees that an active presence at a given site will make it easier to enforce institutional controls, but does not agree that it is required in all cases to perform LTS effectively.

29.19 – As noted in Section 4.2.2 of the Study, Site-specific long-term stewardship plans are required by law for uranium mill tailings sites and must be approved by the Nuclear Regulatory Commission. The Department also requests the development of a site-specific long-term stewardship plan before accepting long-term stewardship responsibilities for any site. As the EM mission at a site is completed, current plans call for the EM program and the site landlord (if different from EM) to develop a long-term stewardship baseline for each site. The baseline will describe the scope of applicable long-term stewardship requirements, the technical activities and the projected schedule to meet these requirements, and expected costs.

29.20 – The Department evaluated the specific suggestion made in this comment but chose not to revise the Study in response.

29.21 – The first bullet in this section now includes this idea.

29.22 – The Department acknowledges this comment in Section 7.2 of the Study. The Department has begun a process to more clearly identify and develop a consensus on long-term stewardship information needs and develop guidance for long-term stewardship information and records management. Some information management guidance will be included in the guidance for site-specific long-term stewardship plans currently under development by the Department. This comment will be considered in these efforts.

29.23 – This comment is acknowledged in a text box in Section 7.2 of the Study. The Department agrees that museums may be a way to meet legal requirements to maintain an information repository and to provide knowledge about sites to communities during long-term stewardship. Museums already exist at certain DOE sites (e.g., Sandia National Laboratory, Los Alamos National Laboratory, Oak Ridge National Laboratory, and the Hanford Site), although information management is not currently part of their mission. The advantages and disadvantages of establishing a museum need to be assessed on a site-specific basis, since museums are not appropriate for all sites. The establishment of an information repository is a separate mission but could be incorporated with the development of a museum, visitor's center, or library. The Department agrees with the specific comment that a discussion of museums is not "out of scope" and has included such a discussion in Section 7.2 of the Study. Any decision to establish a museum at a specific site would need to consider issues such as mission, location, and funding sources, but the Department has not developed a policy on this. This comment will be provided to the senior management Long-term Stewardship Executive Steering Committee for their consideration.

visitor center can help perpetuate the community "institutional memory" regarding a facility and its residual hazards. 29.23

22. p. 81, Section 8.1: This section discusses the evaluation of the full life-cycle cost of alternatives; however, the NDAA submittal requirements developed by DOE HQ do not account for the full life cycle costs of remedies, allowing truncation in the year 2070. This limitation on the ability to grasp full life cycle costs demonstrates the need for research into costing and cost comparison methodologies that account for such long-term expenditures. 29.24

23. p. 83, 2nd bullet: Most sites currently are implementing stewardship activities for specific projects, but are not accounting for those costs separately from closure or operating funds. By separating these costs, a track record of actual long-term costs could be developed to inform and improve estimates of future long-term costs. For example, Rocky Flats has implemented three groundwater remedies that will be operating for between thirty and one hundred years, but costs for these activities are spread among various accounts and are not separately tracked. The NDAA stewardship cost estimates include lumped costs for operating these systems based on a textbook cost estimating approach and ignores the currently unavailable actual costs. 29.25

24. p. 85, item 1: The Congressional appropriation process balances budget versus need, and is unreliable. Current environmental compliance by DOE and other federal agencies is driven by the budget process rather than by the law or regulation, and the availability of funding for long-term stewardship will be subject to the same forces. 29.26

25. p. 94, Exhibit 9-1: The stewardship activities will be driven not by the "desired end state", but by whether the site has been remediated to an unrestricted use level. 29.27

26. p. 95, Section 9.1: In addition to enhancing natural resources, actions by DOE, etc. have degraded or destroyed natural resources. 29.28

27. p. 109, 2nd bullet: The strategy presented would suggest that the NDAA estimates of stewardship costs, which only extend through 2070, would include estimates for remedy reevaluation and rework in the 2030 to 2050 timeframe. It can be assumed that estimates lacking these components are likely insufficient. 29.29

28. p. 111, Section 10.2.2: The importance of complex-wide evaluation of science and technology needs and research highlights the need for a mechanism and an estimate for stewardship-related activities that are not site-specific but are national in nature. The NDAA estimate should include such programmatic costs throughout the period of implementation. 29.30

29.24 – The Department acknowledges this comment in a text box in Section 8.1 of the Study. The Department agrees that more information is needed on the scope of future long-term stewardship activities and better life-cycle cost estimates are needed. The Study incorporates the cost estimates from the Report to Congress on Long-term Stewardship and discusses the basis for these estimates. Accurate cost estimates are critical for long-term stewardship, particularly for ensuring accountability for the technical scope of the program. The Report to Congress on Long-term Stewardship is only the first step in developing the necessary cost figures. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites. This comment will be forwarded to the Executive Steering Committee for their consideration.

29.25 – See response to Comment 29.24.

29.26 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. As noted in Section 8.2 of the Study, developing an alternative funding mechanism will require additional study and eventually Congressional action. Section 8.2 of the Study also provides a summary of the recent study of Trust Funds by Resources for the Future. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

29.27 – The Department agrees with this point of clarification where stewardship activities are required for sites with land use restrictions to prevent potential exposures to hazardous substances. However, even sites cleaned up to unrestricted use will require record keeping on past site uses.

29.28 – This comment is acknowledged in a text box in Section 9.1 of the Study. The definition of "affected parties" in Chapter 1 of the Study was broadened to include regional concerns. Section 4.1 and Chapter 9 of the Study acknowledge the special government-to-government relationship between the federal government and Tribal governments. Chapter 9 of the Study also acknowledges the importance of ensuring that the federal Indian Trust Responsibilities and federal treaty obligations are met.

29.29 – See response to Comment 29.10.

29.30 – See response to Comment 29.10.

CDPHE has submitted these comments with the intention of strengthening this valuable report. We have contributed to and support comments made separately by the State and Tribal Government Working Group and the National Governors Association Federal Facilities Task Force. We encourage the DOE to hasten the finalization of the report to avoid delays inherent in a transition of administration.

Please contact me at 303-692-3423 if you have any questions.

Sincerely,

Steve Tarlton, Unit Leader
Rocky Flats Oversight Unit

Cc: Howard Roitman, CDPHE
Dan Miller, Colorado AGO
Ann Beauchesne, NGA
Denise Griffin, NCSL

Shundahai Network's comments on the DOE's Draft Long Term Stewardship Study
Prepared by Reinard Knutsen and Susi Snyder

Shundahai Network is a grassroots community based organization working on nuclear and environmental justice issues. Our main office has recently moved to Pahrump, Nevada, where we monitor Department Of Energy's (DOE) activities at the Nevada Test Site and Yucca Mountain and organize public participation in the decision making process.

Shundahai Network is one of the 38 plaintiff organizations along with the Natural Resources Defense Counsel that settled a lawsuit with the DOE in 1998. From this settlement DOE was required to look seriously at long term stewardship issues within it's nuclear weapons complex and to involve community organizations and stakeholders in it's decision making process.

The Draft Long Term Stewardship Study (DLTSS) comes from DOE's attempt to fulfill its obligation under this settlement. While this is a worthwhile and important endeavor it is unfortunate that DOE decided to undertake this process only due to the outcome of litigation and not through it's own initiative.

The first thing that is apparent from reading this DLTSS is that DOE acknowledges major environmental contamination problems exist at the nations nuclear weapons industrial complex. This acknowledgement is a necessary start but falls short of addressing the underlying reasons for this contamination.

The scope of this study is limited to only sites that are managed and controlled by DOE or NNSA and not its hundreds of contractor sites that have suffered contamination as well. The major flaw of this study is that it does not effectively address the problem or methods to solve the problem. In fact like many other DOE documents it attempts to "whitewash" and "cover – up" some of the real underlying issues like continued contamination from ongoing nuclear weapons research, testing, and development. 30.1

30.1 – The Department acknowledges this comment in a text box in Section 7.2 of the Study. Section 7.2 of the Study also notes that on February 11, 2001, the Department made public a list of sites, including beryllium vendors, DOE sites that used radioactive materials, and facilities where atomic weapons workers may have been employed (66 FR 4003). The Department is working on a database for these sites. The Study focuses on common issues and challenges that exist across many sites rather than focusing on one particular subset of these sites. The Department also notes that long-term stewardship is not limited to DOE sites, or even sites where the federal government has some responsibility. For example, local governments are already responsible for the long-term stewardship of closed municipal landfills. Many of the issues that pertain to DOE sites are likely to pertain to closed landfills as well.

As an organization of grassroots activists and educators that work with effected communities not only in Nevada but around the Nation and world we urge the DOE and in particular the offices of Environmental Management and Long Term Stewardship to aggressively strive to end all nuclear weapons programs and concentrate solely on remediation, containment and clean-up.

"Cleanup does not imply that all hazards will be removed."
It is quite saddening that the term "cleanup" is used when talking about Long Term Stewardship, since cleanup will not actually be happening at a majority of sites. Cleanup, as understood by most people means bringing a place back to it's original state of being. This is not the plan for a great number of sites, and is in fact impossible. Using this language is misleading to the general public, and prohibits a trusting relationship from forming. Developing trust between effected communities and LTS sites is necessary in order for any LTS program to be successful. Not only should the state, local and tribal governments be included in 30.2

30.2 – The Department acknowledges this comment in a text box in Section 2.1 of the Study. The Department agrees that the terms "cleanup," "end state," and "closure" are less than ideal. The term "cleanup" is a common word usage that can be confusing. To help clarify the limits of current cleanup technologies and the overall scope of long-term stewardship, the Department has added a text box to Chapter 2 of the Study that describes the limitations and challenges that preclude remediating many sites to levels that would permit unrestricted use; the types of residual; hazards that will require long-term stewardship; the time frames that may be involved in long-term stewardship; and the activities that may be involved in long-term stewardship. The Report to Congress on Long-term Stewardship provides additional site-specific information on the projected scope of long-term stewardship. The Department also maintains a Web Site (http://lts.apps.em.doe.gov) that provides public access to numerous documents describing the scope and challenges associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified the issue of developing a consistent, consensus definition of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee.

this process, but the general public, the everyday Jane and John Doe need to be talked to and encouraged to understand the enormisity of the problem. Another word needs to be found other than "clean-up", perhaps "cope with" instead, for we are not talking about cleaning these sites to their original state of being, but instead finding ways to cope with the legacy of what has been done to them.

Adequate funding should be made available to research and development. Funding mechanisms must be put into place that promote solid research into the fields of finding ways to clean up the mess left at so many sites across the nation. So much money is spent on researching new ways to cause contamination, and now that legacy must stop. A change must take place; there have been over fifty years of making messes, now it is time to take stock of exactly what damage has been done, and to pray that we can find a solution to these problems. There must be a better way to protect groundwater than the "pump and treat" method. Only if money is spent on good research will ways be found. 30.3

30.3 – The Department acknowledges these comments in a text box in Section 4.2.4 of the Study. As noted in Section 4.2.4 of the Study, the Department's process for developing and implementing new science and technology includes developing a long-term stewardship science and technology roadmap that will (1) identify science and technology needs; (2) identify existing capabilities to meet these needs both within and external to DOE; (3) determine research and development priorities; and (4) direct specific efforts to meet these needs. The Department agrees that research into a number of key areas is needed, including the long-term effectiveness and reliability of engineered and institutional controls, surveillance and monitoring, and information management. Advances in science and technology may provide future generations with the ability to cost-effectively achieve unrestricted use at some sites. The Department's Long-term Stewardship Working Group recently identified the policy issue as to whether the ultimate goal of new science and technology should be to improve the ability to maintain the existing end state (i.e., the end state established during cleanup) or should be to "improve" the end state more closely toward unrestricted use as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee.

30.4 – The Study does examine Environmental Justice issues in Chapter 9.

"Tribal nations also retain a unique political and legal status that requires federal trustee responsibility to protect the interests of the tribes" This is a quote from Carolyn Huntoon's letter opening DLTSS. I can only say if this is the attitude presented today, where the hell was this responsibility in the first place? How could these levels of contamination have been allowed on lands which are held in trustee status? It is deplorable, and while recognizing that there are efforts being made to makeup for this desecration, it will take many years, and many thousands of apologetic **acts**, not only words, for forgiveness to occur.

The issue of Environmental Justice needs to be addresses. This can be done by consulting with organizations and alliances already in place, such as the People of Color/Disenfranchsied Communities Environmental Health Network. A mechanism for funding must be provided to create community based, community **led** studies at each site dealing with issues like: water quality testing, community health care, soil testing, air quality measures, etc. These things should be decided up on at community meetings, not held in Washington D.C., but at towns and cities surrounding the sites themselves. Well advertised, well publicized symposiums should be held to help these affected communities understand the gross magnitude of the issues they are facing, not just today and tomorrow, but for generations to come. 30.4 30.5

30.5 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process to allow for meaningful Tribal and public involvement.

"Building the concept of "Pollution Prevention" into the planning process for new missions and facilities" While this is a nice sentiment, there must be a way to halt all activities which will add to contaminant levels until these levels can be stabilized, and surrounding communities are no longer threatened. It is not very cost effective to continue to add contaminants that will eventually have to be cleaned up. "Pollution Prevention" should mean no pollution creation. The concept here does not help the problem, why keep producing what you will have to monitor forever? 30.6

30.6 – The focus of this Study is to discuss the challenges the Department will need to address for sites with long-term stewardship responsibilities. The Department notes this commenter's suggestion related to DOE missions.

It is very important that the public have unrestricted access to information about residual hazards. Public access to information about specific contaminants left in their communities is a necessity in order for LTS to work. Without knowing the true risks they face entering a LTS 30.7

30.7 – The Department acknowledges this comment in Section 7.2 of the Study. The Department has begun a process to more clearly identify and develop a consensus on long-term stewardship information needs and develop guidance for long-term stewardship information and records management. Some information management guidance will be included in the guidance for site-specific long-term stewardship plans currently under development by the Department. This comment will be considered in these efforts.

site, many people may not believe the danger that they or their families are in. The United States is no longer in a cold war situation, we are the superpower, the world is held hostage by our nuclear weapons, we do not need to keep vital information from our own people. Information which could mean life or death to many generations. Full disclosure of the extent, and makeup of contamination at all sites should be mandatory.

We recognize that some contaminants will never be cleaned up, and their history must be told to future generations. There must be a way to tell the story of this stuff beyond language. It needs to be so incorporated into human undertstanding that the knowleges of the poision of these sites will continue to be passed on for generations to come.

CERCLA? Comprehensive Environmental Remediation, Compensation and Liability Act
RCRA? Resource Conservation and Recovery Act.

"The federal government as ultimate fiduciary responsibility for long-term stewardship at DOE sites"

30.8 Cost effectiveness should not be as important as reliable cleanup.

30.9 It is very important that LTS plans undergo a review like this every five years with full community disclosure and participation in each review.

30.10 All sites should have a plan for full cleanup with only the need for record keeping as LTS

30.11 Remedy Monitoring Plans should be subject to full public scrutiny.

The public needs the ability to have clear concise information. Independent analysis.

30.12 We know that over time all engineered controls will fail to some degree and we need to make sure that adequate contingency plans are developed for all possibilities.

30.13 As well as developing estimated life cycle costs there should be attention paid to developing funding mechanisms that will help offset those costs.

30.14 On site records must be maintained and be available for public scrutiny.

Needs to be some uniformity on how each site deals with its LTS responsibilities.

All DOE contractors must be required to complete EM projects before LTS.

30.15 LTS must include not only DOE and DOD sites but all contractor sites as well. U.S.A. Today recently published a list of 500 "forgotten" sites that have been contaminated by the nuclear weapons industry in fulfilling DOE's missions.

30.8 – The decision to clean up to unrestricted use, or to meet other specific land use requirements, is made on a site-specific basis with input from regulators, stakeholders, and the public. It is both DOE and EPA policy that cleanup remedies should be consistent with the intended future use of the affected areas. Chapter 2 of the Study includes a new text box that provides a more formal statement on the scope of long-term stewardship and why it is required (i.e., the inability to achieve unrestricted use and the nature of residual hazards). The goal of long-term stewardship is to ensure continued protection of human health and the environment consistent with applicable requirements. The Department recognizes the many issues and public concerns associated with the uncertainties with planning for, documenting, and funding long-term stewardship throughout the Study and acknowledges this comment by including it in a text box in Section 3.2 of the Study.

30.9 – See response to Comment 30.5.

30.10 – See response to Comment 30.8.

30.11 – See response to Comment 30.5.

30.12 – As noted in Section 4.2.2 of the Study, Site-specific long-term stewardship plans are required by law for uranium mill tailings sites and must be approved by the Nuclear Regulatory Commission. The Department also requests the development of a site-specific long-term stewardship plan before accepting long-term stewardship responsibilities for any site. As the EM mission at a site is completed, current plans call for the EM program and the site landlord (if different from EM) to develop a long-term stewardship baseline for each site. The baseline will describe the scope of applicable long-term stewardship requirements, the technical activities and the projected schedule to meet these requirements, and expected costs. The Department acknowledges these comments in a text box in Section 4.2 of the Final Study and will consider the recommendations they provide in developing the guidance that will specify the format and content for site-specific long-term stewardship plans.

30.13 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. The Department currently relies on the annual appropriations process to fund long-term stewardship. This is not likely to change in the near term. As noted in Section 8.1 of the Study, a separate Project Baseline Summary (PBS) for long-term stewardship at each site will help the Department improve its estimates of annual long-term stewardship funding requirements. Developing an alternative funding mechanism will require additional study and eventually Congressional action. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) current difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

30.14 – See response to Comment 30.5.

30.15 – The Department acknowledges this comment in a text box in Section 7.2 of the Study. Section 7.2 of the Study also notes that on February 11, 2001, the Department made public a list of sites, including beryllium vendors, DOE sites that used radioactive materials, and facilities where atomic weapons workers may have been employed (66 FR 4003). The Department is working on a database for these sites. The Study focuses on common issues and challenges that exist across many sites rather than focusing on one particular subset of these sites. The Department also notes that long-term stewardship is not limited to DOE sites, or even sites where the federal government has some responsibility. For example, local governments are already responsible for the long-term stewardship of closed municipal landfills. Many of the issues that pertain to DOE sites are likely to pertain to closed landfills as well. The list of sites published in the Federal Register include contractor sites. However, the Department is not currently responsible for long-term stewardship at Department of Defense sites.

Recommend that DOE hold bi-annual workshops at each site, which would inform the surrounding communities about hazards and update them on current status of remediation.

Cost estimates

Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, directs federal agencies part of their mission by identifying and addressing disproportionately high and adverse human health or environmental effects of federal programs, policies and activities on minority populations and low income populations.

To effectively address stakeholders environmental justice concerns and ensure that no valid environmental justice concerns remain unaddressed, DOE should find ways to promote opportunities for members of minority and low-income populations to participate in the long-term stewardship planning process. Such opportunities may include providing translation services during public meetings, publication of notices in different media (newspapers, television, radio or distribution of flyers to community centers or door to door) and in different languages and holding meetings at convenient locations (e.g. accessible by public transportation). With effective public involvement, DOE can ensure that cleanup decisions and long-term stewardship activities consider any environmental justice concerns." Pg 103

30.16	30.16 – See response to Comment 30.5.

10.1.2 Maintaining Focus

DLTSS recommends separating the responsibilities of ensuring regulatory compliance from sponsoring improvements in science and technology. And the responsibility of implementing LTS programs from educating the communities about LTS and the residual hazards remaining at these sites.

10.2 The Rolling Stewardship Strategy

Focus on managing the problem rather then trying to solve the problem and focusing on managing the hazards for the near future rather then trying to manage hazards for centuries or millennia.

Carl N. Anderson
439 49th St., #35
Oakland, CA 94609
(510) 654-4983
December 14, 2000

Steven Livingstone
Office of Long-Term Stewardship (EM-51)
U. S. Department of Energy
PO Box 45079
Washington, DC 20026-5079

Subject: Draft Long-Term Environmental Stewardship Study

Dear Mr. Livingstone:

I have three general policy-level comments, and one technical question, on the issue of long-term stewardship of DOE contaminated sites. While I have not had the opportunity to review the draft, these comments should be considered in your ~~draft~~ final report.

1. A commitment to ongoing research is essential.

It is unfortunately clear that DOE is unable to clean up many of its most polluted sites at the current state of scientific and engineering knowledge. However, it is possible that this situation might improve over the years as scientific and engineering knowledge develop. No long-term policy can be considered adequate unless it includes a firm commitment for the indefinite future to sustain a very active research program, such that no reasonably promising lead is left unfunded. That commitment is not now being met; I am aware that promising research is not now being funded because DOE and the Congress have not considered it of sufficient priority. There also has to be a firm commitment for the indefinite future to fund actual clean-ups when new knowledge makes them possible. 31.1

31.1 – The Department acknowledges these comments in a text box in Section 4.2.4 of the Study. As noted in Section 4.2.4 of the Study, the Department's process for developing and implementing new science and technology includes developing a long-term stewardship science and technology roadmap that will (1) identify science and technology needs; (2) identify existing capabilities to meet these needs both within and external to DOE; (3) determine research and development priorities;p and (4) direct specific efforts to meet these needs. The Department agrees that research into a number of key areas is needed, including the long-term effectiveness and reliability of engineered and institutional controls, surveillance and monitoring, and information management. Advances in science and technology may provide future generations with the ability to cost-effectively achieve unrestricted use at some sites. The Department's Long-term Stewardship Working Group recently identified the policy issue as to whether the ultimate goal of new science and technology should be to improve the ability to maintain the existing end state (i.e., the end state established during cleanup) or should be to "improve" the end state more closely toward unrestricted use as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee.

2. A commitment to ongoing full availability of data is essential.

As a positive example of making data available, I would like to mention the Oak Ridge Environmental Information System (OREIS), which is available freely over the Web. All of the really difficult sites (Hanford, Savannah River, Rocky Flats, Nevada Test Site, etc.) and many of the sites that have problems not quite so bad, but quite significant (e.g. Site 300 of Lawrence Livermore) should provide data at a similar level of detail and accessibility. 31.2

31.2 – The Department acknowledges this comment in Section 7.2 of the Study. The Department has begun a process to more clearly identify and develop a consensus on long-term stewardship information needs and develop guidance for long-term stewardship information and records management. Some information management guidance will be included in the guidance for site-specific long-term stewardship plans currently under development by the Department. This comment will be considered in these efforts.

3. A commitment to training in the analysis of data is essential.

Because the worst sites will not be cleaned up, the DOE needs to fund the training of community activists to learn to find and interpret data such as provided by OREIS. 31.3

4. The damaging effects of tritium should be carefully considered in a document such as the present study.

Very large quantities of tritiated groundwater exist and are almost impossible to clean up other than by waiting for generations. Your study has to include some sort of estimate of the damage caused by this tritiated groundwater. My concern is that the study may not adequately estimate this damage. 31.4

A tritium nucleus decays with a low-energy beta particle. There is some uncertainty of the health effects of this beta particle, but that is not my immediate concern. Rather, I would like to see a full discussion of the effects of the helium-3 nucleus that also results. The 3He nucleus comes away from the decay probably without any electrons and would therefore be a very powerful oxidizing agent. My concern is that the effects of this oxidizing agent, generated in situ (e.g. within a DNA molecule), may cause serious health damage that is not accounted for if calculations are based on the effects of the beta particle.

Very truly yours,

Carl N. Anderson

Carl N. Anderson

31.3 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process to allow for meaningful Tribal and public involvement.

31.4 – The Department acknowledges this comment in Section 5.3 of the Study. The Department agrees that the primary purpose of LTS is continued protection of human health and the environment. The Department agrees that in some cases, site-specific LTS plans may need to include provisions for distributing public health information to affected parties, and, where appropriate, plans for health monitoring. A new text box at the end of Chapter 2 of the Study discusses the importance of public health concerns during long-term stewardship. With respect to care and compensation, such decisions would need to be made on a case-by-case basis.

2288 Fulton Street #307
Berkeley, CA 94704
December 14, 2000

Steven Livingstone, Project Manager
Office of Long-Term Stewardship, (EM-51)
Office of Environmental Management
U.S. Department of Energy, P.O. Box 45079
Washington, D.C. 20026-5079

Subject: Comments regarding the DOE/EM/LTS "Long-Term Stewardship Study Draft" dated October 2000.

Dear Mr. Livingstone:

I am writing you, as President of the San Francisco-Bay Area Chapter of Physicians for Social Responsibility (PSR), to sign-on to the comments that were just submitted to you on December 12 by Tri-Valley CAREs (TVC) and Western States Legal Foundation (WSLF) regarding the Draft Long-Term Stewardship Study. Our organization, which represents approximately 2000 physicians and other health professionals in the SF-Bay Area, works closely in collaboration with TVC and WSLF on issues related to the public health impacts of past and ongoing work at DOE sites, particularly at the Lawrence Livermore National Laboratory (LLNL), and our partners have welcomed our support for their comments

While concurring with the specific comments of TVC and WSLF, we wish to emphasize the importance of prioritizing the long-term health and safety of populations and the environment around DOE sites that would include outreach to communities that would include up-to-date health information, and the development, in partnership with local communities and public health providers, of adequate health-monitoring plans. PSR's experience of working, in collaboration with TVC, WSLF and local health officials, in the larger community surrounding LLNL, underscores the importance of these issues.

32.1 – The Department acknowledges this comment in Section 5.3 of the Study. The Department agrees that the primary purpose of LTS is continued protection of human health and the environment. The Department agrees that in some cases, site-specific LTS plans may need to include provisions for distributing public health information to affected parties, and, where appropriate, plans for health monitoring. A new text box at the end of Chapter 2 of the Study discusses the importance of public health concerns during long-term stewardship. With respect to care and compensation, such decisions would need to be made on a case-by-case basis.

In addition, we wish to clearly state that, while we strongly support Stewardship clean-up measures that will serve to maximize the protection of communities from the legacy of DOE activities, we believe that true protection of the public health in this regard can only be attained by firm steps being undertaken to end all development, testing, and deployment of nuclear weapons at all DOE (and other) sites as a means to abolish these dread weapons once and for all.

32.2 – The focus of this Study is to discuss the challenges the Department will need to address for sites with long-term stewardship responsibilities. The Department notes this commenter's opinion related to the federal nuclear weapons mission.

Sincerely,

Robert M. Gould, MD
President
San Francisco-Bay Area Chapter
Physicians for Social Responsibility
(W)(408)-972-7299
email: rmgould1@yahoo.com

PS: I have attached a copy of the TVC/WSLF comments of 12/12/00 for your convenient reference.

32.3 – Please see responses to Comment letter 6.

DRAFT LONG-TERM STEWARDSHIP PLAN

BY

TRI-VALLEY CAREs

AND

WESTERN STATES LEGAL FOUNDATION

December 12, 2000

1. The highest priority should be placed on selecting remedies that protect the long-term safety and health of the community and of the environment surrounding the DOE facility. All aspects of establishing, maintaining and funding long-term stewardship activities should be considered during the remedy selection process. Wherever possible, we prefer that DOE facilities are cleaned up to a level that allows unrestricted use and avoid the need for long-term stewardship. Where cleanup to such a level is not practical due to current technical constraints, we want commitments inserted into final remedy decision documents detailing the stewardship plan and funding.

2. Long-term stewardship activities at each site should include distribution of health information and a health-monitoring plan. After remedy selection, we believe that the long-term stewardship should include the following activities: 1) distribution to the public of information, databases, and fact sheets about possible disease outcomes related to contamination; 2) distribution to local public health providers about possible disease outcomes related to contamination; 3) development of health monitoring plans in appropriate communities.

3. We strongly advise that DOE develop a mechanism where local communities will be involved throughout the long-term stewardship decision making process. Building strong local public involvement is possibly the most essential element of ensuring survivability and sustainability of long-term stewardship. This should include involvement in initial long-term stewardship activities and any changes to those activities that may occur as a result of re-evaluation or modification of the remedy. The community should also be involved in periodic reviews, such as the five-year review cycle under CERCLA to re-evaluate the effectiveness and performance of long term stewardship activities. Additionally, independent technical expertise should be provided to communities to assist them in wading through the many technical documents that form the basis for key decisions. DOE should provide funding for this expertise.

4. Develop Contingency Plans at the Time Cleanup Decisions are Made. The National Research Council recommended that "DOE should plan for uncertainty and fallibility" of some aspects of the long-tern stewardship program; including developing plans "to maximize follow-through on phased, iterative and adaptive long-term institutional management approaches at sites where contaminants remain." We believe that these plans should be developed concurrent with cleanup decisions, and should be periodically revisited.

5. Develop firm funding commitments for long-term stewardship. Funding for stewardship activities must be adequate. When the final remedy is agreed to at a site, full funding for stewardship activities should be defined, including the role of the parties who will manage the funding and the funding sources.

6. Periodically re-evaluate the remedy. DOE (or subsequent federal managers) should implement a systematic process for re-evaluating and if needed, modifying existing LTS activities to ensure that developments in science, technology and performance are incorporated. This reevaluation should consider the following: changes in health standards associated with contaminants that are left in place, changes in technology that were not available at the time when initial cleanup decisions were made but if implemented would eliminate the need for long-term stewardship activities, and performance of the remedy in place. The community should be involved in these re-evaluations.

7. DOE should develop a program to look for solutions that would minimize or eliminate the need for long-term stewardship. We are aware that some contaminants will have to be "stored" in place or at the site for long periods of time. This may be true for many radionuclides and some chemicals, often when they are in the form of dense-non-aqueous phase liquids (DNAPLs). We also believe that once decisions are made to leave a contaminant in place, it is difficult to continue research on how the contaminant could be safely treated, avoiding the need for long-term stewardship measures. We propose that DOE form a dedicated program that keeps an eye towards the future, and continually looks for solutions to these problems. We think that this program should be coordinated with the Office of Long-Term Stewardship.

8. A reliable, up-to-date record management facility accessible to the community is required. DOE must fully characterize, document, and disclose all environmental contamination at its sites in case failures occur. Because of the long-term nature of contaminants found at many of the sites, DOE should develop a record management system that will always be accessible near the location of the stewardship activities, from a regional access point (such as the state archive or library) and from the National Archive system. In cases such as waste burial areas (e.g., Waste Isolation Pilot Project), DOE should submit records to international archives as well.

9. Develop policy and regulations on property transfers. One of the more difficult aspects of this program is deciding how to handle property transfers and the obligations of DOE and the new owner after the transfer. We strongly advise that this be addressed as policy and specific regulation, which contains the premise that DOE is responsible for a site in perpetuity unless the new owner has altered the property (e.g., drills through a landfill), violated a legal deed restriction, or contaminates the environment. If the owner is insolvent, then liability should revert back to DOE.

10. When institutional controls or land-use controls are part of the remedy, DOE should be required to monitor and enforce compliance with those controls. If property is transferred to another entity, DOE should develop a system whereby it will monitor compliance with any land-use restrictions/institutional controls, and enforce compliance when necessary.

11. Avoid transferring hazardous substances. Transferring waste adds the complication of transportation and reclamation of the former site, while still maintaining the burden of long-term stewardship activities. We are also concerned that some locations with lax standards could become the dumping ground for many long-lived hazardous materials.

12. All cleanups that fall under the LTS program should use the CERCLA regulatory framework. There are many cleanups conducted pursuant to non-CERCLA authority. We propose that DOE take the initiative to form a consistent regulatory mechanism for the LTS program, and that CERCLA is the method that provides the most opportunity for community involvement in decision making.

13. When contaminants are left in place, DOE should compensate local governments. Compensation to fund protective equipment, emergency preparedness, and sophisticated record keeping should be available to all local governments where long-term stewardship activities fall under their jurisdiction. Even with the best plans, we know that there will be failures. Some of these failures may require emergency medical response due to sudden events (e.g., explosion), but many may lead to negative health affects due to non-sudden events (e.g., failure to contain seeping groundwater plumes leading to contamination of the water supply). Aside from direct compensation, we believe that DOE should provide an insurance policy for each site. This insurance should be similar to Environmental Impairment Liability policies required by the Resource Conservation Recovery Act (RCRA). These policies are required by EPA regulations for privately held sites that treat, store, or dispose of hazardous waste. We suggest that the Office of Long-Term Stewardship investigate various mechanisms to fund such insurance.

14. DOE Office of Environmental Management (or its successor organization) should take responsibility for long-term stewardship at the site. We do not believe that the other line programs of DOE would put equal focus into the mission and goal of adequate long-term stewardship. We are especially concerned that sites within the new National Nuclear Security Agency would not coordinate well with non-NNSA functions. It is of particular importance that long-term stewardship planning and activities are coordinated with adequate project management oversight and authority in one office within DOE.

15. DOE should integrate prior studies into its assessment of long-term stewardship needs. Assessing the sites on the "1995 List of Sites Reviewed for Possible Past Involvement in Nuclear Weapons and Nuclear Energy Related Activities" is an important and difficult task. We urge DOE to continue work on this list - specifically creating a database that will provide information about each site and long-term stewardship needs. Additionally, coordination between this study and the long-term stewardship analyses (site specific and national) currently being conducted by DOE for Congress should be improved.

Post-it® Fax Note 7671	Date 12/18/00	# of pages ▶ 2
To TERRY VOUGHT	From JIM MOORE	
Co./Dept.	Co.	
Phone #	Phone # 5-5263	
Fax # 5-2016	Fax #	

ECONOMIC DEVELOPMENT PARTNERSHIP
Serving Aiken & Edgefield Counties

Fred E. Humes
Director

December 11, 2000

Jim Moore
WSRC Public Involvement
742A, Room 182
Savannah River Site
Aiken, SC 29808

DRAFT LONG-TERM STEWARDSHIP STUDY – Your email of November 6, 2000

Dear Mr. Moore:

We have reviewed the subject draft and have the following comments:

Major Comments

1. We support the concept of planning for long-term stewardship at DOE sites. Because each DOE site has different long-term needs and integrates into a different community infrastructure, we suggest that long-term stewardship planning be performed on a decentralized basis. DOE headquarters should be responsible for policy development and program oversight, with program implementation and stakeholder involvement being performed at each site. 33.1

2. The draft Study has not been adequately scoped, and input from an important stakeholder interest has not been incorporated. Appendix B properly includes economic re-development as a driver for stewardship issues. However, none of the organizations responsible for economic development in the Central Savannah River Area were contacted during the scoping phase of this study. Some relevant agencies that should have been contacted include (1) the Savannah River Regional Diversification Initiative -- the DOE recognized community reuse organization, (2) the Savannah River Site Redevelopment Authority – the South Carolina state chartered organization responsible for reuse of excess SRS assets and (3) the Economic Development Partnership which has a multi-year history of integrating SRS assets into the local economic base. Many of the comments included herein should have been solicited during the scoping phase of this study. 33.2

3. Section 2.4, page 7 – A fifth disposition path must be identified. In many instances, excess DOE facilities will still have economic value, even though its DOE mission needs have been completed. At locations such as Savannah River, it may not be prudent for DOE to transfer land to the private sector (e.g. land needed for a buffer). In such instances, the option for a non-DOE entity to use that asset while still on DOE lands must be accommodated. Your list of disposition paths must include a fifth option for "Transfer or lease of excess facilities to non-federal government entities with DOE retaining title to underlying land. This requires developing development and negotiation of appropriate land-lord-tenant agreements." In support of this alternative, DOE should development, in conjunction with appropriate stakeholders, broad policy guidance. This alternative will assure that the American economy can benefit from the residual economic value of assets purchased with taxpayer dollars. 33.3

4. Section 4.3, page 39 – We would appreciate the opportunity to provide input to the multi-program working group that is examining long-term stewardship issues at sites with continuing non-EM operations. 33.4

33.1 – The Department acknowledges this comment in a text box in Section 4.2 of the Study. The Department's Long-term Stewardship Working Group recently identified the need for a corporate vision for long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. The corporate vision includes the appropriate organizational structure for long-term stewardship within the Department. The Department also recognizes that it is important to define long-term stewardship roles and responsibilities both within DOE and between DOE and other entities, including other federal agencies, states, Tribes, and regional governments. The Executive Steering Committee is developing a Strategic Plan for long-term stewardship; part of that effort will include identifying roles and responsibilities within DOE. The commenters expressed varied opinions on the appropriate balance between federal vs. non-federal leadership, and between a strong central organization vs. independent field organizations. The Department notes that a balance that may work well for one site may not work well for other sites.

33.2 – This comment focuses on site-specific issues. Where these issues have identified general issues for long-term stewardship, the Department has attempted to communicate these issues in both the Draft and Final Study. This comment has been forwarded to the Department's long-term stewardship representatives at the appropriate sites; however, the long-term stewardship study is not the appropriate document for addressing site-specific issues. Exhibit 1.2 explains how the NEPA process was applied with regard to public scoping for the Study.

33.3 – The Department has not identified a fifth path because leasing is not a property disposition. However, leasing is discussed in Section 6.2 of the Study.

33.4 – The comment refers specifically to an internal working group for a policy on site transfer. Although that policy has already been completed, we encourage stakeholders to take active participation in the long-term stewardship process. Several stakeholder groups exist at the Savannah River Site, including the Site Specific Advisory Board, and the Board's Committee on Long-term Stewardship, that provide opportunities for public input to long-term stewardship issues.

Post Office Box 1708 ■ Aiken, SC 29802 ■ 171 University Parkway ■ USCA

Other Comments

5. Page 1 – Not all nuclear tests were weapons related. Many were performed under the "Plowshare" and the Department of Defense Advanced Research Projects programs. | 33.5

6. Section 3.3, page 18, Ability to Monitor, etc. last sentence – The emphasis in this paragraph should be changed. It is much more important to achieve results than to produce data. | 33.6

7. Section 7.3, Exhibit 7.2, page 78 – We do not concur that the "concentrated" option is the most "efficient" alternative from the user's standpoint. The concentrated option will require the user to access much information that may have relevance at sites other than the one of interest (e.g., data requirements will be determined by the lowest common dominator). We suggest that a core set of data common to all sites be collected and augmented at each site to meet site-specific requirements. | 33.7

8. Section 3.3, page 18 and Section 3.4, page 23: Life-cycle accounting – this section should specify that an appropriate discounting factor shall be used. The discount factor should not favor expensive up-front remediation over longer-term surveillance and maintenance. | 33.8

9. Section 8.2, Exhibit 8.3, page 86-87 – Trust funds/Escrow Accounts/etc that are funded by congressional appropriation should be used for stewardship activities only after all remediation activities are completed at an individual site. So long as remedial activities are in progress, program managers must have the flexibility to allocate available funding between on-going cleanup and stewardship activities. Otherwise, the program manager may be precluded from addressing the highest risk at the site. | 33.9

10. Section 10.2, Focusing on . . . the near future, Page 109 – We suggest that there be more emphasis on the long-term than implied in this paragraph. It may be prudent to develop a long-term strategy at each site, but only implement those portions that are consistent with current technologies. | 33.10

11. Section 10.2.1, first bullet (After very long periods), page 110 – The reduction in hazard over time as the result of radioactive decay and chemical degradation should be included in site stewardship planning. These effects are well understood, and should not the cause for the future reexamination of stewardship requirements. | 33.11

12. Appendix A, History . . . as an issue for DOE, page A-1 – The statement that "Congress and the public assumed that DOE . . . was cleaning up its sites . . . for unrestricted use" is not correct. Specifically at Savannah River Site, the public assumed that many of site's structures would not be removed, requiring long-term DOE custody and that some parts of the site would be cleanup up to "brownfield" levels. | 33.12

Thank you for the opportunity to provide input to this important document.

Sincerely,

Fred E. Humes

33.5 – The text has been changed to reflect this comment; the Study now refers to "energy research activities" as well.

33.6 – The text has been changed to reflect this comment.

33.7 – The Department acknowledges this comment in Section 7.2 of the Study. The Department has begun a process to more clearly identify and develop a consensus on long-term stewardship information needs and develop guidance for long-term stewardship information and records management. Some information management guidance will be included in the guidance for site-specific long-term stewardship plans currently under development by the Department. This comment will be considered in these efforts.

33.8 – Use of a discounting factor is not addressed; however the uncertainty of life-cycle accounting is examined at length.

33.9 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. As noted in Section 8.2 of the Study, developing an alternative funding mechanism will require additional study and eventually Congressional action. Section 8.2 of the Study also provides a summary of the recent study of Trust Funds by Resources for the Future. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

33.10 – The Department evaluated the specific suggestion made in this comment but chose not to revise the Study in response. The comment is addressed in the text which discusses the need to concentrate initially on the near future because of the nature of long-term uncertainties.

33.11 – The Department acknowledges these comments in a text box in Section 4.2.4 of the Study. As noted in Section 4.2.4 of the Study, the Department's process for developing and implementing new science and technology includes developing a long-term stewardship science and technology roadmap that will (1) identify science and technology needs; (2) identify existing capabilities to meet these needs both within and external to DOE; (3) determine research and development priorities; and (4) direct specific efforts to meet these needs. The Department agrees that research into a number of key areas is needed, including the long-term effectiveness and reliability of engineered and institutional controls, surveillance and monitoring, and information management. Advances in science and technology may provide future generations with the ability to cost-effectively achieve unrestricted use at some sites.

33.12 – The text has been altered to address this comment.

12/14/00

Steven Livingstone, Project Manager,
Office of Long-Term Stewardship, (EM-51),
Office of Environmental Management,
U.S. Department of Energy, P.O. Box 45079
Washington, D.C. 20026-5079,
phone: 202-586-9280.

Topic: Public Comments regarding the DOE/EM/LTS "Long-Term Stewardship Study Draft" dated October 2000.

Dear Mr. Livingstone:

Thank you for this opportunity to comment on the "Long-Term Stewardship Study Draft" (LTSSD) dated October 2000. I found it to be very well organized and thought-out. In general I support all the comments provided by the organization Communities Against a Radioactive Environment (Tri-Valley CAREs).

34.0 34.0 – Please see responses to comment number 6.

After reviewing the entire study I identified numerous issues which should be addressed in the final report. Many of these issues are likely to involve details which the study formulators may consider as Out-of-scope or as issues already relegated to the "Report to Congress - Long-Term Stewardship" document. I believe such segmentation and compartmentalization, of this major program, tends to impede the public's ability to judge the LTSSD which is largely limited to programmatic policy issues. My comments include numerous criticism which many DOE/EM/LTS officials may view as unproductive or irrelevant. I urge the reviewers of my criticisms to look upon then as opportunities to serve the needs of future generations, as was stated in the inset box in Chapter 10, titled "Seventh Generation Planning."

34.1 34.1 – The Department issued the National Defense Authorization Act (NDAA) Report, entitled A Report to Congress on Long-term Stewardship, in January 2001 (DOE/EM-0563). The Report to Congress and the Study were prepared as separate documents because the required scope for each was different. The primary focus of the Report to Congress was site-specific requirements; the primary focus of the Study was common national issues. Nonetheless, the two reports are complementary to one another, and the public is encouraged to read both documents. The Report to Congress can be useful for certain common long-term stewardship analyses, such as evaluating long-term stewardship needs. Similarly, the Department has added a text box to Chapter 2 of the Study providing an overview of the overall scope of DOE's long-term stewardship responsibilities. The cost estimates from the Report to Congress have been incorporated into Section 8.1 of the Study. They were not in the Draft Study because the cost information in the Report to Congress was not final prior to publication of the Draft Study. The Department anticipates that life-cycle cost estimates will improve over time as DOE moves forward with planning and implementing long-term stewardship. For the Report to Congress, each site was strongly encouraged to work with local stakeholders during the preparation of site-specific cost estimates. The Study is not the appropriate document to respond to specific comments on the Report to Congress or on the public comment process used to develop the Report. The Department encourages members of the public to comment on their respective site's cost estimate through established public involvement mechanisms at each site.

Below is listed the recommendations by Tri-Valley CAREs in italics. Following the first paragraph are my own suggestions and comments that include details that should be addressed in the final report. Following the TVC list are additional observations and comments that I produced while reviewing the LTSSD.

* *THE HIGHEST PRIORITY SHOULD BE PLACED ON SELECTING REMEDIES THAT PROTECT THE LONG-TERM SAFETY AND HEALTH OF THE COMMUNITY AND OF THE ENVIRONMENT SURROUNDING THE DOE FACILITY. All aspects of establishing, maintaining and funding long-term stewardship activities should be considered during the remedy selection process that is part of active cleanup. Wherever possible, we prefer that DOE facilities are cleaned up to a level that allows unrestricted use and avoids the need for long-term stewardship. Where cleanup to such a level is not practical due to current technical constraints, we want commitments inserted into final remedy decision documents detailing the stewardship plan and funding.*

The fact remains that many of the DOE's facilities lie on public lands which were withdrawn from public use for the temporary use of the AEC. It was assumed that AEC would serve as good stewards of those public lands and return them in good condition for the use of future generations. Instead, it has turned out that some aspects of some of those lands have been turned into national sacrifice zones and many future generation will need to devote resources to limit the possibility that those contaminated properties will result in future harm.

Though the LTSSD indicates that short-term congressional funding for the stewardship program is likely to be adequate, the fact remains that the remedy options that are being chosen are a result of compromises and trade-offs that reflect current political, economic and technological realities. Once the remedy is selected it is often touted as the best of all possible solutions and the abandonded options are forgotten. The complete history of all decisions, and the background data that led up to those

34.2

decisions, must be made freely available to the public from the very earliest stages of the stewardship program.

In the case of the underground nuclear explosion test areas at the Nevada Test Site (NTS) a DOE contractor conceptual study estimated that one cleanup option would cost $7.3 trillion. The Nevada Operations Office chose the Institutional Controls option which was estimated to costs less than one eight-thousandth as much as the high figure.

Future generations deserve to know why certain options were not chosen, including rejection for being economically and/or technologically impractical. Inserting such early decision details into the final decision documents should be an enforced requirement.

34.2

34.2 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process to allow for meaningful Tribal and public involvement.

* *DOE SHOULD DEVELOP A PROGRAM TO LOOK FOR SOLUTIONS THAT WOULD MINIMIZE OR ELIMINATE THE NEED FOR LONG-TERM STEWARDSHIP. We are aware that some contaminants will have to be "stored" in place or at the site for long periods of time. This may be true for many radionuclides and some chemicals, often when they are in the form of dense-non-aqueous phase liquids (DNAPLs). We also believe that once decisions are made to leave a contaminant in place, it is difficult to get funding to monitor it while simultaneously continuing research on how the contaminant could be safely treated. Still, developing a remedial treatment that destroys a chemical contaminant, for example, should remain a high priority, as it avoids the need for long-term stewardship measures. We propose that DOE form a dedicated program that keeps an eye towards the future, and continually looks for solutions to these problems. In short, DOE should continue to develop new and better remediation technologies for sites that are in the long-term stewardship mode, and then to move them back to active cleanup when it is technically feasible to do so.*

* *WE STRONGLY ADVISE THAT DOE DEVELOP A MECHANISM WHERE LOCAL COMMUNITIES WILL BE INVOLVED IN LONG-TERM STEWARDSHIP DECISIONS. This should include involvement in initial long-term stewardship activities and any changes to those activities that may occur as a result of re-evaluation or modification of the remedy. The community should also be involved in periodic reviews, such as the five-year review cycle under CERCLA (the Superfund law) to re-evaluate the effectiveness and performance of long term stewardship activities. Additionally, independent technical expertise should be provided to communities to assist them in wading through the many technical documents that form the basis for key decisions.*

* *DEVELOP CONTINGENCY PLANS AT THE TIME CLEANUP DECISIONS ARE MADE. The National Academy of Sciences' National Research Council recommended that "DOE should plan for uncertainty and fallibility" of some aspects of the long-term stewardship program; including developing plans "to maximize follow-through on phased, iterative and adaptive long-term institutional management approaches at sites where contaminants remain." We believe that these plans should be developed concurrent with cleanup decisions, and should be periodically revisited.*

* *DEVELOP FIRM FUNDING COMMITMENTS FOR LONG-TERM STEWARDSHIP. Funding for stewardship activities must be adequate. When the final remedy is agreed upon at a site, full funding for stewardship activities should be defined, including the role of the parties who will manage the funding and the funding sources.*

* *PERIODICALLY RE-EVALUATE THE REMEDY. DOE (or subsequent federal managers) should implement a systematic process for re-evaluating and if needed, modifying existing LTS activities to ensure that developments in science, technology and performance are incorporated. This reevaluation should consider the following: changes in health standards associated with contaminants that are left in place, changes in technology that were not available at the time when initial cleanup decisions were made but if implemented would eliminate the need for long-term stewardship activities, and performance of the remedy in place. The community should be involved in these re-evaluations.*

* *A RELIABLE, UP-TO-DATE RECORD MANAGEMENT FACILITY ACCESSIBLE TO THE COMMUNITY IS REQUIRED. DOE must fully characterize, document, and disclose all environmental contamination at its sites in case failures occur. At a minimum, DOE needs to develop a record management system that will always be accessible at or near the location of the stewardship activities.*

If past, or ongoing, information classification and other forms of information access restrictions have limited, or otherwise altered site characterization activities and documentation, then the public record should clearly indicate such. The complete data record, behind all risk analysis, must be made available for independent peer reviewers who have no connection with the DOE and who do not require security clearances to obtain all the relevant background data. The public records should note such things as still pending FOIA requests for site data that is related to residual contamination. In cases where DOE has announced a "declassification action," and yet has still to release the information into the public domain, that should also be made obvious in the public record. Classification reform requires that the public know the what sort of information, including document titles, remains withheld from them. The balancing, of what classified information can be released to the public, continues to weigh heavily towards protecting institutions such as the DOE, not towards protecting the need to maintain a well informed populace that forms the basis of a flexible and vibrant democracy.

34.3 – The Department acknowledges this comment in Section 7.2 of the Study. The Department has begun a process to more clearly identify and develop a consensus on long-term stewardship information needs and develop guidance for long-term stewardship information and records management. Some information management guidance will be included in the guidance for site-specific long-term stewardship plans currently under development by the Department. This comment will be considered in these efforts.

The characterization must include, the contamination cause, source, history, the spatial distribution, the concentration profiles of the individual contaminants, and the current exact location on the globe of the debris deposit. In addition, the elevation below the surface, as well as relative to present mean sea-level should be part of the Geographic Information System (GIS) database. A uniform set of standards must be established for such a database and those requirements should be published as provisions in the U.S. Code of Federal Regulations. Global location measurements should be highly accurate, based upon current U.S. Geological Survey mapping standards. The global position should be provided in decimal degrees with a preferred accuracy of less than plus or minus 0.0001 degree. The contaminated body spatial extent should be recorded in standard metric engineering units, based upon one meter. Both contamination volume and mass should be recorded in standard metric terms. The mass, volume, and other characteristics, of the contamination source elements should also be provided. Where the contamination involves a mixture of different elements, each component must be identified and quantified as a separate layer in the GIS database. Insider terms and jargon should be avoided or minimized. This includes "heavy metal," "special nuclear material," "special case waste," "classified waste," "AEA Section 11e(1) by-product material," "AEA Section 11e(2) byproduct material," "contaminated environmental media," "TRU-contaminated waste," and "spent nuclear fuel." Other terms should also be minimzed or at least described as accepted regulatory terms. This includes low-level mixed waste, low-level waste, transuranic waste, high-level waste, and "Greater-Than-Class-C" waste. Such terms, and associated data, should be put into appendixes or defined in a glossary. I doubt that future generations will appreciate being burdened with such regulatory gobbledygook which was created in less than a half-century of our lives.

34.4 – See response to Comment 34.3.

34.5 – The Department attempted to minimize the use of these terms and jargon.

In the case of radioactive elements, the radioactivity level (in Curies), referenced to a recent date, should be included in the GIS public record. The GIS record should include basic local information such as depth to the local water table, subsurface flow direction, annual rainfall and surface water flow direction. Once the recording requirement standards are established the public record, for each site, should clearly note where data is missing, incomplete, inaccurate, or uncertain. This would include the

causes, such as "source data remains classified as SECRET RESTRICTED DATA, as of 1 January 2001, in file xxx, located at zzz."

The initial data input into this GIS database can begin immediately and progress rapidly if DOE/EM/LTS starts an inititive to do so. One of the contacts listed on the LTS web site is Denise Bleakly, a GIS Specialist at Sandia National Laboratories. With the right tools, funding resources, rapid feed of DOE site description name and geographic coordinates, a preliminary GIS database of all the stewardship sites can be created. With one cheep GPS receiver and a dedicated person that can travel to each of the sites and be escorted by DOE/EM field techs, a full set of semi-accurate GPA location coordinates could be assembled in a few months.

The GIS database should be made transparent to public access. Assess to the raw data and metadata, in the GIS, should be made easily available through a link on any GIS presentation page located on the DOE/EM server, as well as on outlying servers, such as those at Oak Ridge and at site specific field offices. Means should be provided to provide feedback to GIS specialists to suggest data additions, refinements and corrections. Several different quality control structures should be established to ensure, that final version input data is accurate, or at least its limitations are properly described and noted.

The LTSSD mentions that funding, for DOE/EM records management activities, is often viewed as not a priority. There needs to be more incentives and teeth established in the case of the stewardship program. As regulatory records are generated and delivered to oversight agencies, the full-text of those documents should be posted on the DOE's and the regulator's web sites, along with indications that delivery milestone dates were met or missed. Delivery of hard copies should not be limited to the agencies of concern. Numerous other copies should be immediately sent to dedicated repositories, such as the State library, regional community libraries near the affected site and to colleges and university libraries in the state. Major decision documents should be distributed to at least a dozen major federal repositories located through-out the nation. In Nevada, DOE/NV has an agreement with the State to send regulatory milestone documents to a special section in the State Library. When I last checked, it appeared delivery was years late. Apparently, there was little incentive to meet this agreement.

The DOE/EM should provide professional information specialist help to the various repositories. This is especially needed for small community libraries that have little space, or experience, with indexing and filing of DOE's arcane publication titling and numbering system. Since prodigious quantities of reports are generated during site characterization and remedial activities, it might be useful to request funds for building additions on to community libraries to house massive quantities of site specific reports. The ultimate cost of the stewardship program should take into account the storage, and cataloging burden it will leave with outside entities, such as community libraries.

34.6 34.6 – See response to Comment 34.3.

Major efforts need to go into cataloging and the creation of cross indexes that relate all data associated with a given site. The World Wide Wide web and computer information databases can aid in that process but those still retains many weaknesses and faults.

34.7 34.7 – See response to Comment 34.3.

I urge the LTS office to post a link to the draft Environmental Protection Agency guidance on CERCLA 5-Year reviews on the LTS web site. This site should also contain links to at least the last four reports to Congress involving progress in Implementing Section 120 of the Comprehensive Environmental Response, Compensation, and Liability Act. Links to these reports, and to the titles of all 12 reports, should be consolidated into a single web page. The titles of all 12 reports should turn up when using several different DOE search engines. I found that several of DOE's search engines failed to find one or more of these on-line reports.

34.8 34.8 – See response to Comment 34.3.

Links to the last four of these reports are as follows:

Ninth Annual Report: http://www.em.doe.gov/cercla/index.html
Tenth Annual Report: http://www.em.doe.gov/cercla97/index.html
Eleventh Annual Report: http://www.em.doe.gov/cercla99/index.html
Twelfth Annual Report: http://www.em.doe.gov/rtc2000/index.html

The stewardship program needs to take into account the durability of records. The advise of archival information specialist is needed. Many hi-tech DOE contractors are churning out massive data sets on CD/ROMs. In many cases they are intended primarily for use within the DOE and its array of contractors. The indexing cataloging, and physical filing of such electronic reports may not follow the rules presently applied to hard copy documents. When I requested a CD-ROM, that a DOE contractor generated, I was given a run-around and then told by the DOE Operations Office that production of an extra copy would cost me about $30 dollars.
I believe blank R-CD/ROMS cost less than $2.

34.9 34.9 – See response to Comment 34.3.

I've been told by archive specialist that the CD/ROM format is not regarded as an archival document, mainly becuse such electronic formats change rapidly in our rapidly evolving society. I was glad to see the brief reference, in the LTSSD report, to the Long Now Foundation and its concept of preserving written materials for very very long periods of time. Still I see that as a future concept that should not be utilized to sell todays stewardship policy planning mission.

In conclusion, the LTS Office should make some near-term efforts to ensure that regulatory reports, and all other reports that might be associated with stewardship functions are available in hard-copy form and freely available to interested community members. Confidentially agreements, between the DOE and its contractors should not interfere with the public's and the state regulator's ability to determine the degree of site contamination, the need to take remedial actions, and the exact form of those remedial actions. The LTS Office needs to look into any conflict of interest that can take place between a regulator's need to know and a contractors desire to not reveal its plan to potential competitors.

34.10 34.10 – See response to Comment 34.3.

Increasingly, the DOE is relying upon document distribution via the Internet. Apparently, existing policy is increasingly pushing the PDF format. That is fine for an organization that can justify upgrading its fast networked computers and software on a regular basis, and that has a staff of system administrators to ensure the smooth transition to the latest licensed software version. Unfortunately, that leaves many small community-based, non-profit oversight organizations, behind. Old Mac computers, connected via a 28K modem, can take hours to download a PDF report that a DOE/HQ machine can capture in under five minutes. I have been out to remote Indian communities where use of the Internet involves a carefully rationed long-distance call. I would like to see the playing field leveled a bit with some more sensitivity towards those who have limited hi-tech informational resources.

As used today, large organizations tend to operate an intranet for internal operations and a Internet for public relations purposes. This process makes it easy to conduct numerous analysis and decisions behind closed doors. This situation needs to be looked at from the standpoint of involving the local communities in the earliest stages of DOE's site restoration and stewardship activities.

* *DEVELOP POLICY AND REGULATIONS ON PROPERTY TRANSFERS. One of the more difficult aspects of this program is deciding how to handle property transfers and the obligations of DOE and the new owner after the transfer. We strongly advise that this be addressed as policy and specific regulation, which contains the premise that DOE is responsible for a site in perpetuity unless the new owner has altered the property (e.g., drills through a landfill), violated a legal deed restriction, or contaminates the environment.*

As stated under TVC's first comment paragraph, I mentioned that the AEC sacrificed public lands which were temporarily loaned to it in trust. The LTSSD report indicated the complex nature of some of the land transfers that occurred during the time of the AEC and how the AEA allowed the rapid takeover in numerous situations. The LTSSD then pointed out many mechanisms by which DOE land disposition transfers could be accomplished in conjunction with environmental analysis. There were some examples of such, but I believe the final report should also provide a couple of recent examples

where major land transfers occurred with little or no environmental analysis. Its likely that officials in the LTS Office were not informed of these land transfers when they were gathering information on this topic.

With the signing of Public Law No. 106-65 on 5 Oct. 1999, a provision in it took effect which effectively transferred 60 square miles of withdrawn public lands, assigned in June of 1958 to the control of the AEC, to the the control of the U.S. Air Force. No public environmental assessment of this land had taken place, nor was an analysis or review proposed before the transfer was made. In fact, since 10 October 1965, public revelations of the environmental status of this land has been blocked by a series of annual Presidential Determinations.

Legal citations: 23 FR 4700: PLO 1662
PD 95-45, PD 96-54, PD 97-35, PD 98-36, PD 99-37, PD 2000-30
Pub.L. 106-65, Div. B, Title XXX, Subtitle A,
§ 3011(b)(2)(A), Oct. 5, 1999, 113 Stat. 886

With the same stroke of the Presidential pen, 200 square miles of perpetually contaminated nuclear testing lands were formerly transferred to the control of the DOE. At that time the DOE knew this land was destined for for its long-term stewardship program.

Legal citation:
Pub.L. 106-65, Div. B, Title XXX, Subtitle A,
§ 3011(b)(2)(B), Oct. 05, 1999, 113 Stat. 886

* *AVOID TRANSFERRING OR RELOCATING HAZARDOUS SUBSTANCES. This practice reduces the complication of transportation and reclamation of the former site, while still maintaining the burden of long-term stewardship activities. We are also concerned that some locations with lax standards could become the dumping ground for many long-lived hazardous materials.*

* *ALL CLEANUPS THAT FALL UNDER THE LTS PROGRAM SHOULD USE THE CERCLA REGULATORY FRAMEWORK. There are many cleanups conducted pursuant to non-CERCLA authority. We propose that DOE take the initiative to form a consistent regulatory mechanism for the LTS program, and that CERCLA is the method that provides the most opportunity for community involvement in decision making.*

In the case of all this nation's nuclear testing sites, new Preliminary Assessments (PAs) should be conducted and judged on the basis that future generations may decide to homestead on such sites. The PA should be performed by environmental analysis experts who have no connection with DOE/NV and do not depend upon old data supplied by them. The previous PA, prepared by a long-time DOE/NV contractor, should not be used as the basis of the new PA. Each of the 933 nuclear detonation sites should be evaluated separately and listed on the NPL if the future (not present) hazard is deemed serious. Those sites that fail to make the NPL should not be simply be issued a Finding of No Significant Impact (FONSI) and then dropped off the regulatory radar screen.

34.11 34.11 – The focus of this Study is to discuss common issues the Department will need to address for sites with long-term stewardship responsibilities. The Office of Long Term Stewardship forwarded this site-specific comment to the appropriate point of contact at the Nevada Test Site.

* *WHEN CONTAMINANTS ARE LEFT IN PLACE, DOE SHOULD COMPENSATE LOCAL GOVERNMENTS. Compensation to fund protective equipment, emergency preparedness, and sophisticated record keeping should be available to all local governments where LTS activities fall under their jurisdiction.*

The full funding scope of leaving temporarily borrowed public lands permanently damaged must be recognized at the earliest stages of the DOE/EM/LTS program. Simply dropping hundreds of arcane technical reports in the laps local libraries is not likely to lead to the long-term goals which the

program managers claim they desire. Libraries regularly dispose of excess materials which are old, damaged and poorly used. This is a fact of life where budgets are limited and space is tight.

At the end of Appendix C is a listing of some of associated web sites. I have explored a number of these and found portions of the Long-term Stewardship site (http://lts.apps.em.doe.gov) very well developed. However the
http://doe-web-rpt.em.doe.gov/login.asp and the
http://ndaa.longtermstewardship.net/ndaa/index.asp

sites appear to be limited to insider access.

A few years ago the Livermore Lab announced, in one of their public journals, that a modeling program that portrays the underground contamination plumes, on and off site, were now available on the Internet. What the public journal failed to mention was that access to that web site was restricted to certain parties, such as a State regulator who's job it was to track lab regulatory compliance. If the DOE announces its opening certain doors to the public then that should happen. If it turns out to be and empty promise then there needs to be serious consequences. Rarely, do I see such consequences.

DOE/EM has become quite adept at freely throwing about the term "long-term" without providing some quantitative perspective on the periods of time that may often be involved. The Department claims this lack of quantitative estimates is due to great uncertainties in determining the stewardship fate of the sites. I see this as a way to avoid the hard truth which is that some sites are likely to remain contaminated for about a quarter-million years due to large quantities of buried plutonium-239. Planning for stewardship activities at sites that could be removed from that status within the next hundred years can be very different than for sites that will likely require caution for tens of thousands of years. In 40 CFR 191.13 the containment requirement period, for transuranic radioactive waste, was chosen as 10,000 years. That was a compromise value due to great uncertainties beyond that. The DOE/EM/LTS Office must start dealing more openly with the realities of such extreme periods of time and provide quantitative estimates of the length of time individual sites are likely to require stewardship activities. The LTS Office sponsored study by the National Research Council titled "Long-Term Institutional Management of U.S. Department of Energy Legacy Waste Sites" put the problem rather succinctly, saying

> Since some radioactive wastes remain dangerous for several thousand years, the problem is analogous to a waste-management program established during the Roman Empire. It is unlikely that the Romans would have been able to foresee conditions in today's world, but their waste products might still be poisoning the environment.

Typically, a fundamental grasp of such enormous spans of time is not the forte of DOE administrators. The LTS Office should establish policy that discourages the use of the term "long-term" and substitutes specific quantitive time estimates for individual site situations.

I have noticed that the "Report to Congress - Long-Term Stewardship Report" is now expected to be delivered to Congress on the 17th of December, instead of the originally mandated date of the 1st of October. In Carolyn L. Huntoon's introductory letter I noticed an error in that she stated, at the top of page -iv-, that Congress requested the report "...in the FY 2000 National Defense Authorization Act..." The request wording appeared in a committee report and never made it into the actual Law.

While reviewing the STGWG meeting notes, from the 28 March 2000 gathering, I noticed that some members felt that their opportunity to comment on the draft version of "Report to Congress - Long-Term Stewardship Report," was overly limited. I hope the LTS office considers publishing numerous additional copies of that report and sends it out to all the parties that have shown an interest in the "Long-Term Stewardship Study development process. Hopefully, we will receive complete copies, containing all volumes and appendixes soon after Congress receives their volumes.

34.12 34.12 – The text has been changed to reflect this comment.

34.13 34.13 – The Department acknowledges this comment in Section 2.1 of the Study. The Department notes that the definition of long-term stewardship used in the Study is that which is stated explicitly in the Settlement Agreement. The Department agrees that long time frames may be involved, and has added a text box in Chapter 2 of the Study to help clarify that point. The Department's Long-term Stewardship Working Group recently identified the issue of developing a consistent, consensus definition of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. In addition, with regard to quantitative estimates, the Report to Congress on Long-term Stewardship provides the most up-to-date estimates; however, the Department notes that considerable uncertainty will be associated with any such estimates beyond several decades or so.

34.14 – The Study does not include this statement.

34.14 34.15 – The Department issued the National Defense Authorization Act (NDAA) Report, entitled A Report to Congress on Long-term Stewardship, in January 2001 (DOE/EM-0563). The Report to Congress and the Study were prepared as separate documents because the required scope for each was different. The primary focus of the Report to Congress was site-specific requirements; the primary focus of the Study was common national issues. Nonetheless, the two reports are complementary to one another, and the public is encouraged to read both documents. The Report to Congress can be useful for certain common long-term stewardship analyses, such as evaluating long-term stewardship needs. Similarly, the Department has added a text box to Chapter 2 of the Study providing an overview of the overall scope of DOE's long-term stewardship responsibilities. The cost estimates from the Report to Congress have been incorporated into Section 8.1 of the Study. They were not in the Draft Study because the cost information in the Report to Congress was not final prior to publication of the Draft Study. The Department anticipates that life-cycle cost estimates will improve over time as DOE moves forward with planning and implementing long-term stewardship. For the Report to Congress, each site was strongly encouraged to work with local stakeholders during the preparation of site-specific cost estimates. The Study is not the appropriate document to respond to specific comments on the Report to Congress or on the public comment process used to develop the Report. The Department encourages members of the public to comment on their respective site's cost estimate through established public involvement mechanisms at each site. Copies of the Report to Congress were distributed to persons and organizations who received previous publications related to long-term stewardship. Please contact DOE if you require additional copies.

34.15

8

In Appendix B, Page - B-5 -, Exhibit B-2. Scoping Comments, Box 1,
The third comment noted from the State Attorney General Office was
< Proposed that DOE dedicate part of each former DOE facility as a historic site or museum for long-term information management. >
The LTS response to that was "(Out of scope)" I feel that response is highly reflective of the limited focus which this LTSSD report was confined to. Perhaps such museums should not be encouraged since they are typically run with a particular bias. That bias is to put the site in the best possible light while neglecting to describe the horrendous environmental costs that may extend for hundreds of generations into the future. 34.16

When the final report is issued it should contain a notice, perhaps in an appendix dealing with the public comments, that states where the original received comments, on all aspects of the report development, can be viewed and copied. I highly encourage DOE/EM/LTS Office to prepare a similar sheet for the "Report to Congress - Long-Term Stewardship Report." Efforts should be made to form a document of all received public comments and to place copies of these in all of DOE's public reading rooms around the country. 34.17

I hope the Office of Long-Term Stewardship (EM-51) finds some of my comments useful and produces a final report that reflects a broader perspective than that which I found in the draft version.

Sincerely,

Vernon J. Brechin

Vernon J. Brechin
255 S. Rengstorff Ave. #49
Mountain View, CA 94040-1734
650-961-5123

34.16 – This comment is acknowledged in a text box in Section 7.2 of the Study. The Department agrees that museums may be a way to meet legal requirements to maintain an information repository and to provide knowledge about sites to communities during long-term stewardship. Museums already exist at certain DOE sites (e.g., Sandia National Laboratory, Los Alamos National Laboratory, Oak Ridge National Laboratory, and the Hanford Site), although information management is not currently part of their mission. The advantages and disadvantages of establishing a museum need to be assessed on a site-specific basis, since museums are not appropriate for all sites. The establishment of an information repository is a separate mission but could be incorporated with the development of a museum, visitor's center, or library. The Department agrees with the specific comment that a discussion of museums is not "out of scope" and has included such a discussion in Section 7.2 of the Study. Any decision to establish a museum at a specific site would need to consider issues such as mission, location, and funding sources, but the Department has not developed a policy on this. This comment will be provided to the senior management Long-term Stewardship Executive Steering Committee for their consideration.

34.17 – The Department issued the National Defense Authorization Act (NDAA) Report, entitled A Report to Congress on Long-term Stewardship, in January 2001 (DOE/EM-0563). The Report to Congress and the Study were prepared as separate documents because the required scope for each was different. The primary focus of the Report to Congress was site-specific requirements; the primary focus of the Study was common national issues. Nonetheless, the two reports are complementary to one another, and the public is encouraged to read both documents. The Report to Congress can be useful for certain common long-term stewardship analyses, such as evaluating long-term stewardship needs. Similarly, the Department has added a text box to Chapter 2 of the Study providing an overview of the overall scope of DOE's long-term stewardship responsibilities. The cost estimates from the Report to Congress have been incorporated into Section 8.1 of the Study. They were not in the Draft Study because the cost information in the Report to Congress was not final prior to publication of the Draft Study. The Department anticipates that life-cycle cost estimates will improve over time as DOE moves forward with planning and implementing long-term stewardship. For the Report to Congress, each site was strongly encouraged to work with local stakeholders during the preparation of site-specific cost estimates. The Study is not the appropriate document to respond to specific comments on the Report to Congress or on the public comment process used to develop the Report. The Department encourages members of the public to comment on their respective site's cost estimate through established public involvement mechanisms at each site. The Comment-Response document (Volume II) of the Study contains a photocopy of all comment letters on the Draft Study along with DOE's responses and will be sent, along with Volume I, to all commenters.

-----Original Message-----
From: Steven Livingstone [mailto:Steven.Livingstone@EM.DOE.GOV]
Sent: Tuesday, December 19, 2000 8:56 AM
To: 'bgirod@icfconsulting.com'
Subject: FW: Stewardship study

-----Original Message-----
From: TurnerJ [mailto:janis_turner@snmail.lvjusd.k12.ca.us]
Sent: Friday, December 15, 2000 9:15 PM
To: Livingstone, Steven
Subject: Stewardship study

The highest prioprity should be placed on selecting remedies that protect the long-term safety & health of the community and of the environment surrounding the DOE facility. Whenever possible, the DOE facility should be cleaned up to a level that allows unrestricted use & avoids the need for long-term stewardship. Where clean up to such a level is not possible due to technological constraints, commitments must be inserted into the final decision documents detailing the stewardship plan & funding. 35.1 35.2

Where long-term stewardship becomes part of the plan, local communities should be involved in the remedy plan & funding for the stewardship activities must be adequate . 35.3

Janis Kate-Turner
749 Hazel St
Livermore, Ca 94550
janis_turner@snmail.lvjusd.k12.ca.us

35.1 – The Department acknowledges this comment in Section 5.3 of the Study. The Department agrees that the primary purpose of LTS is continued protection of human health and the environment. The Department agrees that in some cases, site-specific LTS plans may need to include provisions for distributing public health information to affected parties, and, where appropriate, plans for health monitoring. A new text box at the end of Chapter 2 of the Study discusses the importance of public health concerns during long-term stewardship. With respect to care and compensation, such decisions would need to be made on a case-by-case basis.

35.2 – The Department agrees that site-specific long-term stewardship planning and decision documents should clearly identify problems, remedial objectives, and long-term stewardship implications to the extent feasible. Section 3.2 of the Study has been revised to emphasize this point. The Department acknowledges this comment in a text box in Section 3.2 of the Study. Chapter 4 of the Study discusses DOE's current policy requiring sites to conduct long-term stewardship planning.

35.3 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process to allow for meaningful Tribal and public involvement.

Dept of Energy -
Fernald Environmental
Mgmt. Project

DRAFT COMMENTS ON DOE LONG-TERM STEWARDSHIP STUDY - 12/12/00

1. Although the Long-term Stewardship Study was not intended to be a decision document, a timeline for the resolution of critical issues identified by this document is needed. Several DOE sites are expected to achieve closure by the middle part of the decade. Decisions must be made and actions taken, in the short term, if the DOE is to ensure a smooth transition to stewardship. For example, the Draft LTS Study discusses the transfer of lands owned or controlled by the DOE to another federal agency as one future disposition option (Page 7). Stakeholders are eager to have the future stewards identified and interface with these stewards begun prior to the end of remediation, to ensure that the future stewards understand site specific LTS issues and to provide opportunity for the LTS steward to contribute to the development of LTS plans. Will the Office of Long-Term Stewardship or another office within DOE-HQ take the lead role on discussions/negotiations related to the transfer of land to other federal agencies as part of their role in providing guidance and policy to the sites (Page 30)? Such negotiations need to be initiated in the short term. If not undertaken at a national level, should individual sites and/or field offices initiate discussions if transfer to another federal, state or local agency is perceived as a viable option? If discussions related to the transfer of land will be handled at the DOE-HQ level, what is the anticipated time frame for those types of discussions? 36.1 36.2 36.3

2. Related to the previous comment, should discussions at the site level and/or field office level regarding future site stewards include local universities and/or private institutions who may have an interest in LTS activities and/or future management of portions of an individual site? Again, guidance is required in the near future to ensure a smooth transition? 36.4

3. The study mentions that additional sites will be transferred to the Grand Junction Office (GJO) for LTS responsibilities (page 32). What is the timeframe for determining whether LTS will fall under the responsibility of GJO or some other organization? For sites with disposal facilities or residual contamination requiring environmental monitoring, it would seem appropriate and most economical that LTS be handled by some centralized function within DOE. Coordination with that organization should ideally have begun prior to the initiation of a monitoring program, hence prior to completion of disposal facility construction. At the Fernald Environmental Management Project monitoring of the disposal cell has been ongoing since the initiation of disposal facility construction, and completion of the first cell will be accomplished in 2001. As such, the identification of the LTS steward is essential. 36.5 36.6

4. Page 76 of the Draft LTS Study discusses the use of the information centers or displays at individual sites as part of the process of ensuring information related to LTS is available to the public. Additional information and guidance on the appropriate mechanisms for funding, long-term operation and maintenance of such a facility would be beneficial. 36.7

5. Editorial:
   - Add "NNSA" to the acronym list. 36.8
   - Page 22, Exhibit 3-4, Information Management, 2nd bullet - delete first "provide." 36.9

36.1 – The Department acknowledges this comment in a text box in Section 4.2.1 of the Study. As noted in Section 4.3 of the Study, it is current DOE policy that long-term stewardship responsibilities at sites with ongoing, non-EM missions will transfer to the site landlord organization when the EM cleanup mission is completed and several conditions are met. The Study in several sections notes existing guidance and guidance under development that address one or more aspects of long-term stewardship. In addition, the senior management Long-term Stewardship Executive Steering Committee has begun to develop a Strategic Plan for long-term stewardship. The Strategic Plan will be the basis for additional program planning documents, including any future policies, procedures, processes, mechanisms, and strategies. The Executive Steering Committee will provide recommendations for the resolution of specific issues, including paths forward and timetables, as appropriate. This comment will be forwarded to the Executive Steering Committee for their consideration.

36.2 – The Department acknowledges this comment in a text box in Section 6.2 of the Study. The Department agrees that there needs to be a smooth transition of long-term stewardship responsibilities.

36.3 – The Department acknowledges this comment in a text box in Section 4.2 of the Study. The Department's Long-term Stewardship Working Group recently identified the need for a corporate vision for long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. The corporate vision includes the appropriate organizational structure for long-term stewardship within the Department. The Department also recognizes that it is important to define long-term stewardship roles and responsibilities both within DOE and between DOE and other entities, including other federal agencies, states, Tribes, and regional governments. The Executive Steering Committee is developing a Strategic Plan for long-term stewardship; part of that effort will include identifying roles and responsibilities within DOE. The commenters expressed varied opinions on the appropriate balance between federal vs. non-federal leadership, and between a strong central organization vs. independent field organizations. The Department notes that a balance that may work well for one site may not work well for other sites.

36.4 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process to allow for meaningful Tribal and public involvement.

36.5 – This comment focuses on site-specific issues. Where these issues have identified general issues for long-term stewardship, the Department has attempted to communicate these issues in both the Draft and Final Study. This comment has been forwarded to the Department's long-term stewardship representatives at the appropriate sites; however, the long-term stewardship study is not the appropriate document for addressing site-specific issues.

36.6 – The Department acknowledges this comment in a text box in Section 4.2 of the Study. The Department's Long-term Stewardship Working Group recently identified the need for a corporate vision for long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. The corporate vision includes the appropriate organizational structure for long-term stewardship within the Department. The Department also recognizes that it is important to define long-term stewardship roles and responsibilities both within DOE and between DOE and other entities, including other federal agencies, states, Tribes, and regional governments. The Executive Steering Committee is developing a Strategic Plan for long-term stewardship; part of that effort will include identifying roles and responsibilities within DOE. The Department also notes that long-term stewardship as an issue is broader than DOE sites. For example, states and local governments already have long-term stewardship responsibilities at municipal landfills, and states will have long-term stewardship responsibility for "Superfund-lead" sites on the CERCLA NPL. Implementation of long-term stewardship across this broad spectrum of sites will require states to develop their own, independent capability to provide long-term stewardship.

36.7 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. As noted in Section 8.2 of the Study, developing an alternative funding mechanism will require additional study and eventually Congressional action. Section 8.2 of the Study also provides a summary of the recent study of Trust Funds by Resources for the Future. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration. In addition, any decision to establish an information center at a specific site would need to consider issues such as mission, location, and funding sources, but the Department has not developed a policy on this.

36.8 – The text has been altered to include this comment.

36.9 – The text has been altered to reflect this comment.

December 15, 2000

Steven Livingstone
Project Manager
U.S. Department of Energy
P.O. Box 45079
Washington, D.C. 20026-5079

Subject: Comments on Draft Long-Term Stewardship Study, October 2000

Dear Mr. Livingstone:

A draft Long-Term Stewardship Study dated October 2000 has been made available for public comment.

Envirocare of Utah, Inc., (Envirocare) is the nation's premier mixed (radioactive and hazardous) waste treatment, storage, and disposal facility, located near Clive, Utah. Envirocare holds licenses and permits from the State of Utah, the U.S. Nuclear Regulatory Commission, and the U.S. Environmental Protection Agency and assists the U.S. Department of Energy (DOE) and other government and private organizations in the treatment and disposal of radioactive wastes and materials.

Envirocare hereby submits the following comments on the Draft Long-Term Stewardship Study:

1. *Where waste management involves on-site disposal, stewardship of radioactive materials should include segregation and location controls within the disposal cell. Wastes that are not segregated by waste type or regulatory class cannot subsequently be retrieved or remediated as effectively as wastes that are segregated throughout their life cycle. DOE should ensure that material management preserves future management options long term, including disposal management.* 37.1

2. *DOE's Long-Term Stewardship Study should assess long-term liabilities of the development of new low-level radioactive waste disposal facilities at Oak Ridge and INEEL against the cost of using existing commercial and government disposal facilities.* 37.2

3. *DOE's Long-Term Stewardship Study appears to overlook radioactive materials that are removed from sites being cleaned up (e.g., FUSRAP waste sent to unlicensed disposal facilities). Radioactive materials disposed at facilities which are not regulated under the Atomic Energy Act may create liability and long-term liability and long-term challenges for DOE, i.e., Section 11e.(2) material. Such facilities should be considered part of DOE's long-term stewardship program.* 37.3

4. *The Report to Congress was scheduled to be issued in October 2000. However, it does not appear to be publicly available for use in reviewing and evaluating the Draft Long-Term Stewardship Study. Review of the Draft Long-Term Stewardship Study would benefit from a concurrent review of the Report to Congress.* 37.4

5. *The draft study suggests that cleanup can be done in varying degrees. In order to ensure that long-term stewardship does not become a substitute for cleanup, long-term stewardship plans should include* 37.5 *optional levels of cleanup and their associated impacts, including economic impacts. The costs of long-term storage and different levels of cleanup should be evaluated. DOE's objective regarding cost-effective long-term stewardship should be to minimize the overall physical "footprint" of each site hence reducing the overall cost for long-term stewardship.* 37.6

Should you have any questions about these comments, please contact Jay Vance at (801) 532-1330.

37.1 – The Department believes this comment is outside the scope of the Study because it addresses implementation and best practices for waste management in preparation for site closure.

37.2 – This comment focuses on site-specific issues. Where these issues have identified general issues for long-term stewardship, the Department has attempted to communicate these issues in both the Draft and Final Study. This comment has been forwarded to the Department's long-term stewardship representatives at the appropriate sites; however, the long-term stewardship study is not the appropriate document for addressing site-specific issues.

37.3 – The Department acknowledges this comment in a text box in Section 6.2 of the Study. The Study notes in several places that long-term stewardship will be required at waste disposal sites. The requirements that apply to a given disposal unit do not depend upon whether the waste disposed in the site came from the same or another geographic site. All of the Department's waste disposal activities are conducted in compliance with applicable laws and regulations.

37.4 – The Department issued the National Defense Authorization Act (NDAA) Report, entitled A Report to Congress on Long-term Stewardship, in January 2001 (DOE/EM-0563). The Report to Congress and the Study were prepared as separate documents because the required scope for each was different. The primary focus of the Report to Congress was site-specific requirements; the primary focus of the Study was common national issues. Nonetheless, the two reports are complementary to one another, and the public is encouraged to read both documents. The Report to Congress can be useful for certain common long-term stewardship analyses, such as evaluating long-term stewardship needs. Similarly, the Department has added a text box to Chapter 2 of the Study providing an overview of the overall scope of DOE's long-term stewardship responsibilities. The cost estimates from the Report to Congress have been incorporated into Section 8.1 of the Study. They were not in the Draft Study because the cost information in the Report to Congress was not final prior to publication of the Draft Study. The Department anticipates that life-cycle cost estimates will improve over time as DOE moves forward with planning and implementing long-term stewardship. For the Report to Congress, each site was strongly encouraged to work with local stakeholders during the preparation of site-specific cost estimates. The Study is not the appropriate document to respond to specific comments on the Report to Congress or on the public comment process used to develop the Report. The Department encourages members of the public to comment on their respective site's cost estimate through established public involvement mechanisms at each site.

37.5 – As noted in Section 4.2.2 of the Study, Site-specific long-term stewardship plans are required by law for uranium mill tailings sites and must be approved by the Nuclear Regulatory Commission. The Department also requests the development of a site-specific long-term stewardship plan before accepting long-term stewardship responsibilities for any site. As the EM mission at a site is completed, current plans call for the EM program and the site landlord (if different from EM) to develop a long-term stewardship baseline for each site. The baseline will describe the scope of applicable long-term stewardship requirements, the technical activities and the projected schedule to meet these requirements, and expected costs.

37.6 – The Department agrees that strategies for reducing long-term stewardship costs should be pursued to the extent feasible. However, DOE has not established specific policies or identified specific strategies for accomplishing this, and the Study is not the appropriate place to do so. The Department has acknowledged this comment in a text box in Section 3.2 of the Study.

Campbell, Kathleen

From: Girod, Brenda
Sent: Tuesday, December 19, 2000 10:05 AM
To: Campbell, Kathleen
Subject: FW: Comments to L.T.Stewardship

-----Original Message-----
From: Steven Livingstone [mailto:Steven.Livingstone@EM.DOE.GOV]
Sent: Tuesday, December 19, 2000 9:58 AM
To: 'bgirod@icfconsulting.com'
Subject: FW: Comments to L.T.Stewardship

-----Original Message-----
From: Roman Kohler [mailto:rkohle29@idt.net]
Sent: Friday, December 15, 2000 6:41 PM
To: Livingstone, Steven
Subject: Comments to L.T.Stewardship

Mr. Steven Livingstone
Project Manager
Office of Long Term Stewardship
U.S. Department of Energy

Comments to the Long Term Stewardship Study Draft Document.

These comments are in support of a Cold War Museum, Library and/or research center located in proximity of the Rocky Flats Plant in Golden Colorado. 38.1

The DOE Long Term Stewardship Study recommends that DOE implement stewardship in a manor to protect and provide access to cultural resources.
One manor to carry out that objective may be to fund a Cold War historical exhibit at a facility in proximity of the Rocky Flats Plant in Golden Colorado.
That facility may also house real time environmental data collection of land, air and water quality as required in the Rocky Flats Clean Up Agreement and various CDPHE and EPA regulations.
A facility that houses historical data of the materials used at the Rocky Flats plant, the chemicals and by products used during the production era will provide a one stop shopping location for environmental agencies, health professionals, neighbors, and students from local instructional institutions to review how regulations such as RCRA, CRCLA were employed at the Rocky Flats Plant. The real time data collection will insure that regulations are being met to provide safety to the neighboring communities.
The facility which may be a museum, library, and/or research center will provide the long term stewardship requirements causing future generation to have adequate information from which to make future decision about management of the property that was contaminated and must be controlled in perpetuity until evaluated as suitable and safe for unrestricted use or when surveillance and maintenance of the property is no longer required.
Long term funding of a facility could come from a trust fund established by DOE. Examples of trust funds are included in Exhibit 8-4 of the Draft Long Term Stewardship document.

The proposed facility also fulfills the public need for open access to information about residual hazards at the site. Continued protection of human health and the environment will be satisfied.

38.1 – This comment is acknowledged in a text box in Section 7.2 of the Study. The Department agrees that museums may be a way to meet legal requirements to maintain an information repository and to provide knowledge about sites to communities during long-term stewardship. Museums already exist at certain DOE sites (e.g., Sandia National Laboratory, Los Alamos National Laboratory, Oak Ridge National Laboratory, and the Hanford Site), although information management is not currently part of their mission. The advantages and disadvantages of establishing a museum need to be assessed on a site-specific basis, since museums are not appropriate for all sites. The establishment of an information repository is a separate mission but could be incorporated with the development of a museum, visitor's center, or library. The Department agrees with the specific comment that a discussion of museums is not "out of scope" and has included such a discussion in Section 7.2 of the Study. Any decision to establish a museum at a specific site would need to consider issues such as mission, location, and funding sources, but the Department has not developed a policy on this. This comment will be provided to the senior management Long-term Stewardship Executive Steering Committee for their consideration.

Comments from:
Roman Kohler
Board member
Rocky Flats Homesteaders (an organization of Rocky Flats retirees)

Roman Kohler
9295 W. 90th Circle
Westminster, CO 80021-4413
(303)420-7442
rkohle29@idt.net

Campbell, Kathleen

From: Girod, Brenda
Sent: Tuesday, December 19, 2000 9:57 AM
To: Campbell, Kathleen
Subject: FW: Comments to Long-Term Stewardship Study (Draft)

-----Original Message-----
From: Steven Livingstone [mailto:Steven.Livingstone@EM.DOE.GOV]
Sent: Tuesday, December 19, 2000 9:48 AM
To: 'bgirod@icfconsulting.com'
Subject: FW: Comments to Long-Term Stewardship Study (Draft)

-----Original Message-----
From: H_B_Boyd_Hathaway@RL.gov [mailto:H_B_Boyd_Hathaway@RL.gov]
Sent: Friday, December 15, 2000 6:06 PM
To: Livingstone, Steven
Cc: H_B_Boyd_Hathaway@rl.gov
Subject: Comments to Long-Term Stewardship Study (Draft)

General Comment

The long-term stewardship (LTS) definition is to narrow. It's more than just cleanup mission. LTS should include management activities for natural and man features. You have to understand what you have today, how to manage your assets and control what the future hold. Therefore LTS includes the past, present and future resources and activities. A broader definition of LTS was eluded to on page 27, Box, first paragraph, and Page 96, first paragraph. LTS should exist outside and after cleanup. DOE is still responsible for the resources which is driven by laws outside of cleanup (see exhibits 9-2 and 9-3). 39.1

Page 7, Section 2.4, second bullet, Land can also be used by other agencies in DOI, such as the Fish and Wildlife Services (e.g., Hanford Reach National Monument) 39.2

Page 38, Section 4.3, DOE needs to establish a new DOE program office specifically for LTS (DOE LTS Program Office). 39.3

Page 45, Exhibit 5-3, back to the definition of LTS. "Operation" is part of LTS. LTS does not begin with active cleanup. It includes resource management of natural and man made features. As presented in Exhibit 5-3, it is currently a part of the LTS, but certainly not all exclusive element of LTS. 39.4

Page 67, "Planning Restrictions, Traditional Land Use Restrictions and Zoning Restrictions," The federal government needs a land use planning act (enabling act like states have) that set guidelines for comprehensive planning and zoning. It needs to align with county and municipal approach of state and local governments where DOE sites exist. It needs to enable the federal government to impose and enforce land use restrictions (like a zoning ordinance). This process is a process the state and local governments understand and would provide a better interface with the government. An example, is HUD requiring states to have comprehensive land use plans and zoning ordinances in order to receive matching funds from the government for housing. On page 107, it discusses centralized institution, this proposed act would help in that direction. I will add that LTS should focus on day-to-day activity, such as site selection, to control use and activities, and therefore shape what LTS will be in the future. 39.5 39.6

If you have questions, please give me a call.

39.1 – The Department acknowledges this comment in a text box in Section 2.1 of the Study. The Department notes that the definition of long-term stewardship used in the Study is that which is stated explicitly in the Settlement Agreement. The Department agrees that long-term stewardship at some sites may include activities such as resource management and discusses these concepts, for example, in a new text box in Chapter 2 and in Section 9.1 of the Study. The Department also agrees that coordinated management of resources on adjacent federal and non-federal lands may be appropriate at some sites and has modified the text in Sections 6.1.3 and 9.1 of the Study to note that point. The Department's Long-term Stewardship Working Group recently identified the issue of whether the scope of long-term stewardship includes only compliance activities or also includes other activities associated with the management of DOE lands as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee.

39.2 – The Department acknowledges this comment in a text box in Section 6.2 of the Study. The Department recognizes that long-term stewardship responsibility eventually may be vested in any number of federal or non-federal entities. The Department will address these issues during site-specific long-term stewardship planning processes. The Department has added language to Section 6.2 of the Study to address some of the potential complications associated with a transfer of LTS responsibility to other federal agencies.

39.3 – The Department acknowledges this comment in a text box in Section 4.2 of the Study. The Department's Long-term Stewardship Working Group recently identified the need for a corporate vision for long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. The corporate vision includes the appropriate organizational structure for long-term stewardship within the Department. The Department also recognizes that it is important to define long-term stewardship roles and responsibilities both within DOE and between DOE and other entities, including other federal agencies, states, Tribes, and regional governments. The Executive Steering Committee is developing a Strategic Plan for long-term stewardship; part of that effort will include identifying roles and responsibilities within DOE. The Department also notes that long-term stewardship as an issue is broader than DOE sites. For example, states and local governments already have long-term stewardship responsibilities at municipal landfills, and states will have long-term stewardship responsibility for "Superfund-lead" sites on the CERCLA NPL. Implementation of long-term stewardship across this broad spectrum of sites will require states to develop their own, independent capability to provide long-term stewardship.

39.4 – See response to Comment 39.1.

39.5 – As noted in Section 4.2.2 of the Study, Site-specific long-term stewardship plans are required by law for uranium mill tailings sites and must be approved by the Nuclear Regulatory Commission. The Department also requests the development of a site-specific long-term stewardship plan before accepting long-term stewardship responsibilities for any site. As the EM mission at a site is completed, current plans call for the EM program and the site landlord (if different from EM) to develop a long-term stewardship baseline for each site. The baseline will describe the scope of applicable long-term stewardship requirements, the technical activities and the projected schedule to meet these requirements, and expected costs.

39.6 – The Department acknowledges this comment in a text box in Section 4.2 of the Study. The Department's Long-term Stewardship Working Group recently identified the need for a corporate vision for long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. The corporate vision includes the appropriate organizational structure for long-term stewardship within the Department. The Department also recognizes that it is important to define long-term stewardship roles and responsibilities both within DOE and between DOE and other entities, including other federal agencies, states, Tribes, and regional governments. The Executive Steering Committee is developing a Strategic Plan for long-term stewardship; part of that effort will include identifying roles and responsibilities within DOE. The commenters expressed varied opinions on the appropriate balance between federal vs. non-federal leadership, and between a strong central organization vs. independent field organizations. The Department notes that a balance that may work well for one site may not work well for other sites.

H. Boyd Hathaway
Hanford Site
DynCopr Tri-Cities Services, Inc.
Real Estate and Site Planning
509-376-7340

KEN SALAZAR
Attorney General

CHRISTINE M. ARGUELLO
Chief Deputy Attorney General

ALAN J. GILBERT
Solicitor General

STATE OF COLORADO
DEPARTMENT OF LAW

OFFICE OF THE ATTORNEY GENERAL

STATE SERVICES BUILDING
1525 Sherman Street - 5th Floor
Denver, Colorado 80203
Phone (303) 866-4500
FAX (303) 866-5691

December 15, 2000

Steven Livingstone, Project Manager
U.S. Department of Energy
P.O. Box 45079

RE: Comments on Draft Long-Term Stewardship

Dear Mr. Livingstone:

Congratulations to DOE on a comprehensive, well thought out and nicely presented draft report on the intractable issue of long-term stewardship. Both the substance and the format are commendable. In particular, the express incorporation of and response to public input is unique in my experience. I have a few comments which I have included below. 40.1

1. The considerations and complexities identified in this Report, I believe, argue strongly for a centralized entity to step back and take the long view, interact with national interest groups, act as clearing house of ideas, and provide leadership, guidance and priority for the effort. Long-term stewardship should be the sole mission of such an entity. Policy, direction and research provided by this entity should then be implemented on a site-by-site basis. In addition, this entity should be involved upfront in the design of new programs and facilities to help the relevant agencies appreciate the costs and complexities associated with long-term stewardship, and plan to prevent or at least minimize such societal costs. The entity would also be in an excellent position to identify research and development needs that could be addressed in support of this function. 40.2
2. The Draft Report does an admirable job of identifying large issues and making some recommendations. It does not identify specific approaches that will satisfy the needs outlined. This will undoubtedly be an iterative process, building upon experiences that succeed or fail. On page 73, however, the Report states that "DOE has begun to catalogue and report the types of long-term stewardship activities that are to be conducted at its sites in a standardized way. However, the methodology and resulting data apply only to that unique report." It is not clear why such information could not be included in this Report. It would certainly be of interest to the public, states and site managers. 40.3
3. The Report discusses estimated costs associated with long-term stewardship activities. It is not clear from the text whether costs to states and local governments, which are likely to assume much of this responsibility were included, and whether such entities were consulted on their perceived needs. 40.4

40.1 – The Department appreciates this comment. Thank you.

40.2 – The Department acknowledges this comment in a text box in Section 4.2 of the Study. The Department's Long-term Stewardship Working Group recently identified the need for a corporate vision for long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. The corporate vision includes the appropriate organizational structure for long-term stewardship within the Department. The Department also recognizes that it is important to define long-term stewardship roles and responsibilities both within DOE and between DOE and other entities, including other federal agencies, states, Tribes, and regional governments. The Executive Steering Committee is developing a Strategic Plan for long-term stewardship; part of that effort will include identifying roles and responsibilities within DOE. The Department also notes that long-term stewardship as an issue is broader than DOE sites. For example, states and local governments already have long-term stewardship responsibilities at municipal landfills, and states will have long-term stewardship responsibility for "Superfund-lead" sites on the CERCLA NPL. Implementation of long-term stewardship across this broad spectrum of sites will require states to develop their own, independent capability to provide long-term stewardship.

40.3 – This sentence was deleted from the Study.

40.4 – The Department acknowledges this comment in a text box in Section 8.1 of the Study. The Department agrees that more information is needed on the scope of future long-term stewardship activities and better life-cycle cost estimates are needed. The Study incorporates the cost estimates from the Report to Congress on Long-term Stewardship and discusses the basis for these estimates. Accurate cost estimates are critical for long-term stewardship, particularly for ensuring accountability for the technical scope of the program. The Report to Congress on Long-term Stewardship is only the first step in developing the necessary cost figures. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites. This comment will be forwarded to the Executive Steering Committee for their consideration. The Report to Congress on Long-term Stewardship did not include costs to state and local governments.

4. In its discussion on rolling stewardship, the Report appears to suggest that DOE should manage hazards for the near future "rather than trying to manage hazards for centuries or millennia." Our ability to foretell what mechanisms would be effective or even necessary to protect human health and the environment from these hazardous materials centuries from now is obviously extremely limited; however, the best approach, I believe, is to take our best shot now. Thus, we should utilize the internet to make site information available, but we should also explore measures like universal symbols of hazard, granite markers and the library being established by the Clock of the Long Now group to hedge our bets. Guidelines from the National Academy of Public Administration referenced in the Report can be consulted in balancing costs to the current generations against risks and benefits to future generations, but creativity must be actively encouraged.

40.5 – The Department acknowledges this comment in Section 7.2 of the Study. The Department has begun a process to more clearly identify and develop a consensus on long-term stewardship information needs and develop guidance for long-term stewardship information and records management. Some information management guidance will be included in the guidance for site-specific long-term stewardship plans currently under development by the Department. This comment will be considered in these efforts.

5. Although the Report does an outstanding job of crediting public input and responding to comments in general, it does not clearly explain why DOE considered some comments to be "out of scope." It appears that some of the comments suggest concepts and options directly related to ideas that are discussed in the Report. I would recommend that these rejected comments be reconsidered. If DOE remains convinced that they are indeed beyond the scope, it should provide some explanation, or objective criteria for how it has made that determination.

40.6 – Scoping comments considered "out of scope" for the Draft Study addressed site-specific topics or topics unrelated to long-term stewardship. Exhibit B-2 of the Final Study provides a summary of scoping comments. All comments considered out of scope include a brief explanation as to why the Department considered the comment out of scope.

Thank you for the opportunity to comment on this worthwhile effort and good luck in finalizing the Report.

Sincerely,

VICTORIA L. PETERS
Senior Assistant Attorney General
Natural Resources and Environment Section
(303) 866-5068
(303) 866-3558 (FAX)
EMAIL: Vicky.Peters@state.co.us

Campbell, Kathleen

From: Girod, Brenda
Sent: Tuesday, December 19, 2000 10:09 AM
To: Campbell, Kathleen
Subject: FW: LTSM Stewardship Study Draft Oct 2000

-----Original Message-----
From: Steven Livingstone [mailto:Steven.Livingstone@EM.DOE.GOV]
Sent: Tuesday, December 19, 2000 10:01 AM
To: 'bgirod@icfconsulting.com'
Subject: FW: LTSM Stewardship Study Draft Oct 2000

-----Original Message-----
From: Tim Michael [mailto:tim_michael@nmenv.state.nm.us]
Sent: Monday, December 18, 2000 9:36 AM
To: Livingstone, Steven
Cc: john_parker@nmenv.state.nm.us; barbara_hoditschek@nmenv.state.nm.us
Subject: LTSM Stewardship Study Draft Oct 2000

12/14/00
LONG-TERM STEWARDSHIP STUDY DRAFT review comments
Lance Voss New Mexico Environment Department - DOE Oversight Bureau

I have reviewed the subject document and generally find it to be a well organized, useful guidance or reference source for a stewardship program, similar to various other DOE or Federal documents on the subject. 41.1

General comment:

How do DOE HQ or area offices plan to reconcile the past and on-going ER site decisions which are/have been made without taking into account the public input, cost, difficulty, and uncertainty of long term stewardship before selecting and implementing a remedial activity??? DOE has dropped the ball on stewardship planning and appears to be in no real hurry to pick it up. 41.2 The Department immediately needs to integrate future land use decisions, assured funding mechanisms, and identified "steward" participation into all current EM projects. The Department should also take the initiative to assist state and local government agencies in developing the legislation required for the maintenance of stewardship. 41.3 There is a need for consistency and implementation of stewardship at the field level, which is lacking due to field office autonomy and shifting priorities.

Field level development and implementation of stewardship is essential!!

Specific comments:

Page ii, fifth bullet. Pollution prevention related to 'new missions" should be addressed under NEPA. This discussion is not on point for this document. 41.4

Page iii, bullet six. The Project Baseline Summary discussion should be expanded or referenced to provide information on organization structure, current baseline planning window, and DOE Land Use assumptions, which underlie the project. DOE needs define future land use plans for every custody facility. 41.5

Section 2.5, page 8. "It may be difficult for people to accept restrictions on land and resource use unless they fully understand why such restrictions are necessary". This is an important realization, which emphasizes the need for integrated stewardship and land use planning with 41.6

41.1 – The Department appreciates this comment. Thank you.

41.2 – Long-term stewardship planning (see Chapter 4 of the Study) and remedy selection decisions are done on a site-specific basis with input from regulators, stakeholders, and the public. As noted in Exhibit 3-1 of the Study, the criteria used to evaluate remedial alternatives include long-term effectiveness and cost-effectiveness. The long-term effectiveness of institutional controls is one of the criteria for evaluating long-term stewardship requirements during remedy selection that have been suggested in guidance developed by DOE, EPA, and the Department of Defense (DoD) and in recommendations forwarded to the Department (see Exhibits 3-2 and 3-3 in the Study). The Department also has identified the need to promote new science and technology development to help address the uncertainties associated with maintenance of institutional and engineered controls. The Department acknowledges the public concerns about long-term effectiveness in a text box in Section 3.2 of the Study. The issue of uniform or national standards for cleanup is beyond the scope of this Study because this document focuses on long-term stewardship. In addition, the periodic assessments of the remedy required by law provide an opportunity to assure the continued effectiveness of past remedial decisions.

41.3 – The Department acknowledges these comments in a text box in Section 4.1 of the Final Study. The specific mechanisms available for oversight and enforcement of long-term stewardship vary according to the applicable regulatory regime(s) and state laws on a site-specific basis. The Department has not developed a policy on potential alternative regulatory regimes at specific sites. These comments will be provided to the senior management Long-term Stewardship Executive Steering Committee for their consideration.

41.4 – This comment is acknowledged in a text box in Section 6.1.3 of the Study. The Department agrees that the language used in the Draft Study did not adequately communicate the distinction between "pollution prevention" in the traditional sense and as applied to long-term stewardship. The Department has revised Section 6.1.3 of the Study to indicate the importance of both pollution prevention principles and the concept of Environmental Management Systems to help minimize the future long-term stewardship consequences of current mission activities. The Department also has added a footnote in Section 6.1.3 to clarify use of the term "pollution prevention.". Pollution prevention is incorporated into the design of all new DOE facilities. Review of pollution prevention options and related impacts would be evaluated in any NEPA document looking at these new facilities.

41.5 – As noted in Section 4.2.2 of the Study, site-specific long-term stewardship plans are required by law for uranium mill tailings sites and must be approved by the Nuclear Regulatory Commission. The Department also requests the development of a site-specific long-term stewardship plan before accepting long-term stewardship responsibilities for any site. As the EM mission at a site is completed, current plans call for the EM program and the site landlord (if different from EM) to develop a long-term stewardship baseline for each site. The baseline will describe the scope of applicable long-term stewardship requirements, the technical activities and the projected schedule to meet these requirements, and expected costs. The Department acknowledges these comments in a text box in Section 4.2 of the Final Study and will consider the recommendations they provide in developing the guidance that will specify the format and content for site-specific long-term stewardship plans.

he ER site characterization and risk assessment process. As a result of DOE's failure to do so, many "closed" sites may have to be revisited or and many site "remediations" may prove to have been unnecessary. DOE should also evaluate the need for greater technical consistency as well as appropriate "scope and scale" of risk assessments performed throughout the complex which will be decision documents tied to stewardship. 41.6

Page 47, the concept of layering and redundancy in all aspects of the stewardship can not be overstated in this document or process. 41.7

Page 52, the need for effective Conceptual Site Models is critical to all EM projects including stewardship. They are particularly important for the presentation of sites for public consideration and comment. It is suggested that the document be revised to include the use of "cartoon" style conceptual models in addition to the pathway flow diagram presented. This would provide a better graphical simulation of site conditions, concerns, and pathways, etc. for both characterization and assessment planning as well as public understanding of site conditions and status. 41.8

Page 64, the bullet regarding the nature and extent of residual contamination and other site hazards emphasizes the need for technically sound, defensible RFI reports and decision-making. The lack of integrated stewardship planning in past N&E determination and decision-making will complicate site programs. Addressing this problem should be a priority. 41.9

Page 30, the capabilities and functions of the Office of Long-term Stewardship should be expanded to the level necessary to support stewardship development and management. It should act as a center for information to support technically adequate and consistent stewardship programs. 41.10

Tim Michael, NMED DOE Oversight Bureau, Phone (505)827-1536

41.6 – See response to Comment 41.5.

41.7 – The Department acknowledges this comment in Section 5.3 of the Study. The Department believes that Section 5.3 of the Study appropriately discusses the difficulties and challenges associated with ensuring the long-term maintenance of institutional controls, including roles and responsibilities for enforcement. The determination of the type of institutional controls and enforcement of these controls (e.g., by DOE or external parties) will be determined on a site-specific basis as part of remedy selection and long-term stewardship planning and may change over time.

41.8 – As noted in Section 4.2.2 of the Study, site-specific long-term stewardship plans are required by law for uranium mill tailings sites and must be approved by the Nuclear Regulatory Commission. The Department also requests the development of a site-specific long-term stewardship plan before accepting long-term stewardship responsibilities for any site. As the EM mission at a site is completed, current plans call for the EM program and the site landlord (if different from EM) to develop a long-term stewardship baseline for each site. The baseline will describe the scope of applicable long-term stewardship requirements, the technical activities and the projected schedule to meet these requirements, and expected costs. The Department acknowledges these comments in a text box in Section 4.2 of the Final Study and will consider the recommendations they provide in developing the guidance that will specify the format and content for site-specific long-term stewardship plans. In addition, the specific example provided in the Study was not meant to imply that other styles or formats for conceptual site models were not effective.

41.9 – See response to Comment 41.5.

41.10 – The Department acknowledges this comment in a text box in Section 4.2 of the Study. The Department's Long-term Stewardship Working Group recently identified the need for a corporate vision for long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. The corporate vision includes the appropriate organizational structure for long-term stewardship within the Department. The Department also recognizes that it is important to define long-term stewardship roles and responsibilities both within DOE and between DOE and other entities, including other federal agencies, states, Tribes, and regional governments. The Executive Steering Committee is developing a Strategic Plan for long-term stewardship; part of that effort will include identifying roles and responsibilities within DOE. The Department also notes that long-term stewardship as an issue is broader than DOE sites. For example, states and local governments already have long-term stewardship responsibilities at municipal landfills, and states will have long-term stewardship responsibility for "Superfund-lead" sites on the CERCLA NPL. Implementation of long-term stewardship across this broad spectrum of sites will require states to develop their own, independent capability to provide long-term

Campbell, Kathleen

From: Girod, Brenda
Sent: Tuesday, December 19, 2000 1:46 PM
To: Campbell, Kathleen
Subject: FW: Late comments

ATTACHMENT.TXT

—Original Message—
From: Steven Livingstone [mailto:Steven.Livingstone@EM.DOE.GOV]
Sent: Tuesday, December 19, 2000 1:11 PM
To: 'bgirod@icfconsulting.com'
Subject: FW: Late comments

—Original Message—
From: Carol Lyons [mailto:CLYONS@ci.arvada.co.us]
Sent: Tuesday, December 19, 2000 12:10 PM
To: Livingstone, Steven
Cc: TaylorBC@stripe.Colorado.edu; Sullivan, Greg
Subject: Late comments

December 19, 2000

Hi Steve,

Due to an inexcusable lapse in my brain functions, I overlooked comments provided by Dr. Bryan Taylor to be included in our Rocky Flats History Group comments. I wonder if it would be hopelessly late to submit these comments. Dr. Taylor is a professor in the Department of Communications at the University of Colorado (Boulder) AND a member of the Rocky Flats Citizens Advisory Board. His contact information is:

Phone: 303-492-8738
Address: Dept. of Communication, CB270
University of Colorado
Boulder, CO 80309-0270

My apologies. I hope it's not too late. Thanks again for all your help:
Carol.

COMMENTS FROM BRYAN TAYLOR:

1) It is imperative that the cultural history of Rocky Flats (RF) be preserved and centralized in order to maintain cultural memory of the site's mission and the urgency of effective LTS. Additionally, a centralized site such as a museum would serve an important function of educating and recruiting future stewards, who will likely not encounter the history of RF except through deliberate institutionalized educational programs such as K-12 curricula. In the absence of this socialization and other reminders, the cultural imperative for LTS will disintegrate, with potentially devastating consequences for the health and safety of area residents. | 42.1 | 42.2

2) Ideally, a RF museum or visitor's center could and should be integrated with environmental education programming associated with potential preserves and refuges created at the site. In the absence of one, the other will be less meaningful and effective for visitors. | 42.3

3) Potentially, an RF museum serves an important institutional control function as a centralized site for document storage and retrieval. A single, integrated, multi-functional (and redundantly-authorized / funded) site has a better chance of surviving the ravages of time than dispersed institutional sites. In this way, the institution could serve multiple stakeholders (visitors, local governments, regulators, area residents, developers, historians and scholars, etc.) simultaneously. | 42.4

42.1 – This comment is acknowledged in a text box in Section 7.2 of the Study. The Department agrees that museums may be a way to meet legal requirements to maintain an information repository and to provide knowledge about sites to communities during long-term stewardship. Museums already exist at certain DOE sites (e.g., Sandia National Laboratory, Los Alamos National Laboratory, Oak Ridge National Laboratory, and the Hanford Site), although information management is not currently part of their mission. The advantages and disadvantages of establishing a museum need to be assessed on a site-specific basis, since museums are not appropriate for all sites. The establishment of an information repository is a separate mission but could be incorporated with the development of a museum, visitor's center, or library. The Department agrees with the specific comment that a discussion of museums is not "out of scope" and has included such a discussion in Section 7.2 of the Study. Any decision to establish a museum at a specific site would need to consider issues such as mission, location, and funding sources, but the Department has not developed a policy on this. This comment will be provided to the senior management Long-term Stewardship Executive Steering Committee for their consideration.

42.2 – See response to Comment 42.1.

42.3 – See response to Comment 42.1.

42.4 – See response to Comment 42.1.

2437 Losee Road; North Las Vegas, NV 89030
702-633-5300-x232

Nevada Test Site Community Advisory Board

Fax

To:	STEVE LIVINGSTON	From:	Earle Dixon (NTS CAB Tech. Advsr)
Fax:	202-863-7036	Pages:	5
Phone:	202-586-9260	Date:	12/20/00
Re:	Comments on *Draft Study – LTS* (10/00)	CC:	[Click here and type name]

☐ Urgent X For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

Attached with this fax are four (4) pages o comments from the Nevada Test Site (NTS) Community Advisory Board (CAB) on the document entitled, "Long-Term Stewardship Study *DRAFT*," dated October 2000.

Frank E. Overbey Jr.
3001 Golf Links Drive
Las Vegas, NV 89134
Tel. (702) 254-4955

Nov. 22, 2000

Comments Re: Long-Term Stewardship Study - DRAFT - of October 2000

As stated in the first paragraph of Asst. Secretary Huntoon's opening letter (p. i - iv) the *Draft Study* is a document proposed " ... to comply with the terms of a settlement agreement between DOE, the Natural Resources Defense Council, and 38 other plaintiffs." and it "... is not a decision document, [and] it does not attempt to describe how DOE intends to address these issues except where decisions already have been made." Accordingly, said Study is considered to be a descriptive primer of the Long Term Stewardship (LTS) program which describes the nature of the challenges, as foreseen at the present time, to be resolved.

The chapter contents are detailed in the Table of Contents and described in paragraph 1.1 entitled "Organization of the *Draft Study*". In addition, a grey-shaded box on p.5 highlights a notice that the *Study* is not a decision document, and states, "The principal purposes of the *Draft Study* are to promote information exchange and to inform the decision making processes at the national level and at individual sites." And then follows Chapters 2 thru 10 which discuss the Complexities of Stewardship, provides salient definitions, anticipated stewardship activities, real-property management planning under the National Environment Policy Act, and DOE Orders, funding considerations and options, a recognition that change and re-evaluation will be on-going throughout LTS plans, programs, and activities. There are nine (9) related Appendices, and 27 explanatory Exhibits, an excellent List of Acronyms, and a six page Glossary of terms unique to the content of the *Study*.

The subject document is considered to be a very comprehensive summary of the multiple aspects of Long Terms Stewardship, and will serve as a useful resource for developing follow-on Site Specific Long Term Stewardship Plans, Funding Options and Activities. 43.1

43.1 – The Department appreciates this comment. Thank you.

The following comments are provided on the Draft DOE Document Entitled: *Long-Term Stewardship Study* dated October 24, 2000.

1.0 SPECIFIC COMMENTS

Page ii: Last sentence under ensuring reliable and sufficient funding.

"Funding will be an important component of the overall long-term stewardship strategy at each site." This is an understatement! What kind of meaningful stewardship program could be implemented without appropriate and sufficient funding? It is an absolute necessity to have long term reliable funding in place for any stewardship program to be effective

43.2

Page 1: What is Long-term Stewardship?

To have to resort to the use of foreign words, in this case Latin no less, in defining Stewardship is rather ironic and almost humorous! *"inter alia"* which is equivalent to saying: among other things! It is difficult enough trying to understand and grasp the concepts presented in this document without having to resort to the use of non-English words. Can't simple language be employed or is the concept of Stewardship so foreign to DOE that they must employ the use of non-English words to convey ideas?

43.3

Pages iv, 3 and 4

On pages iv and 4 it is indicated that the public comment period is 45 days from Notice of Availability in the Federal Register, while on page 3 in Exhibit 1-2. it is indicated that this comment period is 60 days. With a document providing details regarding the implementation of a very intricate and complicated Long-term Stewardship program that will extend for multiple generations into the future, it's credibility is weakened when something as simple as the public comment period is unclear and inconsistent, with the proverbial right hand not knowing what the left hand is doing!

43.4

Pages iii, 2, 3 and Appendix A

The acronym PEIS is present on several pages but is never defined. It appears that effort is being made to avoid any discussion of the term PEIS and how it is related to this particular document. Also the document presented in Exhibit 1-1, Entitled: ***Long-term Stewardship Study for PEIS Settlement Agreement Draft, 2000***, is that this report? A visit to the referenced Web site implies that they are one in the same report. If, in fact, they are the same document, why are the titles different and couldn't it be explicitly stated in Exhibit 1-1. that this is that document?

43.5

Pages 12/14

Section 151(b) of the NWPA indicates that DOE has the option not to accept certain privately owned waste sites. This seems to permit numerous parallel universes for waste sites with different entities responsible for their oversight! If the private owner refuses to invest in the necessary long-term stewardship or simply no longer exists, do these sites fall by the wayside or, after some legal exercises, would they be placed under DOE oversight?

43.6

Page 10

The caption indicates 21 sites, but only 20 are listed. The Nevada Test Site is missing from the NNSA list.

43.7

2.0 GENERAL COMMENTS

1. Although numerous federal, state, tribal, and private entities may be responsible for the long-term stewardship of specific waste sites, it is not clear after review of this document if there will be a single oversight agency which monitors compliance and comprehensively tracks ongoing long-term stewardship activities at all such waste sites no matter whose responsibility they may

43.8

43.2 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. The Department currently relies on the annual appropriations process to fund long-term stewardship. This is not likely to change in the near term. As noted in Section 8.1 of the Study, a separate Project Baseline Summary (PBS) for long-term stewardship at each site will help the Department improve its estimates of annual long-term stewardship funding requirements. Developing an alternative funding mechanism will require additional study and eventually Congressional action. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) current difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

43.3 – This term is a direct quote from the Settlement Agreement.

43.4 – The reference to 60 days was an error in the pre-publication version of the Draft Study that was corrected in the Final Study.

43.5 – The Study now uses the acronym "WM PEIS," which is defined in the List of Acronyms.

43.6 – This comment is acknowledged in a text box in Section 6.2 of the Study. Section 6.2 of the Study recognizes the many issues, public concerns, and uncertainties associated with ensuring the continued provision of long-term stewardship after property transfers. The Department's Long-term Stewardship Working Group recently identified the issue of how DOE will ensure adequate protection of human health and the environment at sites transferred to the private sector as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This comment will be provided to the Executive Steering Committee for their consideration. In addition, as noted in Section 3.1 of the Study, section 151(b) of the Nuclear Waste Policy Act allows the transfer of certain NRC licensed sites to DOE but does not require DOE to accept them.

43.7 – NTS was inadvertently omitted from the pre-publication version of the Draft Study and is now included in the list.

43.8 – The Department acknowledges this comment in a text box in Section 4.2 of the Study. The Department's Long-term Stewardship Working Group recently identified the need for a corporate vision for long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. The corporate vision includes the appropriate organizational structure for long-term stewardship within the Department. The Department also recognizes that it is important to define long-term stewardship roles and responsibilities both within DOE and between DOE and other entities, including other federal agencies, states, Tribes, and regional governments. The Executive Steering Committee is developing a Strategic Plan for long-term stewardship; part of that effort will include identifying roles and responsibilities within DOE. The commenters expressed varied opinions on the appropriate balance between federal vs. non-federal leadership, and between a strong central organization vs. independent field organizations. The Department notes that a balance that may work well for one site may not work well for other sites.

ultimately become. Will this be the role of the DOE Office of Long-term Stewardship? If waste sites requiring a long-term stewardship program are dispersed among multiple government and private entities, what control mechanisms are planned to assure that the very site-specific long-term stewardship procedures and responsibilities are maintained and properly followed over multigenerational time intervals?

2. With regards to information management (Chapter 7) there is discussion of permanent markers that will last as long as "practicable", and retention of various data, documents, maps, etc. for very long time periods. However, there is no discussion of the concept to periodically assess the physical integrity of all such items as well as "current technologies" of the time to revitalize all such important materials. I don't think this has to be viewed as a one chance activity after which we must live with what we got and simply try to maintain critical information for as long as possible in its present form.

43.9 43.9 – The Department acknowledges this comment in a text box in Section 10.2 of the Study. The Department agrees that remedies may need to be reassessed periodically in light of changing circumstances and information. Section 10.2 of the Study includes a discussion of these points.

3.0 EDITORIAL COMMENTS

Page 21

The heading, Exhibit 3-3. (continued), should appear at the top of page 2

43.10 43.10 – The text has been changed to reflect this comment.

Appendix B Page B-3

The heading, Exhibit B-1..... Should be moved to top of page B-4.

43.11 43.11 – This was corrected.

Appendix B Page B-6 through B-10

The heading, Exhibit B-2. (continued), should appear at the top of each of pages B-6 through B-10.

43.12 43.12 – This was corrected.

Appendix B Page B-10

To be consistent with other entries in Exhibit B-2., this should read: 19. State and Tribal Working Group (STGWG), *Closure for the Seventh Generation*. February 1999.

43.13 43.13 – The text has been altered to reflect this comment.

Appendix B Page B-12

The heading, Exhibit B-3. (continued), should appear at the top of page B-12.

43.14 43.14 – This was corrected.

Appendix E Page E-1/E-2

Page E-2 not numbered; Exhibit should be referred to as E-1., not Exhibit 2; and last sentence on page E-1 should explicitly refer to Exhibit E-1.

43.15 43.15 – These were corrected.

Appendix F PageF-1/F-2

Page F-2 not numbered and last sentence on page F-1 should explicitly refer to Exhibit F-1.

43.16 43.16 – These were corrected.

MEMORANDUM

TO: Distribution

FROM: Cynthia Ortiz (*original signed by C. T. Ortiz*)

DATE: December 12, 2000

SUBJECT: Comments on Stewardship Reports

I have one main concern about the Nevada Test Site NV-related stewardship reports. That concern is that they lack specificity in identifying controlling legal and regulatory documents. For example, mention is made of DOE Orders in the text, but nowhere can a list be found of the actual applicable orders. The same applies to other governmental statutory and regulatory drivers. I do think some effort should be made to compile such a list of bibliographic and textual documentation in order to increase the credibility and legality of the final reports that are published. Some of this is done in the DOE Headquarters *Long-Term Stewardship Study Draft for Public Comment* dated October 2000. However, there is no indication of a legal citator or bibliographic citation list in that document either, but at least this headquarters version has made some attempt to include those references (such as, mentioning DOE Order 1230.2 *American Indian Tribal Government Policy* referenced on page D-1).

By no means should such citations be considered complete. In fact, it could be stated in the text that references in the text are as complete as possible at the time of publication and the Bibliography might be entitled as *Preliminary Bibliography*.

Merely mentioning web sites does not seem sufficient to me either in the long or the short run.

43.17

43.17 -- The Department acknowledges these comments in a text box in Section 4.1 of the Study. The specific mechanisms available for oversight and enforcement of long-term stewardship vary according to the applicable regulatory regime(s) and state laws on a site-specific basis. The Department has not developed a policy on potential alternative regulatory regimes at specific sites. These comments will be provided to the senior management Long-term Stewardship Executive Steering Committee for their consideration.The Department is currently drafting guidance for site-specific long-term stewardship plans and has begun to address the issue of long-term stewardship information management. These efforts will address records management and documentation.

The SHOSHONE-BANNOCK TRIBES

P. O. BOX 306
FORT HALL, IDAHO 83203
PHONE (208) 238-3706
FAX# (208) 237-0797

CULTURAL RESOURCES
HERITAGE TRIBAL OFFICE (HETO)
email: heto@poky.srv.net

December 15, 2000

Mr. Steven Livingstone, Project Manager
U.S. Department of Energy
P.O. Box 45079
Washington, D.C. 200026-5079

RE: COMMENTS ON THE DRAFT LONG-TERM STEWARDSHIP STUDY

Dear Mr. Livingstone,

The Shoshone-Bannock Tribes appreciate the opportunity to provide technical comments to the Draft Long-Term Stewardship Study dated October 2000. We compliment DOE and its staff for the quality of work that is represented in this document. While recognizing the importance of Long-Term Stewardship and its impact on natural resources, the emphasis on planning for the uncertainties in coordination between the agency and other parties (including tribal nations) is important. 44.1

The decisions regarding the lands and resources considered in LTS efforts are extremely important to the Tribes and to the Fort Bridger Treaty of 1868. While DOE's Idaho National Engineering and Environmental Laboratory (INEEL) occupies the aboriginal homelands of the Tribes, DOE activities affect our ceded territories as well as our Reservation lands. This is also true in respect to national decisions from the Department of Energy; decisions that affect federally recognized Indian tribes, the treaties, and the federal fiduciary trust to Indian tribes.

Tribal Concerns to the Draft Study:

- Just as DOE sites have "site-specific" missions and goals, tribes are "tribe-specific"; each tribal group practicing its individual tradition, value, and cultural legacy. The Final Study may address this fact so not to infer that all tribal nations are the same. 44.2
- The Shoshone-Bannock people occupy the lands around DOE facilities, including INEEL, the Lowman site, and the Nevada site. All of these sites are within the aboriginal territories of the tribes and are equally important when considering the long-term scenarios affecting the tribal rights and, more importantly, the affects to the ecosystem and its environment. Because of these interests, it is important to seriously consider the land transfer affects to tribal rights and tribal treaties. 44.3
- Assistant Secretary of Energy Dr. Carolyna Huntoon's stated that the Draft Study is not considered a decision document, *"except where decision have been made"*. Does this mean that where decisions were made, the draft study is a decision document? Additionally, we are concerned how the draft study affects, or interfaces, with other *"site-specific"* documents that are decision documents. 44.4 44.5

44.1 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process to allow for meaningful Tribal and public involvement.

44.2 – This comment is acknowledged in a text box in Section 9.1 of the Study. The Department does not suggest or infer that all Tribal nations are the same. Language has been added to the text box on the Role of Tribal Governments in Long-term Stewardship (Section 9.1 of the Study) to emphasize this point.

44.3 – This comment is acknowledged in a text box in Section 6.2 of the Study. Section 6.2 of the Study recognizes the many issues, public concerns, and uncertainties associated with ensuring the continued provision of long-term stewardship after property transfers. The Department's Long-term Stewardship Working Group recently identified the issue of how DOE will ensure adequate protection of human health and the environment at sites transferred to the private sector as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This comment will be provided to the Executive Steering Committee for their consideration. Section 6.2 of the Study states explicitly that Tribal treaty rights and the Federal Indian Trust responsibility are important factors for evaluating the potential for transferring real property from DOE control to another federal or non-federal entity.

44.4 – No. The Study reflects the decisions that have been made, it is not a decision document for those decisions.

44.5 – This comment focuses on site-specific issues. Where these issues have identified general issues for long-term stewardship, the Department has attempted to communicate these issues in both the Draft and Final Study. This comment has been forwarded to the Department's long-term stewardship representatives at the appropriate sites; however, the long-term stewardship study is not the appropriate document for addressing site-specific issues.

- Other opening remarks addressed public participation and tribal involvement in the LTS process. It's not clear in the Draft what options are identified to secure tribal involvement in the LTS and Institutional Controls effort. 44.6
- The Draft Study describes the complexity of LTS and the variables that may affect the LTS goals and efforts. While we appreciate this complexity, it's not clear about the definition of Long Term Stewardship and cleanup. The draft document refers to these two terms as being major components of the study but in order to fully understand future challenges to DOE we should understand these two terms. 44.7
- Furthermore, recognizing the fact that LTS and IC may be "site-specific", it's unclear how LTS and Institutional Controls affect other management documents at each site. Additional study could address the *site-specific* plans relative to *tribal site-specific roles*, particularly the plans being developed at the individual sites. 44.8
- DOE at Idaho, Colorado, and HQ must exercise their "trust responsibility" to the Shoshone-Bannock Tribes and other federally recognized Indian tribe by providing full disclosure (when practical, and not violating security risks) of activities that will directly affect tribes and their treaty rights on or near DOE facilities/sites. In particular when such activities adversely affect the lands, water, plants or animals found therein or activities relating to tribal interests and access. 44.9
- Consultation with tribes is an important component to DOE's assurance of interaction with tribes. 44.10

Technical review comments: 44.11

- Long-Term Stewardship measures should not be an alternative, or to reduce or infringe on DOE's responsibility to carry out a complete clean up to, first, treat and then remove the maximum amount of contamination as technologically feasible. 44.12
- DOE's long-term stewardship obligations should be higher at a given site if on-site waste treatment and disposal facilities are used instead of off-site facilities.
- We agree, "Long-term Stewardship responsibilities will pass from generation to generation." Therefore, it is important that our generation set forth the principles to assure that the natural resources will be preserved for the future generations. Efforts need to be taken to establish a balanced culture-based risk assessment and management process at INEEL, and other DOE sites, to fully protect and restore tribal, and historic, cultural resources and environmental health/wellness for all generations (present or future). 44.13
- The term "remediation" is often used synonymously with "cleanup", however it's not clear who will decide the issue regarding "what is acceptable levels of remediation/cleanup of DOE sites"? Furthermore what levels of cleanup will be considered the national standard. 44.14
- Present conditions of the sole source Snake River Plain Aquifer under the DOE's historical practice of Waste Disposal by well injections, solid/liquid waste burials, and pond discharges; as well as the atmospheric re-suspension/deposition of long-lived radionuclides and other industrial contaminants released by the operation of INEEL facilities have not addressed "monitoring and studying" with respect to the possible and subsequent cumulative contamination of the Fort Hall Indian Reservation and its people. Although this comment is site-specific to INEEL, it is important to analyze the specific issues at other DOE sites relative to potential plans toward implementing the engineered controls respective to tribal interests. 44.15
- The draft discusses four principles of Intergenerational Equity. Although these principles are important to integrate into the Long-Term Stewardship process, it is also important to assure that these principles are implemented according to its intent, spirit, and letter. 44.16

44.6 – See response to Comment 44.1.

44.7 – The Department acknowledges this comment in a text box in Section 2.1 of the Study. The Department agrees that the terms "cleanup," "end state," and "closure" are less than ideal. The term "cleanup" is a common word usage that can be confusing. To help clarify the limits of current cleanup technologies and the overall scope of long-term stewardship, the Department has added a text box to Chapter 2 of the Study that describes the limitations and challenges that preclude remediating many sites to levels that would permit unrestricted use; the types of residual hazards that will require long-term stewardship; the time frames that may be involved in long-term stewardship, and the activities that may be involved in long-term stewardship. The Report to Congress on Long-term Stewardship provides additional site-specific information on the projected scope of long-term stewardship. The Department also maintains a Web Site (http://lts.apps.em.doe.gov) that provides public access to numerous documents describing the scope and challenges associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified the issue of developing a consistent, consensus definition of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee.

44.8 – As noted in Section 4.2.2 of the Study, site-specific long-term stewardship plans are required by law for uranium mill tailings sites and must be approved by the Nuclear Regulatory Commission. The Department also requests the development of a site-specific long-term stewardship plan before accepting long-term stewardship responsibilities for any site. As the EM mission at a site is completed, current plans call for the EM program and the site landlord (if different from EM) to develop a long-term stewardship baseline for each site. The baseline will describe the scope of applicable long-term stewardship requirements, the technical activities and the projected schedule to meet these requirements, and expected costs. The Department acknowledges these comments in a text box in Section 4.2 of the Final Study and will consider the recommendations they provide in developing the guidance that will specify the format and content for site-specific long-term stewardship plans.

44.9 – This comment is acknowledged in a text box in Section 9.1 of the Study. The definition of "affected parties" in Chapter 1 of the Study was broadened to include regional concerns. Section 4.1 and Chapter 9 of the Study acknowledge the special government-to-government relationship between the federal government and Tribal governments. Chapter 9 of the Study also acknowledges the importance of ensuring that the federal Indian Trust Responsibilities and federal treaty obligations are met.

44.10 – See response to Comment 44.1.

44.11 – The decision to clean up to unrestricted use, or to meet other specific land use requirements, is made on a site-specific basis with input from regulators, stakeholders, and the public. It is both DOE and EPA policy that cleanup remedies should be consistent with the intended future use of the affected areas. Chapter 2 of the Study includes a new text box that provides a more formal statement on the scope of long-term stewardship and why it is required (i.e., the inability to achieve unrestricted use and the nature of residual hazards). The goal of long-term stewardship is to ensure continued protection of human health and the environment consistent with applicable requirements. The Department recognizes the many issues and public concerns associated with the uncertainties with planning for, documenting, and funding long-term stewardship throughout the Study and acknowledges this comment by including it in a text box in Section 3.2 of the Study.

44.12 – The Department acknowledges this comment in a text box in Section 8.1 of the Study. The Department agrees that more information is needed on the scope of future long-term stewardship activities and better life-cycle cost estimates are needed. The Study incorporates the cost estimates from the Report to Congress on Long-term Stewardship and discusses the basis for these estimates. Accurate cost estimates are critical for long-term stewardship, particularly for ensuring accountability for the technical scope of the program. The Report to Congress on Long-term Stewardship is only the first step in developing the necessary cost figures. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites. This comment will be forwarded to the Executive Steering Committee for their consideration.

44.13 – See response to Comment 44.9.

44.14 – Long-term stewardship planning (see Chapter 4 of the Study) and remedy selection decisions are done on a site-specific basis with input from regulators, stakeholders, and the public. As noted in Exhibit 3-1 of the Study, the criteria used to evaluate remedial alternatives include long-term effectiveness and cost-effectiveness. The long-term effectiveness of institutional controls is one of the criteria for evaluating long-term stewardship requirements during remedy selection that have been suggested in guidance developed by DOE, EPA, and the Department of Defense (DoD) and in recommendations forwarded to the Department (see Exhibits 3-2 and 3-3 in the Study). The Department also has identified the need to promote new science and technology development to help address the uncertainties associated with maintenance of institutional and engineered controls. The Department acknowledges the public concerns about long-term effectiveness in a text box in Section 3.2 of the Study. The issue of uniform or national standards for cleanup is beyond the scope of this Study because this document focuses on long-term stewardship.

44.15 – See response to Comment 44.9.

44.16 – The Department acknowledges this comment in a text box in Section 10.2 of the Study. Exhibit 9-1 of the Study includes inter-generational equity and responsibility as a DOE consideration in developing and implementing long-term stewardship.

- Institutional controls and engineered controls may be viewed as failures depending upon active remediation strategies. An intense review/study of the effectiveness of engineered controls versus institutional strategies needs to be fully understood. 44.17

- Although time frames to implement LTS may depend upon funding and the controls discussed in the draft, our generation should be focusing on future proposed plans and remedies while considering the funding mechanisms to complete true cleanup. 44.18
- We support STGWG's comments to this draft study. 44.19
- The draft discusses tribal and public awareness, however it should also discuss tribal and public evaluations at, and of, sites. We compliment DOE in its advisory groups, however more can be done to promote involvement of others not as fortunate to be on these groups. Tribal and public involvement should also be considered as a part of the final decision as well as through other processes. 44.20
- Funding and long-term implementation is crucial in this effort of cleanup. Serious considerations and active efforts should be made to pursue sufficient long-term funding. 44.21

44.22

Again, we appreciate the opportunity to provide technical comments to the Draft Study. These comments provided are a compilation of other comments that are on file with the Tribes. We await for written response to these comments. Should there be any questions or concerns feel free to contact me at (208) 478-3706 or at heto@poky.srv.net.

Sincerely,

Diana K. Yupe
Tribal STGWG Representative

Cc: Fort Hall Tribal Business Council
Tribal AIP Director Office
DOE American Indian Program Manager

44.17 – The Department acknowledges this comment in Section 5.3 of the Study. The Department believes that Section 5.3 of the Study appropriately discusses the difficulties and challenges associated with ensuring the long-term maintenance of institutional controls, including roles and responsibilities for enforcement. The determination of the type of institutional controls and enforcement of these controls (e.g., by DOE or external parties) will be determined on a site-specific basis as part of remedy selection and long-term stewardship planning and may change over time.

44.18 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. As noted in Section 8.2 of the Study, developing an alternative funding mechanism will require additional study and eventually Congressional action. Section 8.2 of the Study also provides a summary of the recent study of Trust Funds by Resources for the Future. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

44.19 – Please see responses to comment letter 28.

44.20 – See response to Comment 44.1.

44.21 – See response to Comment 44.1.

44.22 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. The Department currently relies on the annual appropriations process to fund long-term stewardship. This is not likely to change in the near term. As noted in Section 8.1 of the Study, a separate Project Baseline Summary (PBS) for long-term stewardship at each site will help the Department improve its estimates of annual long-term stewardship funding requirements. Developing an alternative funding mechanism will require additional study and eventually Congressional action. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) current difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

Campbell, Kathleen

From: Mark Donham/Kristi Hanson [markkris@earthlink.net]
Sent: Monday, December 18, 2000 1:45 PM
To: Stephen.Livingstone@em.doe.gov
Subject: long term stewardship

Mr. Livingstone, These comments were timely sent but for some reason bounced. I didn't notice it until now, so I am resubmitting them. Please consider on the record for this proceeding. Thank you

Dear Mr. Livingstone.

These are the comments of the Regional Association of Concerned Environmentalists (RACE) and the Coalition for Nuclear Justice (CNJ) on the DOE's Long Term Stewardship Plan. RACE and CNJ are both grassroots environmental organizations from Southern Illinois and Western Kentucky which have members that live around and near to the Paducah Gaseous Diffusion Plant, and have been severely adversely affected by the pollution and contamination around the plant. We fashion our comments after those from the Tri-Valley CARES organization. 45.0

• THE HIGHEST PRIORITY SHOULD BE PLACED ON SELECTING REMEDIES THAT PROTECT THE LONG-TERM SAFETY AND HEALTH OF THE COMMUNITY AND OF THE ENVIRONMENT SURROUNDING THE DOE FACILITY. All aspects of establishing, maintaining and funding long-term stewardship activities should be considered during the remedy selection process that is part of active cleanup. Wherever possible, we prefer that DOE facilities are cleaned up to a level that allows unrestricted use and avoids the need for long-term stewardship. Where cleanup to such a level is not practical due to current technical constraints, we want commitments inserted into final remedy decision documents detailing the stewardship plan and funding.

In addition, DOE should provide an opportunity for the public to challenge cleanup choices if there is overwhelming concern in the community for the impacts of a cleanup technology, especially one that is experimental. 45.1

Long term stewardship should also include the residential neighborhoods around the facilities. For example, at Paducah, there are residences within close proximity to the facility which have been severely contaminated by the plant, and yet there is little or no program or concern for cleaning up their property and providing for their security and quality of life. For example, long term stewardship should include funds for testing of private property, for compensation to families for lost property values and health problems, and other unforeseen problems caused by the contamination from the facility, such as problems in adulthood caused by childhood exposure to the contamination from the plant. 45.2

• DOE SHOULD DEVELOP A PROGRAM TO LOOK FOR SOLUTIONS THAT WOULD MINIMIZE OR ELIMINATE THE NEED FOR LONG-TERM STEWARDSHIP. We are aware that some contaminants will have to be "stored" in place or at the site for long periods of time. This may be true for many radionuclides and some chemicals, often when they are in the form of dense-non-aqueous phase liquids (DNAPLs). We also believe that once decisions are made to leave a contaminant in place, it is difficult to get funding to monitor it while simultaneously continuing research on how the contaminant could be safely treated. Still, developing a remedial treatment that destroys a chemical contaminant, for example, should remain a high priority, as it avoids the need for long-term stewardship measures. We propose that DOE form a dedicated program that keeps an eye towards the future, and continually looks for solutions to these problems. In short, DOE should continue to develop new and better remediation technologies for sites that are in the long-term stewardship mode, and then to move them back to active cleanup when it is technically feasible to do so.

At the Paducah site, there is serious long term earthquake threat. This serious seismic concern must be taken seriously for long term stewardship. Such storage of wastes, or wastes left in place, must be considered in worst-case scenarios as to what would occur under serious seismic activities. Not to consider this would be fool-hardy. 45.3

45.0 – Please see responses to comment letter 6.

45.1 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process to allow for meaningful Tribal and public involvement.

45.2 – See response to Comment 45.1.

45.3 – This comment focuses on site-specific issues. Where these issues have identified general issues for long-term stewardship, the Department has attempted to communicate these issues in both the Draft and Final Study. The specific comments in this section have been forwarded to the Department's long-term stewardship representatives at the appropriate sites; however, the long-term stewardship study is not the appropriate document for addressing site-specific issues.

WE STRONGLY ADVISE THAT DOE DEVELOP A MECHANISM WHERE LOCAL COMMUNITIES WILL BE INVOLVED IN LONG-TERM STEWARDSHIP DECISIONS. This should include involvement in initial long-term stewardship activities and any changes to those activities that may occur as a result of re-evaluation or modification of the remedy. The community should also be involved in periodic reviews, such as the five-year review cycle under CERCLA (the Superfund law) to re-evaluate the effectiveness and performance of long term stewardship activities. Additionally, independent technical expertise should be provided to communities to assist them in wading through the many technical documents that form the basis for key decisions.

In addition, each of the major sites should complete their site-wide EISs in compliance with DOE's NEPA regulations. This should include long-term stewardship considerations. 45.4

* DEVELOP CONTINGENCY PLANS AT THE TIME CLEANUP DECISIONS ARE MADE. The National Academy of Sciences' National Research Council recommended that "DOE should plan for uncertainty and fallibility" of some aspects of the long-term stewardship program, including developing plans "to maximize follow-through on phased, iterative and adaptive long-term institutional management approaches at sites where contaminants remain." We believe that these plans should be developed concurrent with cleanup decisions, and should be periodically revisited.

* DEVELOP FIRM FUNDING COMMITMENTS FOR LONG-TERM STEWARDSHIP. Funding for stewardship activities must be adequate. When the final remedy is agreed upon at a site, full funding for stewardship activities should be defined, including the role of the parties who will manage the funding and the funding sources.

* PERIODICALLY RE-EVALUATE THE REMEDY. DOE (or subsequent federal managers) should implement a systematic process for re-evaluating and if needed, modifying existing LTS activities to ensure that developments in science, technology and performance are incorporated. This reevaluation should consider the following: changes in health standards associated with contaminants that are left in place, changes in technology that were not available at the time when initial cleanup decisions were made but if implemented would eliminate the need for long-term stewardship activities, and performance of the remedy in place. The community should be involved in these re-evaluations.

* A RELIABLE, UP-TO-DATE RECORD MANAGEMENT FACILITY ACCESSIBLE TO THE COMMUNITY IS REQUIRED. DOE must fully characterize, document, and disclose all environmental contamination at its sites in case failures occur. At a minimum, DOE needs to develop a record management system that will always be accessible at or near the location of the stewardship activities.

* DEVELOP POLICY AND REGULATIONS ON PROPERTY TRANSFERS. One of the more difficult aspects of this program is deciding how to handle property transfers and the obligations of DOE and the new owner after the transfer. We strongly advise that this be addressed as policy and specific regulation, which contains the premise that DOE is responsible for a site in perpetuity unless the new owner has altered the property (e.g., drills through a landfill), violated a legal deed restriction, or contaminates the environment.

* AVOID TRANSFERRING OR RELOCATING HAZARDOUS SUBSTANCES. This practice adds the complication of transportation and reclamation of the former site, while still maintaining the burden of long-term stewardship activities. We are also concerned that some locations with lax standards could become the dumping ground for many long-lived hazardous materials.

However, there must be a serious consideration given to seismic concerns when even considering onsite disposal for certain sites like Paducah. Transportation is not a good option, but, suffering the long term consequences of environmental releases of contaminants thru major seismic activities is a serious matter. 45.5

* WHEN CONTAMINANTS ARE LEFT IN PLACE, DOE SHOULD COMPENSATE LOCAL GOVERNMENTS. Compensation to fund protective equipment, emergency

45.4 – The Department acknowledges these comments in a text box in Section 4.1 of the Final Study. The specific mechanisms available for oversight and enforcement of long-term stewardship vary according to the applicable regulatory regime(s) and state laws on a site-specific basis. The Department has not developed a policy on potential alternative regulatory regimes at specific sites. These comments will be provided to the senior management Long-term Stewardship Executive Steering Committee for their consideration.

45.5 – Long-term stewardship planning (see Chapter 4 of the Study) and remedy selection decisions are done on a site-specific basis with input from regulators, stakeholders, and the public. As noted in Exhibit 3-1 of the Study, the criteria used to evaluate remedial alternatives include long-term effectiveness and cost-effectiveness. The long-term effectiveness of institutional controls is one of the criteria for evaluating long-term stewardship requirements during remedy selection that have been suggested in guidance developed by DOE, EPA, and the Department of Defense (DoD) and in recommendations forwarded to the Department (see Exhibits 3-2 and 3-3 in the Study). The Department also has identified the need to promote new science and technology development to help address the uncertainties associated with maintenance of institutional and engineered controls. The Department acknowledges the public concerns about long-term effectiveness in a text box in Section 3.2 of the Study. The issue of uniform or national standards for cleanup is beyond the scope of this Study because this document focuses on long-term stewardship. In addition, the Department agrees with the commenter's concerns about seismic and other catastrophic events that have a reasonable probability of causing remedy failures. Periodic assessments of the remedy are required by law and may result in a need to take further action at sites with physical limitations.

preparedness, and sophisticated record keeping should be available to all local governments where LTS activities fall under their jurisdiction.

Finally, communities in the Regions of Influence, the 50 miles circles around each facility, should be educated in the long term stewardship implications, risks, and hazards associated with these facilities. In addition, if there are long term off-site disposal and treatment activities, those sites should be fully informed about what wastes are coming from what facilities, when, and how, and they should be given input into this process.

Thank you for considering these comments.

Mark Donham
Kristi Henson
RACE
Coalition for Nuclear Justice
RR # 1, Box 306
Brookport, IL 62910
618-564-3367

45.6 45.6 – See response to Comment 45.1.

Campbell, Kathleen

From: Girod, Brenda
Sent: Friday, December 29, 2000 1:49 PM
To: Hegner, Bob
Cc: Campbell, Kathleen
Subject: FW: Comments on LTS draft

These comments just came in...

-----Original Message-----
From: McBaugh, Debra [mailto:Debra.McBaugh@DOH.WA.GOV]
Sent: Friday, December 29, 2000 1:45 PM
To: 'Steven.livingstone@em.doe.gov'
Cc: 'bgirod@icfconsulting.com'; Jaquish, Dick; Erickson, John (DOH); Danielson, Al; Van Verst, Scott; Albin, Lynn
Subject: Comments on LTS draft

Dear Mr. Livingstone:

As a state with one of the largest of the DOE facilities, Hanford, long-term stewardship is an issue of importance. Recognizing that immediate cleanup is the most crucial concern, determining how these facilities will effect future generations, how to address reuse of property and land, and how to keep, safely, the legacy land, materials, and waste before cleanup is extremely important. We therefore took the time to review the Draft Long-Term Stewardship Study. Unfortunately, due to many other tasks, we were not able to send our comments until now. We apologize and hope you will still consider them. With that, our first comment will be a welcome one. We found the document well done and quite complete. The few comments we have will, hopefully, be of a constructive nature. 46.1

We suggest the Conference of Radiation Control Program Directors (CRCPD) be cluded in the development of long-term stewardship policies and rocedures. This national organization consists of members from all of the states' radiation control programs. It provides a forum for centralized communication among the states and between the states and the federal government. More than thirteen states have DOE-operated facilities, so the subject is of interest to them. At least two CRCPD committees deal with DOE decommissioning. 46.2

Some additional discussion would be helpful on the meaning of "unrestricted use". It is used frequently in the document. It appears to be used interchangeably with "rural residential" to describe complete cleanup, where people can live without restrictions. There are situations where rural residential land use may be acceptable, but a gravel pit or strip mining may not be. Unrestricted use means that regulators can walk away with no restrictions on any use of the land. It would be appropriate to address this item in more detail. 46.3

Because stewardship is complicated and many organizations want to be involved, public outreach programs are important. Often those who are farthest away from a site, and may not be as well informed, raise the largest concerns. It would be worth considering a layered approach where greater weight is given to inputs from those who live near or may be directly impacted by a remediated site. We recognize this may not be possible in all situations. 46.4

Our last comment involves institutional controls. Stewardship requires methods for assuring public health and safety throughout cleanup and after cleanup when residual hazardous materials are left in place. Often states and local governments will be the enforcing agencies. It is vital to form a cooperative relationship between DOE and state and local governments to address this issue. We encourage you to keep this in your plans for the ture. 46.5

Thank you for the opportunity to comment on this document. Again, we

46.1 – The Department appreciates this comment. Thank you.

46.2 – The Department acknowledges this comment in a text box in Section 4.2.1 of the Study. As noted in Section 4.3 of the Study, it is current DOE policy that long-term stewardship responsibilities at sites with ongoing, non-EM missions will transfer to the site landlord organization when the EM cleanup mission is completed and several conditions are met. The Study in several sections notes existing guidance and guidance under development that address one or more aspects of long-term stewardship. In addition, the senior management Long-term Stewardship Executive Steering Committee has begun to develop a Strategic Plan for long-term stewardship. The Strategic Plan will be the basis for additional program planning documents, including any future policies, procedures, processes, mechanisms, and strategies. The Executive Steering Committee will provide recommendations for the resolution of specific issues, including paths forward and timetables, as appropriate. This comment will be forwarded to the Executive Steering Committee for their consideration.

46.3 – The Department attempted to clarify the meaning of "unrestricted use" versus residential use of the land in a footnote in Section 2.1 of the Study.

46.4 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process to allow for meaningful Tribal and public involvement.

46.5 – The Department acknowledges this comment in Section 5.3 of the Study. The Department believes that Section 5.3 of the Study appropriately discusses the difficulties and challenges associated with ensuring the long-term maintenance of institutional controls, including roles and responsibilities for enforcement. The determination of the type of institutional controls and enforcement of these controls (e.g., by DOE or external parties) will be determined on a site-specific basis as part of remedy selection and long-term stewardship planning and may change over time.

apologize for the lateness of our comments. If you have any questions please do not hesitate to call me at 360-236-3251 or Richard Jaquish at 509-628-2804.

DMcB

Debra McBaugh, CHP, Manager
Environmental Radiation - Assessing radiation in the environment, ensuring public health
360-236-3251
FAX 360-236-2255

This message may be confidential. If you received it by mistake, please notify sender and delete the message. All messages to and from the Department of Health may be disclosed to the public.

UNITED STATES DEPARTMENT OF ENERGY
OFFICE OF ENVIRONMENTAL MANAGEMENT

PUBLIC HEARING ON
DRAFT LONG-TERM STEWARDSHIP STUDY

Forrestal Building
1000 Independence Avenue, S.W.
Room 1E-245
Washington, D.C.

Thursday, November 30, 2000

9:00 a.m.

DOE Representatives

JAMES D. WERNER
SEAN CASEY

Speakers

STEVE LIVINGSTONE
SETH KIRSHENBERG
SUSANNE SNYDER
TRISHA CHRISTOPHER
LIZ HOCKING

1 P R O C E E D I N G S

2 9:24 a.m.

3 MR. CASEY: Okay. Why don't we get started?

4 Thanks for coming. My name is Sean Casey.

5 I'll be your moderator for today.

6 Currently, we only have one person who is

7 here who has signed up to -- to make comments. We had

8 prior notice of two, so we're -- our -- we're --

9 understand somebody is -- is coming later this morning.

10 If anybody changes their mind and would like to make a

11 comment along the way, there's a sign-up sheet out

12 front or just catch my attention. I don't think

13 there's going to be a long line.

14 If you want to speak, there's a table up here

15 with a microphone that you're welcome to come up to.

16 If you'd rather stay where you are, I'd be glad to

17 bring you this microphone down. But because we're

18 transcribing and recording everything, please speak

19 into the microphone even though we're actually in a

20 fairly close proximity here. And also state your name

21 when you speak so that we can get it into the

22 transcript.

23 With that, let me turn it over to Jim, who's

24 going to walk you through hand-outs. If you don't have

25 these, those are out on the front table. When he's

1 through, we'll see if anybody else wants to speak.
2 Beyond that we have one person signed up, and we'll --
3 we'll take it from there.
4 Jim?
5 MR. WERNER: Thank you, Sean. Is this on
6 yet?
7 (Pause)
8 MR. WERNER: It's not working. And the only
9 reason we'd use it is so that we can record it so we
10 can meet our "Federal Register" notice requirements.
11 Oh, well. Does this one work?
12 (Pause)
13 MR. WERNER: Good morning. Most of the folks
14 here, I think, are very familiar with these issues, but
15 I think because there's a few people not, we're just
16 going to use the time to provide an introduction just -
17 - and an update for other people. Would people find it
18 useful to get an update on some of the issues? I see a
19 "yes." Okay. From some people, even though you're
20 familiar generally with the issues.
21 Well, I'm glad we've got a few familiar faces
22 and a few new ones. I -- I'd like to use the time to
23 provide not just an update, though, of the activity on
24 the report that we're talking about today but on other
25 activities that we're working on, primarily some of the

1 related activities that we're working on here in DOE
2 headquarters, particularly in Washington, not just the
3 Germantown.
4 But the point of today's meeting, just for
5 the record, is to provide an opportunity to provide
6 comment on a draft study that we have prepared. The
7 draft study we refer to is the National Study on Long-
8 Term Stewardship, or sometimes the PEIS study, is out
9 for public comment. It's been out since October 31st,
10 I believe, and the public comment period extends till
11 December 15th. We will have one other meeting that
12 we'll have concurrent with another national conference
13 that's going on and want this to be an evening session
14 out on the west coast on December 14th for folks who
15 are interested in that as well.
16 Let me talk, first of all, about where some
17 of this came from, for background for people who have
18 not heard it, and then talk about this study as well as
19 others.
20 As many of you know, I was -- when I first
21 came to DOE I was the Director of the Policy and Budget
22 Office here for five and a half years, and one of the
23 big projects we took on was to ask the question where
24 are we going? Why are we spending all this money? And
25 how much money are we going to spend? And what are we

1 going to buy when we're done spending all this money?
2 That was known as the Baseline Report, the Baseline
3 Environmental Management Report. And some of you were
4 involved in that. That was a -- an enormous effort
5 involving many dozens or hundreds of people. We
6 finally forced, I have to say, our field offices to
7 come up with technical baselines providing the scope,
8 schedule, and cost of their activities, and this was
9 the first time this was ever done for many, if not
10 most, of our field offices.
11 We actually did two of these baseline
12 analyses. One was published in 1995, the other
13 published in 1996, and that was the -- for the first
14 time we learned that the cost of the EM Program would
15 be about $200 billion.
16 But we learned a whole lot more, and I would
17 say more important things than just that $200 billion
18 number 'cause anybody who was involved in it, and some
19 of you -- a couple of you were, know that that 200
20 billion number will change depending on a lot of
21 variables, such as what's the -- the extent of cleanup,
22 how much do you spend on overhead, and how you define
23 the scope.
24 But one of the other important lessons we got
25 out of it is when we were done cleanup you're actually

1 not done cleanup. That is, when you're done cleanup
2 what you're going to have is a lot of sites with
3 residual contamination. In fact, most of you have seen
4 the map of the United States showing that we've got
5 over a hundred sites where there's going to be residual
6 contamination and waste left after cleanup.
7 So really, the question was what are you
8 buying and what are you going to do with product you've
9 bought? What you're going to buy is a lot of
10 contaminated sites. They're going to be -- hopefully,
11 what you've really bought is lower risk and lower cost,
12 and that helps you refine, well, why are you doing this
13 whole EM Program? You're doing it to reduce risk and
14 to reduce cost because you're not going to eliminate
15 the risk, you're going to -- or the hazard, you're
16 going to reduce it greatly to a level that you can use
17 the land afterwards.
18 So it helped refine for the first time what
19 the whole EM Program was about, and then it -- even
20 though the EM Program started in 1989, 1995 was really
21 the first time we got a sense of what we were really
22 buying for the EM Program.
23 Having spent three and a half years of my
24 life on that and five years as Policy Director, and we
25 -- many of us started to move on to the question of,

1 well, when we're done with the EM Program, what's going
2 to be left and how do we prepare for that? There's --
3 to the extent you can prepare for life after the EM
4 Program, hopefully you can do better in focusing the --
5 the EM Program of actually reducing cost and reducing
6 risk, which is hopefully what you're buying, not just
7 spending money for no reason.
8 But along the way we've now spent about $60
9 billion. And sometimes we've achieved palpable
10 results, sometimes we've not been able to measure them.
11 We have acknowledged, though, explicitly the need for
12 long-term stewardship, which is something that I think
13 some folks have not acknowledged explicitly. And that,
14 of course, helps us in getting the cleanup done because
15 a lot of the -- we find our stakeholders -- and perhaps
16 we'll hear a comment today about it -- local
17 governments, developers, state governments,
18 stakeholders are concerned that if DOE's doing cleanup
19 and it's actually not going to clean it up to
20 background, zero contamination then where is the
21 commitment, where is the -- the technical activities to
22 provide continued protection? Even if it's only $5000
23 a year, there's got to be some mechanism of checking
24 up, monitoring the sites. And to the extent DOE fails
25 to provide that assurance, then people are concerned

1 that you -- that they don't want you to leave anything
2 behind and they want you to clean it up to complete
3 background.
4 So we've been able to provide at least the
5 beginning of some assurance that there's going to be an
6 adequate, though very low-cost, program for long-term
7 stewardship so people will become more accepting of
8 remedies that don't necessarily leave an enormous
9 amount of contamination behind. 'Cause frankly, the
10 technology and the money just isn't there to eliminate
11 all the contamination in all the cases.
12 In 1999, our new Assistant Secretary, Carolyn
13 Huntoon identified this as one of her top priorities
14 for many of those above reasons and established our new
15 Office of Long-Term Stewardship. You know, the -- the
16 Congress has been very interested in this for many of
17 the same reasons local developers and stakeholders and
18 other people are interested because they want to make
19 sure that we can finish the EM Program in a cost-
20 effective way but make sure there's something there
21 after the EM Program.
22 A nd that the -- a lot of these results
23 were captured in a report by the National Resource
24 Council of the National Academy of Sciences, who raised
25 an air of skepticism that the effort is not yet

1 complete. And I think the Department has to
2 acknowledge that our effort is not yet complete but
3 we're at least working on it.
4 The NRC report that came out in August said
5 that it's not just something you do after cleanup, it
6 should be a pervasive concept you consider during a
7 cleanup process so that you consider what you're going
8 to do after a cleanup while you're designing a remedy.
9 And so you design some sort of sustainability in during
10 the design phase that the effectiveness of the initial
11 work, you know, is technically reliant on what comes --
12 what you plan to do afterwards. That is, if we're
13 going to spend $200 billion, unless you provide 10
14 million or whatever it is afterwards, 100 million, then
15 your initial investment will start to erode away and
16 your -- your -- your money will, you know, end up being
17 thrown out the window.
18 The -- the NRC said that they find it the
19 Department's current reliance, they called it
20 problematic, and they -- they listed a number of
21 reasons why the Department didn't yet have a reliable
22 program for long-term stewardship. Based on that, the
23 National Academy of Sciences provided some strategic
24 objectives that recognize the -- the uncertainty of all
25 this, the -- the need to plan for possible failure and

1 to respond to that with some sort of flexible program,
2 to having center structures. And that's a -- an area
3 they did not explore a lot, but in discussions with
4 them they recognize the need for contractors to having
5 incentives to reduce cost, not increase and inflate
6 costs, which may be going on out there. We --
7 concerned. I'm not going to get into all the strategic
8 objectives, but we're trying to respond to them in --
9 in our various activities right now.
10 Let me move to today's subject. Today's
11 subject is this particular study that came about as a
12 result of a lawsuit settlement that -- actually, the
13 lawsuit settlement originally began in June of 1989
14 when the Department at that time proposed both a -- a
15 new -- new construction of nuclear facilities, then
16 known as Complex 21 or Reconfiguration or the Yellow
17 Report. It went through different names. And also,
18 there is a -- a proposal then to undergo a -- what --
19 what was then a series of five-year plans to finish all
20 the cleanup.
21 And there was lawsuits filed at that time,
22 and the Department settled the lawsuit, initially
23 announcing its intent to do two -- Programmatic
24 Environmental Impact Statements in January, and finally
25 settling with the Justice Department of October of

1 1990. That -- that settlement agreement called for the
2 two programmatic environmental impact statements to be
3 done. Let me just talk about the one.
4 The one programmatic environmental impact
5 statement -- before 1993 when I came in the Department
6 had already spent $60 million on a paper document EIS.
7 And one of the first jobs I got as an employee here was
8 to try to wrestle that in -- under control. The
9 Department had been spending nearly $1 million a month
10 on this paper document trying to do risk assessments of
11 every single little site out in there in the field.
12 And it was spending money towards no specific end,
13 given that those local decisions were made locally by
14 local stakeholders and regulators and state regulators
15 in the PA.
16 We made the decision then to refocus the
17 programmatic environmental impact statement on waste
18 management. So this PEIS there referred to, it doesn't
19 have a title here because its title changed over time.
20 It was originally the Environmental Restoration Waste
21 Management PEIS. In '93 we decided to change its focus
22 to be the Waste Management Programmatic Environmental
23 Impact Statement. And of course, because of the
24 concurrence process, it took it till 1995 until it got
25 published in the "Federal Register," early '95. But we

1 finally officially change the scope of that PEIS.

2 Unfortunately, the plaintiffs disagreed with

3 that change, and when we published the final document

4 in 1998 -- '98, '97, they sued us because the scope was

5 too narrow. We had excluded too much of the

6 environmental restoration issues. And we began more

7 litigation. Else not detailed -- not bothering to get

8 into the details of all the litigation and back and

9 forth that followed, but we did finally settle it, and

10 this was one of the provisions of the settlement that

11 we -- we signed in December of 1998.

12 There were three provisions of the

13 settlement, and those provisions were very related

14 inextricably. This one required the Department to

15 provide a study on long-term stewardship. The second

16 provision of the settlement agreement required that we

17 created a -- a database called the Central Internet

18 Database -- specific parameters that were included in

19 that database, and that is now operational. And the

20 third element to the database was to provide a fund for

21 scientific and technical review, and that's called the

22 -- the Citizen Monitoring and Technical Assessment Fund

23 for $6 and a quarter million. It's administered

24 independently of the Department.

25 But the -- the point of the three elements

1 related to the point in contention in the lawsuit
2 settlement. In contention was whether or not there was
3 a major Federal action having a significant impact on
4 the Federal environment that -- in the human
5 environment involving environmental restoration. The
6 -- the Department contended that there wasn't a single
7 decision, that it was in fact numerous decisions made
8 at the local level. And so therefore, it wasn't
9 appropriate to spend more money on a PEIS. We -- we
10 claimed that; they claimed you had to do it.
11 The settlement agreement acknowledged that
12 while the decisions were made independently, there was
13 some interrelationship of those decisions that could
14 benefit from some sort of study, even though there
15 wasn't a major national Federal decision. The
16 settlement agreement addressed that by providing, first
17 of all, the database. For the first time ever, the
18 database will give an idea -- it does give an idea of
19 where the waste is, which we've never had before, and
20 where is it going. We've never had any kind of
21 accounting on how much waste we had and where it's
22 located and then where it was going to.
23 The -- the long-term stewardship study was
24 intended to address once the waste gets to where its
25 final disposition is, how do you deal with the waste

1 once it's there. And finally, the Citizen Monitoring
2 and Technical Assessment Fund then gives you some funds
3 that people can do independent studies. And that's
4 already starting to becoming available to people.
5 The PEIS study is not a NEPA document,
6 although we are following some NEPA procedures in -- in
7 the process. We're following NEPA procedures in
8 scoping pursuant to the DOE NEPA regulations. And for
9 the comment response period, we're following right now
10 the CEQ regulations. And these were all spelled out in
11 the settlement agreement. It was hard-fought
12 negotiation over a six -- 10-month period.
13 The -- the decision also -- it -- it was not
14 explicit but, I think, implicit was that it would not
15 address site-specific issues, so that's why we're --
16 you'll see in this draft study, hopefully, that it very
17 clearly is addressing the -- the national and
18 programmatic issues, not site-specific issues. We just
19 didn't want to go that same path that led us to spend,
20 you know, millions of dollars on the original PEIS. We
21 wanted to keep the cost of this down as low as
22 possible. I think we succeeded in doing that, but we -
23 - even if we don't do the site-specific issues, there's
24 a lot of useful national -- hopefully, people here will
25 agree that we've addressed the -- the national, cross-

1 cutting, institutional issues. It's not a NEPA
2 document, but we had to follow certain public
3 involvement procedures.
4 We hope to get this done -- first of all, the
5 public comment period, as I said, is over December
6 15th, and we hope to then get a final version of the
7 report through the concurrence process out before the
8 end of January, when there will be some changes in our
9 -- the management around here no matter what happens.
10 I won't get into the major topics. I just
11 wanted to introduce where we -- where we came from to
12 get here today. So that background tells you why we're
13 here today and what the whole background of the whole
14 study is.
15 I want to talk about other activities for a
16 moment before I get into the PEIS in a little more
17 detail -- this study because I think there's some
18 confusion about, first of all, this other major report
19 that's now being prepared.
20 There is another report that -- that's now
21 going through concurrence that doesn't involve public
22 comment in the same way the PEIS study did, although
23 there is some public comment involved. This one is
24 required by Congress. This -- this -- sometimes called
25 the NDAA report -- is required by the National Defense

1 Authorization Act report language. And they were
2 interested in, frankly, promoting the development of
3 technical baselines on a site-specific basis because
4 they -- they -- their sense was that there was no
5 "there" there, that their Department had been spending
6 money without a clear sense of where it was going. And
7 by forcing the Department really to develop technical
8 baselines, the Congressional staff thought that there
9 would be a -- a better sense of what the realistic goal
10 was in mind rather than just spending it towards an
11 unrealistic end point that wasn't technically
12 achievable of complete, you know, green-field cleanup.
13 So that's what we are involved in doing now.
14 We sent out a guidance package to the field
15 last December. We've been working with our field
16 offices and asked our field offices to -- to work with
17 their local stakeholders since then in getting that.
18 I'll be happy to answer questions about it, but suffice
19 it to say that it is, you know, a voluminous document
20 in that it essentially required each of our field
21 offices to submit the required data, and that's
22 compiled in a thick volume 2. And there's a relatively
23 thin summary, volume 1, that describes what's -- what
24 he -- the different field offices sent in.
25 So that we hope to have out in fact in a

1 matter of weeks publicly, although many have already
2 seen drafts of it through the local field offices who
3 sent that report out. But that is a totally different
4 effort involving site-specific information by contrast
5 with this one.
6 There's a whole series of other ones that I
7 probably can't describe, other activities that are
8 perhaps less involved, certainly less costly, that I
9 probably can't get into a lot of detail. But I think
10 we -- I can say in -- in -- in general that, you know,
11 these are things called for by, you know, the -- by our
12 management, by Congress, or through the analytical --
13 analytical work done by these other reports.
14 The first two you see, and I've already
15 mentioned the big PEIS study we're here to get comments
16 on today, and the report to Congress. We've also
17 sponsored some independent analysis through the -- the
18 Environmental Law Institute and a local government
19 group called the Energy Communities Alliance to ask
20 what is the role of local governments since right now
21 states and Federal agencies are the ones regulating
22 cleanup. But after the cleanup is done, the people
23 responsible for land-use planning are often local
24 governments. But how do you provide for some
25 reasonable integration of local governments without

1 creating too much problem with local governments, you
2 know, who don't have a legal role in the cleanup
3 process? So that, I think, case study at least helps
4 us address some of those issues.
5 And in addition, we're having an independent
6 report done by Resources for the Future, who has a -- a
7 lot of background on government financing options
8 because right now the -- one of the big issues that I
9 think we'll -- we've heard through this PEIS study is
10 concern about financing. You know, the local people,
11 the states, the stakeholders, the Indian Tribes, other
12 Federal agencies, frankly, have given us very strong
13 feedback that their number one concern, perhaps, or one
14 of their top two or three concerns is that they're
15 concerned about continued funding for long-term
16 stewardship. How do you ensure funding? And they
17 don't have confidence that the annual budget process
18 will provide, you know, adequate confidence in funding
19 for the next 20, 30, much less more years than that.
20 So that study should be out, in fact, in just a few
21 weeks if it's not out -- sooner.
22 There's a number of internal guidance
23 activities, and let me just say that we're acutely
24 aware that we cannot legally go forward with certain
25 decisions without following the necessary NEPA

1 requirements, but our guidance that we've gotten so far
2 from our colleagues in -- in EH, the Office of
3 Environment Safety and Health, and CEQ is that if it's
4 purely administrative or an internal management issue
5 then it does not require you to go through a full NEPA
6 environmental impact statement process.
7 So there are certain things we have done.
8 The -- the strategic plan, obviously, is something you
9 can -- you need to do just to keep track of all your
10 different activities and provide some performance
11 metrics to make sure that you know where you're going
12 and you're spending your money and getting your money's
13 worth on activities.
14 We're putting together some field guidance
15 that's been asked for by our field offices to provide
16 some -- some guidance to them on how you actually do
17 planning for long-term stewardship. What are the
18 things should be included in plans, who should prepare
19 them when. The so-called "Hand Off" policy is an issue
20 that's really hard upon us, and this -- this arises
21 because we have some sites where there's an expected
22 non-cleanup or non-environmental management mission,
23 such as at Los Alamos or Sandia, Livermore, Kansas City
24 plant. In fact, of the 21 sites with an expected non-
25 EM mission, three of those sites have already -- we've

1 already finished all the cleanup work there but yet
2 there's long-term stewardship work.
3 And the question that came to us was, well,
4 who's going to pay for the long-term stewardship?
5 Should it come out of the Environmental Management
6 budget? Should it come out of the budget from the
7 Defense Program? Say -- who's going to be responsible
8 for managing that money and getting that through?
9 So we went through a year-long process with
10 options papers and meetings with all the program
11 secretarial offices internally within the Department,
12 and the result is the so-called "Hand Off" policy of
13 transfer of long-term stewardship responsibility where
14 the cleanup has already been completed. And that
15 policy should be issued within -- Tess, you heard from
16 Jeff. We think weeks or a week or so. It's just going
17 through final concurrence right now.
18 There's an institutional control policy. I
19 think it speaks for itself. But I think it's -- for
20 anybody who's familiar with EPA and Department of
21 Defense's institutional controls policy, I think it'll
22 be fairly comparable to that but, you know, but more
23 responsive to the DOE issues.
24 And then the two public information sources
25 -- one of which I've already discussed before. It's a

1 requirement for the lawsuit settlement. The other one
2 is a -- we'll just call the site database -- was a
3 commitment by the Secretary of Energy as a result of
4 some -- some news media and Congressional concern
5 earlier this year about sites that had, quote, "fallen
6 off of the -- or fallen through the cracks," unquote.
7 And whether or not we had lost track of
8 significant sites, you know, may or may not be true,
9 but it was correct factually that we didn't have a
10 central database to keep track of sites. There was a
11 database of sites in the EM Program where we're
12 actively doing cleanup. There was -- had been a
13 database of sites where some work in Integral Weapons
14 Program had occurred, like, in the 1940s and '50s, but
15 of course, most of that work was transferred to the
16 Army Corps of Engineers and it wasn't clear who was
17 responsible for that -- that list of sites. So this is
18 helping clarify that and ensuring that even when sites
19 are cleaned up there's at least some place where the
20 Federal government will provide a repository of what
21 happened to those sites, that there's some
22 accountability for that because it costs a lot of
23 money, as we learned, when you have to investigate a
24 site brand new. We've had to do that in the past
25 couple of years, and it's a very costly and disruptive

1 activity. So hopefully, that'll avoid those sorts of
2 surprises and those costs.
3 So the -- what -- what, hopefully, you've
4 seen from that is that there are a number of other
5 activities going on in the area of long-term
6 stewardship that we hope and we believe don't trigger
7 the NEPA requirements in creating problems there but
8 nonetheless are necessary just for the efficient
9 management of the program.
10 Let me go back to the study that we're here
11 to talk about today, the -- the -- the PEIS study.
12 Steve -- Steve Livingstone is the Project Manager for
13 that, and he's such a good project manager he gets me
14 up here as his boss, the front man, to talk about it.
15 Would you prefer calling it the National Study or the
16 PEIS study?
17 MR. LIVINGSTONE: I think it's actually moved
18 past --
19 MR. CASEY: We need -- we need to mike him.
20 MR. WERNER: You could pick one -- or either.
21 (Pause)
22 MR. LIVINGSTONE: My own personal opinion is
23 I think it's important to note that the settlement
24 process helped move the process forward in the
25 Department, but I think the research and the study

1 itself, both from the people working inside the
2 Department as well as the significant effort and input
3 by groups such as State and Tribal Working Group, E-
4 Map, and the Energy Communities Alliance and other
5 folks, put into it has really made it truly a national
6 study. I think it's moved past the requirements
7 outlined in the settlement agreement and becomes a much
8 more useful tool than merely responding to a lawsuit.
9 MR. WERNER: So the answer is you want to
10 call it --
11 MR. LIVINGSTONE: -- National --
12 MR. WERNER: -- National Study, okay. 'Cause
13 I've been calling it the PEIS study, and Steve's been
14 correcting me to call it the National Study 'cause we
15 really did -- we -- both of us were involved in trying
16 to bring that old PEIS in -- under control and we did
17 not want this thing to get out of control. We wanted
18 to try to stay focused on what would be a useful tool,
19 and I think we wanted to make sure it didn't gather
20 dust after -- after it was completed. People could
21 pull it off the shelf and say, oh, okay, here's how
22 that issue could be dealt with and here are some
23 alternatives at least to deal with these -- these
24 issues that crop up and that it's not just something
25 that, you know, goes on and then is forgotten.

1 Appreciate that, Steve.

2 We -- we went through the scoping process

3 last October through February, and we got a lot of good

4 comments from the scoping process, actually. We had a

5 number of scoping meetings that were very well

6 attended, and maybe we did such a good job in the

7 scoping process that we didn't get very much attendance

8 here today. But there may still be a lot of written

9 comments coming in.

10 But the -- the scoping process really helped

11 formulate what the -- the major issues that people

12 wanted addressed in because we obviously couldn't do

13 everything, so we wanted to hear what people were most

14 interested in, what were the most important issues that

15 they wanted to hear talked about. And there's a -- a

16 list of 27 issues that we usually attach to every

17 briefing, but we didn't do it today. Figured we could

18 save paper since everybody's already seen that list a

19 million times before. If anybody doesn't have that

20 list of 27 issues, it's in the study. We can get you

21 another copy, but, you know, we've killed enough trees

22 for the one -- one year in the Federal government.

23 Appreciate you're not just duplicating everything all

24 over again.

25 We -- we got -- I guess the formal comments

1 from 18 people, Bob, that's only the formal written
2 ones. But we had -- we had probably 50 people down at
3 the meeting at Oak Ridge, and we had about 70 people in
4 Nevada, and another 30 or 40 in the -- in Idaho. So
5 there was a lot of verbal comments provided as well.
6 And what we -- we hope you can see, anybody
7 who provided comments in that scoping process, is a
8 good crosswalk that all the scoping comments -- people
9 who thought issues that should be dealt with are
10 addressed in them and then try to sort out what are the
11 most important things, that nothing fell through the
12 cracks, as it were. You know, and that -- maybe that's
13 a -- one of the important places we can -- get comments
14 from you here today or during this comment process, is
15 if you think things fell through the cracks or weren't
16 dealt with, you know, that would be a useful comment
17 for us to get back. But we've tried to make a good
18 faith effort.
19 Here's a -- sort of a one-page summary of the
20 -- the top seven issues. We're cutting costs 30
21 percent. It's not the top 10. The top seven issues
22 for long-term stewardship that people wanted us to
23 address.
24 And interestingly, the top issue was the same
25 issue you recognize from the National Academy of

1 Sciences study. They recommended that you don't deal
2 with long-term stewardship just after cleanup is done
3 but rather you deal with the -- the issues of long-term
4 stewardship during the cleanup process, that you design
5 sustainability in from the beginning. And this doesn't
6 mean gold-plating and doing a Cadillac treatment in
7 every case but in some cases spending less money
8 because it doesn't matter whether you do the Cadillac
9 treatment or the Volkswagen treatment; both will
10 require the same cost for long-term stewardship. And
11 that's what we found in a lot of cases, that people
12 were in fact spending more money than necessary in
13 cleanups because the outcome in terms of the subsequent
14 follow-up would be the same in terms of risk reduction
15 or the cost of long-term stewardship, but at least
16 incorporating those cost considerations during the
17 cleanup design process.
18 The second issue is how do you ensure that
19 you're going to provide long-term stewardship not just
20 during the first transfer. That's the easy part, when
21 you -- the Department may have a ceremony turning it
22 over to somebody. But how do you provide continuity
23 for long-term stewardship during the second and third
24 and fourth processes we're now into for a lot of the
25 sites, at least that I worked on when I was a

1 contractor for DOE doing cleanup back in the 1980s.
2 The access to information is a -- a perennial
3 question that, frankly, we've not addressed entirely.
4 Some sites you're spending a lot of money on -- on
5 information retention without focusing enough on long-
6 term stewardship. Some sites are not focusing money or
7 attention at all on it and things are then dropping off
8 the plates, so then we have to spend a lot of time and
9 money going back and reconstructing things. We've
10 already had to go back and sample sites that had been
11 sampled earlier just because we lost the records of the
12 old sampling information when the site got shut down.
13 The -- the fourth issue is the issue I
14 mentioned before: safe and reliable funding. I
15 appreciate we move that. That's usually number two on
16 this, but it's hard to group these in, you know, simple
17 ordinal ranking. These are really just the top -- the
18 top group of 'em.
19 Ensuring, you know, continued partnerships
20 and -- that one of the issues we, of course, heard most
21 from was the local governments, who feel, and correctly
22 so, they are not legally a part of the cleanup
23 regulatory process but yet local governments do have a
24 role in land-use planning. And how to reconcile that
25 is something that we don't have any decision about in

1 the draft study but we at least address it and do more
2 so in the independent study.
3 And then, of course, developing technologies.
4 You know, right now we've got a very, very preliminary
5 estimate of what the cost will be for long-term
6 stewardship. But the -- the important point I think
7 for that cost estimate is, first of all, it's only an
8 order of magnitude estimate. We believe we can
9 probably do it a lot cheaper as -- as any initial cost
10 estimate the Department intends to be.
11 But secondly, there are only two ways,
12 really, generally, to reduce that cost further. And
13 one is to find out smarter technologies, smarter ways
14 of doing it. And that -- that can only be done through
15 investing in science and technology. And if you don't
16 invest in science and technology, then you are doomed
17 to spend the same amount of money for very long periods
18 of time, you know, whatever it ends up being, decades,
19 centuries, millennia. But the idea that we're going to
20 send a crew of guys out there to sample wells in a Ford
21 Econoline van every three months for 10,000 years just
22 doesn't make sense. We've got to find smarter ways of
23 -- of monitoring the environment. But you know,
24 spending money just to spend money on science and
25 technology also doesn't make sense, so we've got to

1 figure out a way.

2 I mean the other way, of course, is we change

3 the standards. And you know, it's anybody's bet about

4 whether the standards are going to get more strict or

5 less strict in the future, but of course, history tells

6 us that standards have tended to get more strict over

7 time, not less. But we'll see how that changes.

8 And then finally, stewardship prevention. I

9 mean one of the -- one of the -- the -- the issues that

10 arose during preparation of this study is that there

11 are a large number of -- of activities that are going

12 to have to be conducted, from record-keeping to

13 monitoring, maintenance, institutional issues, funding.

14 And there's -- there is seriously an open question

15 about whether the Federal government will be able to

16 effectively accomplish all these tasks with some

17 confidence.

18 You know, I believe we -- we can and we

19 should at least try and that's what we're here to try

20 to do, but obviously, there's -- that's an open

21 question, too. And the -- the point is that the way to

22 do it is to design in the front of the process. When

23 you first design and build a new facility, design it

24 with the DND in -- in mind.

25 Right now, and Ed Szymanski's leading this,

1 but he runs a facility in Idaho where that big process
2 vessels that are located in a building where the doors
3 are too small to move the process outside of it. And
4 they welded everything in place and they built this
5 thing 30 or 40 years ago with no thought in mind about
6 how are they going to dismantle it. So now we're faced
7 with very expensive processes for dismantling
8 facilities that were built as if they were going to
9 last forever. Well, they've been shut down for in many
10 cases 20 years, and we're still trying to figure out
11 how you take a 40-foot titanium, glass-lined,
12 contaminated reactor thing to -- not just nuclear
13 reactions but chemical reactors -- out of something
14 where the door is no bigger than that one right there
15 because the door was built after the facility was put
16 in. I mean this just didn't make sense.
17 So designing facilities with a long-term
18 stewardship in mind because in some cases all you can
19 do is pour concrete into the facilities and put a grave
20 marker on top of it and spend money watching it
21 forever, which isn't necessarily a cost-effective thing
22 to do either. So the stewardship-prevention is the
23 point here. There's not a lot we can do within the
24 scope of this study obviously, but it was, I think,
25 important to raise that point anyway because we've

1 certainly seen that time after time after time where
2 cleanup is being done at -- for facilities where they
3 never thought that you'd ever have to clean it up, that
4 you would just keep operating the facility forever.
5 In doing -- dealing with these issues,
6 hopefully what you'll see is, again, a crosswalk
7 between the scoping comments and our address of the
8 issues. We went beyond, as Steve said, just the PEIS
9 requirements, which is in a -- in a sense exactly what
10 the PEIS called for. The PEIS requires you to do the
11 scoping process, and through the scoping process they
12 had -- there was a lot of comments and issues raised.
13 So you'll hopefully see that crosswalk between them.
14 Some of the things that we think we
15 particularly need comment on, you know, have we really
16 addressed the key challenges? Did we make sure that we
17 describe each of them and address them? Now remember,
18 we can only really describe them and -- and address
19 them in a way that does not make a decision. This is
20 not a NEPA document. It's not a decision-making
21 document. We're not supposed to even express a
22 preference -- in some cases require a whole NEPA
23 process, so to the extent people want decisions, I'm
24 afraid you're not going to see that in this document.
25 It's not appropriate and it's not possible.

1 And does it -- does it communicate clearly?
2 And you know, hopefully we've written in a way that
3 we're not just speaking gobbledy-gook, that it really
4 is a useful resource document people can get stuff out
5 of.
6 With that, let me open it up to -- to
7 questions that anybody might have. Okay. Thank you,
8 Sean.
9 MR. CASEY: Jim, we have two people signed up
10 on the "Speakers" list that are here. I think there's
11 a third on the way. Unless somebody has a specific
12 question about Jim's presentation, we'll --
13 MR. WERNER: Yeah, maybe if there's just any
14 questions about the presentations?
15 MR. CASEY: If you do, please raise your hand
16 so we can get a mike on you.
17 MR. WERNER: Completely clear --
18 MR. CASEY: Okay. Our first speaker is Seth
19 Kirshenberg. If you could, Seth, come up here,
20 introduce yourself, and make sure you speak into the
21 microphone.
22 MR. KIRSHENBERG: Am I supposed to sit in
23 this --
24 MR. WERNER: Yeah -- I'll get this out of the
25 way -- take that --

1 MR. KIRSHENBERG: Actually, why don't you
2 leave that up because I think it's good to -- that last
3 slide -- some of the questions or the particular
4 comments that you're asking -- am I supposed to sit
5 there?
6 MR. CASEY: Yeah, please.
7 MR. WERNER: Or you can use this one, if you
8 prefer.
9 MR. KIRSHENBERG: I feel -- feel kind of
10 weird sitting with my back to all of you, I guess, so
11 I'll stand here and look at both sides. I -- I guess I
12 don't need this yet. I am going to want to address
13 those questions.
14 First, let me tell you who we are and who I
15 am. I'm the Executive Director of Energy Communities
16 Alliance, and we're the membership organization of the
17 local governments around Department of Energy
18 facilities.
19 And obviously, long-term stewardship is
20 critical to us just as the underlying issue, which is
21 really environmental cleanup is critical because one is
22 protection of human health and the environment, but,
23 too, after DOE's gone from a lot of these sites we are
24 the ones who are going to be left still there in those 47.1
25 communities. And where DOE has a continuing operation

47.1 – The Department acknowledges this comment in Section 5.3 of the Study. The Department agrees that the primary purpose of LTS is continued protection of human health and the environment. The Department agrees that in some cases, site-specific LTS plans may need to include provisions for distributing public health information to affected parties, and, where appropriate, plans for health monitoring. A new text box at the end of Chapter 2 of the Study discusses the importance of public health concerns during long-term stewardship. With respect to care and compensation, such decisions would need to be made on a case-by-case basis.

1 we want to make sure that sites that are being
2 transferred out of ownership and being brought into the
3 local community remain protective or -- or are
4 protective of human health and the environment and the
5 sites -- and the -- the environmental contaminated
6 sites that are on-site, we want to make sure that they
7 are not posing a threat to the workers on the site or
8 the people who live around the sites. And those are
9 all real critical issues.
10 What -- whenever I talk about long-term
11 stewardship I like to think about where did we really
12 come from? And this goes into the study because I
13 think the study outlines very well the very complicated
14 issue of long-term stewardship. But to simplify it,
15 and I think the way that communities look at this, is
16 that it really came out of environmental cleanup.
17 The number one criteria which is spelled out
18 in here for environmental cleanup is really the
19 National -- under the National Contingency Plan is
20 protection of human health from the environment. About
21 five, six years ago, people thought when DOE said that
22 they were going to clean up all the sites that all the
23 sites were going to be cleaned up, which meant there's
24 going to be nothing left there when they're done.
25 And there was a big push from the Department

47.2

47.2 – The decision to clean up to unrestricted use, or to meet other specific land use requirements, is made on a site-specific basis with input from regulators, stakeholders, and the public. It is both DOE and EPA policy that cleanup remedies should be consistent with the intended future use of the affected areas. Chapter 2 of the Study includes a new text box that provides a more formal statement on the scope of long-term stewardship and why it is required (i.e., the inability to achieve unrestricted use and the nature of residual hazards). The goal of long-term stewardship is to ensure continued protection of human health and the environment consistent with applicable requirements. The Department recognizes the many issues and public concerns associated with the uncertainties with planning for, documenting, and funding long-term stewardship throughout the Study and acknowledges this comment by including it in a text box in Section 3.2 of the Study.

1 to get buy-in from the local community to say, okay,
2 let's look at future use of the site, let's, you know,
3 let's talk about, you know, our ability to clean up
4 because of, one, we only have a limited budget on the
5 cleanup, and two, there's only a certain amount of
6 technical feasibility that we can do in order to clean
7 up some of these sites as well.
8 And when we got down into that, there --
9 there were years and years of arguments between state
10 regulators, local governments, Tribal governments,
11 citizens' groups saying we want complete cleanup till
12 where we move to. Okay, we will accept risk-based
13 cleanup as long as we have protection of human health
14 from the environment for the long term. And that's
15 really where you get into this long-term stewardship
16 idea.
17 We had a meeting recently in Idaho of the
18 National Governors' Association, National Association
19 of Attorneys General, some Tribal representatives from
20 the State and Tribal Working Group. There were -- I
21 think the local SSAB from the INEL site, I think there
22 was one or two representatives. And then there was
23 ECA. And we talked about what are the issues around
24 environmental cleanup that we can all really agree
25 upon, and that was how to integrate and how -- how

47.3

47.3 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process to allow for meaningful Tribal and public involvement.

1 long-term stewardship is going to work because if we
2 are going to support the idea that less cleanup is
3 going to happen, that -- that the Federal government is
4 not going to spend I forgot how many trillions of
5 dollars it was going to be to clean it up to background
6 levels, then we -- then long-term stewardship has to
7 work. And that's really where we come out, and that's
8 where, really, the importance of this type of report
9 comes out.
10 This report when we went through it -- by the
11 way, ECA, for the record, is going to submit specific
12 comments in writing. The local governments right now
13 around the sites have begun drafting something and have
14 sent something around to each other, and by December
15 15th, the deadline, we will submit the specific report
16 -- the specific comments.
17 One of the things that we want to make sure
18 is addressed in the comments, though, as well is
19 looking at the idea of permanence and making sure that
20 that is something that -- that's integrated very
21 clearly into the report. I think it is when it talks
22 about some of the issues, but I want to make sure
23 that's also highlighted as part of the national
24 contingency plan and those types of things.
25 We really support the ideas that are spelled

47.4

47.4 – Long-term stewardship planning (see Chapter 4 of the Study) and remedy selection decisions are done on a site-specific basis with input from regulators, stakeholders, and the public. As noted in Exhibit 3-1 of the Study, the criteria used to evaluate remedial alternatives include long-term effectiveness and cost-effectiveness. The long-term effectiveness of institutional controls is one of the criteria for evaluating long-term stewardship requirements during remedy selection that have been suggested in guidance developed by DOE, EPA, and the Department of Defense (DoD) and in recommendations forwarded to the Department (see Exhibits 3-2 and 3-3 in the Study). The Department also has identified the need to promote new science and technology development to help address the uncertainties associated with maintenance of institutional and engineered controls. The Department acknowledges the public concerns about long-term effectiveness in a text box in Section 3.2 of the Study. The issue of uniform or national standards for cleanup is beyond the scope of this Study because this document focuses on long-term stewardship.

1 out. I think this is the first time I've seen in the
2 DOE document where it's spelled out all the different
3 laws that go into -- that are integrated into
4 environmental cleanup at the sites and how remedy
5 selection plays into that. So actually, I thought that
6 -- and ECA believes that that is very good.

47.5 47.5 – The Department appreciates this comment. Thank you.

7 I think it also allows people to realize the
8 issues and how important they are and how difficult
9 they are to resolve as far as long-term stewardship.
10 It lays them out -- it lays out all the issues, and as
11 you said, it's not a decision document so it doesn't
12 give us solutions, but I think that's what people are
13 looking for, the development of those solutions. I
14 think that's going to be critical. I guess those are
15 next steps in the process, so I think that's something
16 that we're going to need.
17 What it does do, it -- this is something, as
18 I said, that all the different groups that we work with
19 and the citizens have really rallied around in wanting
20 to make sure that this really works. And I think that
21 this is something that is critical for the Department,
22 and I think it's something that Dr. Huntoon has said is
23 critical for the Department to move forward with. And
24 I think people are relying upon long -- this idea of
25 developing a solution of long-term stewardship with

47.6 47.6 – See response to Comment 47.3.

1 communities, and I think that's real important. I
2 think that's spelled out in here in how you're starting
3 to do that, and I think that's real good.
4 I guess, you know, the one thing that I want
5 to -- want to leave with this, because I do think this
6 report is -- is a good outline of issues, is the real
7 need for the next step. And I think the NDAA report
8 will spell out some of the specific issues, and I think
9 it -- if you look at this type of report with the, I
10 guess, the last -- I think the last iteration of it is
11 the "10-Year Report." Is that the last iteration? The 47.7
12 "2006 Report," then the "10-Year Report"? What's the
13 latest one? The "Paths to Closure Report"? Okay.
14 The latest version is the "Paths to Closure
15 Report" with the NDAA report. I think it will spell
16 out for the local communities around the sites really
17 what is going to happen at the end-state or what needs
18 to happen at the end-state. And I think with that I
19 think the Department will be able to continue to have
20 support for its environmental cleanup program. I think
21 without those types of things and without some
22 certainty that long-term stewardship or this work on 47.8
23 long-term stewardship, I think what you're going to see
24 is the possibility of a drop-off in support because
25 what we want to make sure is that there's protection of

47.7 – The Department issued the National Defense Authorization Act (NDAA) Report, entitled A Report to Congress on Long-term Stewardship, in January 2001 (DOE/EM-0563). The Report to Congress and the Study were prepared as separate documents because the required scope for each was different. The primary focus of the Report to Congress was site-specific requirements; the primary focus of the Study was common national issues. Nonetheless, the two reports are complementary to one another, and the public is encouraged to read both documents. The Report to Congress can be useful for certain common long-term stewardship analyses, such as evaluating long-term stewardship needs. Similarly, the Department has added a text box to Chapter 2 of the Study providing an overview of the overall scope of DOE's long-term stewardship responsibilities. The cost estimates from the Report to Congress have been incorporated into Section 8.1 of the Study. They were not in the Draft Study because the cost information in the Report to Congress was not final prior to publication of the Draft Study. The Department anticipates that life-cycle cost estimates will improve over time as DOE moves forward with planning and implementing long-term stewardship. For the Report to Congress, each site was strongly encouraged to work with local stakeholders during the preparation of site-specific cost estimates. The Study is not the appropriate document to respond to specific comments on the Report to Congress or on the public comment process used to develop the Report. The Department encourages members of the public to comment on their respective site's cost estimate through established public involvement mechanisms at each site.

47.8 – See response to Comment 47.2.

1 human health from the environment.

2 So I think that's going to end my comments,

3 and we're going to give specific comments on -- on the

4 report, you know, page-by-page for -- in writing.

5 MR. WERNER: Okay. Great. Thank you very

6 much, Seth.

7 MR. CASEY: Susanne Snyder is next on the

8 list. And I believe that's the only other person still

9 on the list. And you're welcome to here, or if you'd

10 rather take this one?

11 MS. SNYDER: I'll take this one.

12 Hi. My name's Susanne Snyder. I'm from the

13 Shundahai Network in -- well, we're now in Pahrump,

14 Nevada. And so we're very -- we're very tied to this

15 because we all live in Pahrump, which is directly --

16 it's -- it's on the downstream way from the test site.

17 So we've been following this through our Citizen

18 Advisory Board and so forth.

19 And I'm very happy to be here. Glad to have

20 the opportunity to come in and -- and comment on this.

21 I was a little mistaken coming in here. I thought this

22 was a hearing on the -- we have -- our CAB has given us

23 the draft what -- we've gotten part of the NDAA, and

24 the more specific --

25 MR. WERNER: You should have gotten that back

1 last -- you should have gotten that back in April or
2 May.
3 MS. SNYDER: Yeah. Well, that's what --
4 MR. WERNER: Okay.
5 MS. SNYDER: -- that's why I was somewhat
6 mistaken and realized this was a different document.
7 But I have glanced -- glanced through it briefly, and I
8 will submit and Shundahai Network will submit again --
9 MR. WERNER: Okay. Great.
10 MS. SNYDER: -- more specific comments.
11 The -- a couple of points that I'd like to
12 make just specific to this is that my confusion -- I
13 came and I was looking at the EM website and trying to
14 get more specific information. It's not very clear on
15 this hearing -- or this wasn't posted and what, you
16 know, what would be going on here. So that's one thing
17 I'd like in the future for you all to take into
18 consideration is, you know, in the process of better
19 communication and more public involvement to -- to have
20 it clearly -- it wasn't on the calendar, on the EM
21 calendar. So I was looking for it. Maybe I didn't --
22 I'm not very web-savvy, so maybe I didn't -- just
23 didn't look in the right place, but nevertheless, you
24 know.
25 But especially in our area, we have a history

30.17

30.17 – The Department acknowledges this comment in a text box in Section 3.2 of the Study. Existing laws and regulations, especially the CERCLA process that is used for many site cleanups, require public involvement in the activities and decisions that lead to the selection of a remedy (ROD), including the technical and economic feasibility of cleanup to unrestricted use. However, these laws and regulations do not clearly articulate the role of public involvement in the activities and decisions that follow the ROD. At the same time, the Department recognizes that the ultimate success of long-term stewardship depends on the active involvement of the affected parties, including local governments and Tribes. It is important for all parties to develop a workable approach for meaningful public involvement in the decisions that affect and manage long-term stewardship activities. The Study identifies this as an additional key challenge associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions. The Department's Long-term Stewardship Working Group also has identified the issue of under what circumstances DOE should consider funding of external parties as one of the most important issues that should be addressed by the Executive Steering Committee. Although the general issue of public involvement has been identified to the Executive Steering Committee, specifics of implementation (e.g., what external organizations should be involved, what should be provided by DOE, what mechanisms for public involvement should be used) have not been discussed and may be determined on a site-specific basis. We intend for the public participation process to allow for meaningful Tribal and public involvement.

1 of being -- well, Dewey has a legacy of secrecy and,
2 you know, there's -- it's very hard, especially with
3 our site, with the Nevada test site, because the site
4 -- wants to contain -- I'm sorry, continue readiness
5 for future testing and for other projects. It's very
6 hard for us to trust any idea of long-term stewardship
7 when we see radioactive waves trucks going into the
8 site, we don't see them coming out. And so it's hard
9 for us to think that there's any possibility of
10 cleanup, especially when we're told, no, cleanup's not
11 economically feasible, cleanup's not technologically
12 feasible.

30.18 – The decision to clean up to unrestricted use, or to meet other specific land use requirements, is made on a site-specific basis with input from regulators, stakeholders, and the public. It is both DOE and EPA policy that cleanup remedies should be consistent with the intended future use of the affected areas. Chapter 2 of the Study includes a new text box that provides a more formal statement on the scope of long-term stewardship and why it is required (i.e., the inability to achieve unrestricted use and the nature of residual hazards). The goal of long-term stewardship is to ensure continued protection of human health and the environment consistent with applicable requirements. The Department recognizes the many issues and public concerns associated with the uncertainties with planning for, documenting, and funding long-term stewardship throughout the Study and acknowledges this comment by including it in a text box in Section 3.2 of the Study.

13 And one of the things I'd like for you to
14 consider also is how to divert some of this -- I know
15 you're looking at a lot of this and a lot of the
16 funding and how we're going to fund something that's
17 going to take so long to clean up and so on and so
18 forth. But to -- to really put -- you know, to direct
19 a portion of this -- of these funds towards studying a
20 good way to clean up because we know our ground water
21 is contaminated. It's not right beneath our house yet,
22 but it will be eventually. Maybe not in my lifetime,
23 maybe not my kids, but maybe by my grandkids. We don't
24 know.

30.19 – The Department acknowledges this comment in a text box in Section 4.2.4 of the Study. As noted in Section 4.2.4 of the Study, the Department's process for developing and implementing new science and technology includes developing a long-term stewardship science and technology roadmap that will (1) identify science and technology needs; (2) identify existing capabilities to meet these needs both within and external to DOE; (3) determine research and development priorities; and (4) direct specific efforts to meet these needs. The Department agrees that research into a number of key areas is needed, including the long-term effectiveness and reliability of engineered and institutional controls, surveillance and monitoring, and information management. Advances in science and technology may provide future generations with the ability to cost-effectively achieve unrestricted use at some sites. The Department's Long-term Stewardship Working Group recently identified the policy issue as to whether the ultimate goal of new science and technology should be to improve the ability to maintain the existing end state (i.e., the end state established during cleanup) or should be to "improve" the end state more closely toward unrestricted use as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee.

25 And that's part of the thing is we want to

1 have a -- we want to have it -- a more open dialogue.
2 We keep asking, well, what contaminants are there?
3 What -- what specific contaminants are there? And we
4 won't -- we don't get that information. That's really
5 hard to -- to build this trust 'cause if we're going to
6 trust DOE to -- and then -- and then -- NNSA to take
7 care of the surrounding communities, to protect our
8 health and our safety, we want to -- you know, we want
9 to be able to find out the information, to make sure
10 that there are peer review studies done, to make sure
11 that, you know, it is solid. And because we don't have
12 a very good history of trust, we want to be able to
13 build trust and build a working relationship in the
14 community.
15 And that's very important, and I hope you --
16 you all understand that, and that's a big need for us
17 is to have that -- have a trust that we don't have
18 right now.
19 Let's see. And a couple other things.
20 (Pause)
21 MS. SNYDER: No, actually, that's -- oh, the
22 "Hand Off." The "Hand Off." Again, that's not as -- I
23 haven't read through this as thoroughly as I would
24 like, but it's not as clear and it's hard to -- it's
25 hard to visualize it, maybe, at this time but hopefully

30.20 30.20 – See response to Comment 30.17.

30.21 30.21 – The current DOE policy on site transfers is reproduced in Appendix G of the Study and is summarized in Exhibit 4-1 of the Study.

1 it'll come through clearer and to have a more -- as the
2 processes develop, as we see it happen at other sites
3 around the country, we'd just like to make sure that we
4 get good strong information at our site to see that it
5 does work, to see that the communities -- you know, to
6 have good community -- community interaction so that we
7 know, you know, we can trust -- we know we can trust
8 that it will work.

30.22 30.22 – See response to Comment 30.17.

9 Again, it all comes back -- boils down to
10 that issue of trust. And that's about all I've got.
11 Thank you very much.
12 MR. WERNER: Thanks. Thank you very much.
13 MR. CASEY: Anyone else? Those are the two
14 that we did have signed up.
15 Okay. Thanks. You're welcome to sit or
16 stand.
17 MR. WERNER: You can sit here if you want.
18 (Pause)
19 MS. CHRISTOPHER: My name is Trish
20 Christopher, and I'm with the Alliance for Nuclear
21 Accountability. And today I'm speaking on behalf of
22 not only our alliance but Cathy Crandall who was unable
23 to be here on time, so she might actually walk in while
24 I'm speaking.

5.0 Please see responses to Comment Letter 5.

25 So the alliance is actually -- Cathy has

1 written several comments, a series of about eight of
2 them, that I guess I'll just read for -- so that
3 everyone -- okay.
4 A little bit about the Alliance for Nuclear
5 Accountability. We are a network of local, regional,
6 and national organizations working together to promote
7 education and action, to address issues related to the
8 cleanup and protection of the public and the
9 environment at DO -- at Department of Energy sites.
10 Many -- many ANA member organizations were
11 plaintiffs to the lawsuit settlement requiring this
12 study on long-term stewardship, so ANA has a special
13 interest in it. We want to ensure that this study is
14 the first step in -- in an intuitive, open, public
15 process of long-term stewardship planning for the DOE
16 weapons complex.
17 We recognize -- this is two. We recognize
18 and commend the effort that went into the study and
19 note that in addition to this study the Office of Long-
20 Term Stewardship has also worked on other aspects of
21 long-term stewardship information gathering and sharing
22 to lay the foundation for public -- for policy
23 development in this area. We hope that this foundation
24 work -- this foundational work will be preserved and
25 built upon during the next administration.

1 For example, we hope that the excellent Long-
2 Term Stewardship website will be maintained. Moreover,
3 we think that preserving one Office for Long-Term
4 Stewardship at DOE headquarters with the authority to
5 coordinate long-term stewardship activities would be
6 helpful in furthering coherent, credible, and cost-
7 effective long-term stewardship planning and policy.
8 The Long-Term Stewardship Office has also
9 been working on a report to Congress on long-term
10 stewardship as required by the Fiscal Year 2000
11 National Defense Authorization Act. Although Congress
12 required the report by October 2000, the report is
13 still not completed. It is unfortunate that this
14 Congress that requested the report will not be able to
15 review it. This NDAA report is another essential piece
16 of work that provides more site-specific information.
17 We strongly urge that the Department promptly complete
18 its work on this report and release it so that both the
19 report and the study together, the PEIS -- the study
20 and the NDAA report are available to inform Congress as
21 well as the next administration, stakeholders, and
22 interested members of the public.
23 Okay. As DOE moves forward with its steps of
24 long-term stewardship policy planning and development,
25 it is of paramount importance that the public and

1 stakeholders be engaged and involved in decisions from
2 the very beginning. DOE must also make a long-term
3 commitment to provide opportunities for meaningful
4 public participation in future cleanup and stewardship
5 decisions. This means providing information as
6 discussed in the study but also providing for regular
7 meetings and hearings with stakeholders. The study
8 notes the importance of working with other Federal
9 agencies, state, Tribal governments, and local
10 governments, and we wish to emphasize that in members
11 of the public in an affected -- in affected communities
12 need to be present at the decision-making tables as
13 well.
14 Building strong local public involvement is
15 possibly the most essential element of ensuring
16 survivability and sustainability of long-term
17 stewardship. People need to know what happened at
18 these sites, what materials were handled, what
19 contamination levels exist, what health risks exist, et
20 cetera. And they need to know that they share
21 responsibility for protecting their communities with a
22 say in cleanup standards, choosing remediation and
23 monitoring technologies, and establish zoning
24 restrictions, et cetera.
25 ANA believes that the primary purpose of the

1 long-term stewardship should be to protect human
2 health. Certainly, this must be a primary reason why
3 DOE currently spends so much effort and attention on
4 cleanup. With that focus in mind, we suggest the
5 following.
6 One. Information provided to the public,
7 including databases, fact sheets, et cetera, should
8 also include information and possible disease outcomes
9 related to contamination and health risks.
10 Two. Physicians and public health providers
11 should be specifically targeted with this information.
12 Three. With full public participation,
13 health monitoring plans should be developed in
14 appropriate communities.
15 And lastly, the DOE Long-Term Stewardship
16 Office should work with the DOE Office of Environment,
17 Health -- Environment Safety and Health and other
18 Federal, state, Tribal, and local health agencies to
19 develop a public health long-term stewardship plan at
20 each site.
21 Even with the best redundant and robust long-
22 term stewardship plan, we know that there will be
23 failures. Some of these failures may require emergency
24 medical responses, an explosion for instance, but some
25 -- failures may lead to health effects over time,

1 failure to contain seeping ground water plumes leading
2 to contamination of the water supply, for example, and
3 may require a long-term -- a longer-term public health
4 response.
5 When failures of long-term stewardship lead
6 to disease outcomes such as cancer or other illnesses,
7 the Federal government should provide adequate care and
8 compensation to those people. Tracking illnesses and
9 caring for people over the long-term should be seen as
10 part of the long-term stewardship. Any funding
11 mechanism should also provide funds for this.
12 "ANA would like to offer -- offer a specific
13 comment on the issue of how long will long-term
14 stewardship be managed at sites with on-going missions
15 other than cleanup," and that last sentence was in
16 quotations, from Section 4-3.
17 Between two options, transferring to the DOE
18 program responsible for the ongoing mission or
19 Environmental Management taking responsibility. We
20 recommend that Environmental Manager or the successor
21 organization take responsibility for long-term
22 stewardship at the site. We do not believe that other
23 -- that the other line programs of DOE would put equal
24 focus into the long-term stewardship mission because
25 this goal could often conflict with or compete against

1 productions and other missions. This is a special area
2 of concern at the National Nuclear Security Agency
3 sites where it is unclear to -- it is unclear who will
4 have authority over environmental management issues.
5 Regardless of the option chosen, it is of
6 particular importance that the long-term stewardship
7 planning and activities be coordinated with adequate
8 project management oversight in one office within DOE.
9 We recognize this as a relatively short-term issue, but
10 we believe it is very significant in getting the
11 initial long-term stewardship planning off on the right
12 track. DOE should make sure that long-term stewardship
13 is not viewed as an afterthought and addressed in a
14 fragmented, ad hod manner but rather is the singular
15 priority of one office.
16 As DOE continues with its long-term
17 stewardship planning, we urge a careful look at the
18 sites on the 1995 List of Sites Reviewed for possible
19 past involvement in nuclear weapon and nuclear energy
20 release activities, also known as the FUSRAP List.
21 Sorting out these sites is an important and difficult
22 task. We urge the DOE to continue work on this list,
23 specifically creating a database that will provide
24 information about each site. The lack of currently
25 available information about many of these sites should

1 also serve as a lesson in how not to do long-term
2 stewardship. An analysis of the elements missing in
3 the FUSRAP List may help to avoid pitfalls in future
4 long-term stewardship planning.
5 Thank you for the opportunity to participate
6 in this hearing -- hearing. ANA and our membership
7 organizations are still in the process of reviewing the
8 study, and we are likely to submit additional comments
9 before the December 15th -- by the December 15th
10 deadline.
11 MR. WERNER: Okay. Thank you very much.
12 Thanks for coming.
13 MR. CASEY: I just wanted to note for -- for
14 the transcript that there was also written comments
15 handed in, so I just wanted to make sure that got into
16 the record.
17 That is all the people we have on the
18 "Speakers" list. Is there anyone who is here who would
19 like to speak? Just wave your hand at me and you're
20 welcome to come up, and I'll give you the microphone.
21
22 MR. WERNER: Okay. Sean, let me just -- Liz,
23 did you want to present? Very good.
24 MS. HOCKING: My name is Liz Hocking.
25 Basically, only four observations. The

1 first is one -- it's just a linguistic issue that I've
2 always had with this, and you address it very nicely in
3 Footnote 4 of page 5. It's this whole issue of
4 cleanup. You know, we say we're doing cleanup at the
5 sites but then we say, but we're not really cleaning
6 up. And just -- it's always been a linguistic issue
7 for me that we say to people we're going to clean up
8 but we're going to leave stuff behind.
9 And I think it's just maybe time to rethink
10 or come up with a better term for what we're really
11 doing. I don't know what that term would be, but I --
12 you address it. I think you address it very nicely.
13 And maybe this is the time and the vehicle to say let's
14 start thinking and using this term for these sites. I
15 don't know what the term would be, however. But I
16 think your Footnote 4 is a nice way of saying we
17 realize that we are not cleaning up, and maybe we
18 should use a term that's more reflective of what we're
19 really doing.
20 The other one is that I think it -- it's
21 underscored throughout the report but I'd like maybe to
22 see a little bit more attention paid to it, and that's
23 emphasis put on the nature or the issues or the
24 organizational structures that need to be in place to
25 make sure that all the things that are being talked

48.1 – The Department acknowledges this comment in a text box in Section 2.1 of the Study. The Department agrees that the terms "cleanup," "end state," and "closure" are less than ideal. The term "cleanup" is a common word usage that can be confusing. To help clarify the limits of current cleanup technologies and the overall scope of long-term stewardship, the Department has added a text box to Chapter 2 of the Study that describes the limitations and challenges that preclude remediating many sites to levels that would permit unrestricted use; the types of residual hazards that will require long-term stewardship; the time frames that may be involved in long-term stewardship, and the activities that may be involved in long-term stewardship. The Report to Congress on Long-term Stewardship provides additional site-specific information on the projected scope of long-term stewardship. The Department also maintains a Web Site (http://lts.apps.em.doe.gov) that provides public access to numerous documents describing the scope and challenges associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified the issue of developing a consistent, consensus definition of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee.

1 about in the report are actually done. The monitoring
2 is done, that the Bagel is actually done.
3 And so, it's inherent in here when you talk
4 about you need to have, you need to think small, you
5 need to have monitoring systems. It's inherent that
6 there's an organizational system there to do it, but
7 I'd like to see more attention paid to what that system
8 might be like or what the characteristics might be,
9 what the issues related to trying to set up an
10 organization like that might be. You know, should
11 there be some kind of a big Federal entity that takes
12 DOD and DOE land that has residual contamination? I'm
13 not quite sure, but I think that organizational
14 structure needs some attention.
15 The third has to do with the -- on page 109
16 you refer to managing the problem and managing the
17 hazards, and I was really pleased to see that because I
18 think that's -- again, it goes back to the original
19 question I had about we say we're cleaning up. And I
20 think the other thing that we've said to people or
21 people have gotten this impression that once
22 stewardship is in place people are just going to kind
23 of walk. And that's certainly not the case, and you
24 managed that very nicely in that -- those two sections
25 on page 109.

48.2 – The Department acknowledges this comment in a text box in Section 4.2 of the Study. The Department's Long-term Stewardship Working Group recently identified the need for a corporate vision for long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. The corporate vision includes the appropriate organizational structure for long-term stewardship within the Department. The Department also recognizes that it is important to define long-term stewardship roles and responsibilities both within DOE and between DOE and other entities, including other federal agencies, states, Tribes, and regional governments. The Executive Steering Committee is developing a Strategic Plan for long-term stewardship; part of that effort will include identifying roles and responsibilities within DOE. The Department also notes that long-term stewardship as an issue is broader than DOE sites. For example, states and local governments already have long-term stewardship responsibilities at municipal landfills, and states may have long-term stewardship responsibility for some "Superfund lead" sites on the CERCLA NPL. Implementation of long-term stewardship across this broad spectrum of sites will require states to develop their own, independent capability to provide long-term stewardship.

48.3 – The Department acknowledges this comment in a text box in Section 10.2 of the Study. The Department agrees that remedies may need to be reassessed periodically in light of changing circumstances and information. Section 10.2 of the Study includes a discussion of these points.

1 And in that, you talk about using -- thinking
2 about stewardship in terms of smaller chunks. You use
3 30 -- 30 to 50 years. I was even thinking smaller,
4 like 20 years, thinking a generation. You know, you
5 normally think of a generation as about 20 years. A
6 career is about 20 years. Maybe even thinking smaller
7 chunks of what you think about in terms of stewardship,
8 so manage for smaller time chunks.
9 But I certainly think what you've done at 109
10 is -- really grasps the problem and is probably one of
11 the better statements I've heard about how to address
12 stewardship.
13 And then overall, I think you've really done
14 a nice job of collecting all the issues, the legal
15 issues, the community involvement issues, that are
16 associated with stewardship. So I think overall it's a
17 very good basic document, and again, I'd be real
18 interested in seeing how the policy of that flows from
19 it, particularly the organizational structures that
20 flow from it I'm interested in. Thank you.
21 MR. WERNER: Thank you, Liz.
22 MR. CASEY: Anyone else?
23 MR. WERNER: Sean, maybe to give people a
24 moment to think if they want to talk, there are a few
25 issues that were just brought up in the commentors.

1 And I know you're not -- we're not required to
2 necessarily respond to every single comment as they
3 come up, but just to provide clarifications.
4 I think it's very interesting, Liz, with all
5 of your years of background analysis that you come up
6 with the simple question of this word "cleanup." I
7 come to the same issue sometimes, but we don't have a
8 better one. But I think perhaps that reflects the
9 newness of the issue, that we don't even have a -- an
10 adequate vocabulary to -- to identify what's being
11 done.
12 In fact, what about life cycle costs? I mean
13 we've -- you know, I've spent much of my career on life
14 cycle costing either as, you know, engineering
15 consultant or, you know, in the bureaucracy, but yet
16 life cycle isn't necessarily the right word to use for
17 the long-term stewardship because there really isn't a
18 -- a clear end yet. I mean not a realistic one because
19 there's so much uncertainty out in the future that it's
20 preposterous to really spend a lot of time and money
21 planning for, you know, so much uncertainty in 10,000
22 years. So "life cycle" isn't even a good word, but yet
23 you do want to ensure the full costs are accounted for.
24 So there is some other terminology, maybe, that's a
25 mixture of their whole, you know, engineering life

1 cycle costing that -- versus what we now need to do.
2 So the terminology is an issue. It's all -- maybe
3 that'll come out of the -- you know, all the policy --
4 and other work.
5 And just to clarify for people who didn't
6 understand what Liz was referring to, the Bagel
7 diagram. There is a -- a diagram that we've used many
8 times before that shows essentially a circle -- Bob's
9 going to tell me what page it is for reference. But it
10 shows that the -- the nature of cleanup is iterative.
11 On page 112 in the -- in the report we present the
12 model that I think at least some regulators have found
13 reassuring that in -- in doing a monitoring you revisit
14 it, and if monitoring indicates the need for some
15 maintenance then you go back and do the maintenance.
16 But if you come to a certain point where the available
17 for unrestricted use, then, you know, long-term
18 stewardship essentially ends with the important
19 exception of record-keeping that, you know, one of the
20 commentors brought up. You've got to keep a record of
21 where cleanup is done and to what standard it was
22 completed to so you don't end up going back and doing
23 cleanup again at that site even though it's been done.
24 And you're right: this is more of an
25 idealized version and -- and maybe it's the job of the

1 institution to figure out how to implement this in a
2 realistic way. Because right now we have a linear
3 view, and maybe our disconnect is people are saying we
4 don't buy the linear view where it goes to an end and
5 at the end you have a box that says, magic happens, and
6 the problem goes away because we know that it doesn't.
7 In fact, you've got to provide an institutionalized
8 way.
9 But I guess I would -- I would say that, you
10 know, at a much, much lower cost back here. You know,
11 that once you reduce the risk and you are able to
12 reduce the cost and we don't necessarily have 10,000
13 people, for example, showing up to work at a site that
14 hasn't had a nuclear weapons mission for 10 years that,
15 you know, the -- this case study of the Weldon Springs
16 site is a very good lesson where they had 10 employees
17 there for almost 20 years providing protection. Nobody
18 got hurt or exposed, and they made sure that the
19 monitoring and the maintenance was done for a
20 relatively small amount of money. And at that point
21 they were able to go back in and start the cleanup.
22 And even though it's a very similar site
23 technically to the Frenault site that the -- the budget
24 there is $50 million compared to Frenault has $400
25 million. And they've been able to stabilize it and

1 keep it in a safe, secure situation for, you know,
2 decades there because, you know, they had a whole
3 different mode of operating.
4 There were two questions that arose about the
5 -- the "Hand Off" policy. Let me just clarify.
6 Without defending it necessarily, let me just
7 acknowledge that, you know, there is -- that there is
8 an issue of, you know, which way you should go. Should
9 you have EM, the Environmental Management Office within
10 the Department, take care of long-term stewardship for
11 those sites, or should you have the so-called land-
12 loader organization, in some cases, Defense Programs?
13 And we recognize that people might raise
14 questions about the -- the trust and confidence in
15 Defense programs, but let me just explain a little bit
16 of detail that may explain a bit why perhaps the
17 decision was made as it was to make the land-loader
18 organization responsible.
19 The process for turning over responsibility
20 will require three things, and I think it is a good
21 thing that -- to require these -- these issues be
22 attended to. First of all, a technical plan has to be
23 in place identifying exactly what tasks have to be
24 done. You know, do you need one security guard or 10?
25 Do you need a half a security guard? Do you need to

1 monitor at one well or 100 wells? You know, what are
2 the specific technical activities that have to occur?
3 What it's going to cost? So that'll be the first time
4 we get a clear technical view of the work to be done to
5 accomplish the long-term stewardship work.
6 Secondly, there has to be a budget target
7 agreement. That is, you know, every year we have
8 budget targets that we live by, and each office in a
9 sense has a budget target where you have to make plans
10 at least two years in advance to transfer that budget
11 target. And that agreement has to be laid out within
12 the organization so that when -- somebody's not left
13 with, basically, an unfunded liability, so that Defense
14 Programs doesn't want to one day wake up and know that
15 they're responsible for paying for something but EM
16 still has the target money. So that has to be worked
17 out.
18 And the third thing is there has to be an
19 explicit written agreement with roles and
20 responsibility between the two organizations. And I
21 think in combination the technical plan, the funding
22 target agreement, and the roles and responsibility
23 agreement provides, I think, very good and useful
24 visibility to ensure that the work is done. And in
25 fact, that sort of visibility is probably more so than

1 in cases where it's just Environmental Management
2 continuing to do the same work, in some cases maybe
3 using the same contractors and the same, you know, old
4 contracting centers that may not have been, you know,
5 appropriate for doing a long-term stewardship.
6 So there are actually some benefits in doing
7 it this way, that we recognize that there's, you know,
8 a good and a bad side to it. So I just wanted to
9 explain that since sort of the concerns that were
10 raised about it.
11 Let me see if there's any final questions and
12 we can break for coffee or whatever you want. Or if
13 there's other commentors that want to --
14 MR. CASEY: Other commentors at this time?
15 (No response)
16 MR. CASEY: What we'll do is, as Jim said,
17 we'll -- we'll break. There will -- we'll leave the
18 microphones here. The court reporter is -- is here
19 throughout the entire comment period, which goes until
20 1:00. If somebody changes their mind, please find me
21 and we'll -- we'll set you up and get you going, and
22 we'll also be here if other people come in between now
23 and 1:00 that want to speak.
24 And thank you for your time and attention.
25 (Whereupon, at 10:36 a.m., the hearing was

1 adjourned.)

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

Confederated Tribes and Bands
of the Yakama Indian Nation

Established by the
Treaty of June 9, 1855

December 27, 2000

Steven Livingstone
Project Manager
U.S. Department of Energy
P.O. Box 45079
Washington, D. C. 20026-5079

Dear Mr. Livingstone:

Thank you for the opportunity to review the Department of Energy's Long-Term Stewardship Study Draft dated October 2000. In general this study has identified many of the problems and issues that DOE faces in managing the legacy of radioactive and chemical wastes from its operations at sites across this nation. This document serves as a beginning set of references for defining long term stewardship activities DOE sites. This study also provides the basis for DOE to initiate development of guidance for long-term stewardship and an opportunity to commence direct discussions with the Yakama Nation on this issue. 49.1

Unfortunately the current approach that DOE has taken to limit cleanup and reduce engineered protection of buried wastes does not ensure adequate compliance and protection for future generations. The timeframes for ensuring adequate long-term stewardship ranges from a few centuries to well over thousands of years and planning for such should be phased to allow for emerging stewardship needs and remediation technologies to be developed. Limited cleanup is not stewardship. 49.2

Specific comments to the draft study are provided in the attachment to this letter. If you have any questions, please feel free to contact me.

Sincerely,

Russell Jim, Manager
Yakama Nation ER/WM Program

1 Attachment

cc: Duane Clark, Chair, RHW Committee
Carroll Palmer, Deputy Director, DNR
Keith Klein, Hanford Project Manager
Jim Werner, Director, Office LTS
Kevin Clarke, Indian Programs Mgr.

Post Office Box 151, Fort Road, Toppenish, WA 98948 (509) 865-5121

49.1 – The Department appreciates this comment. Thank you.

49.2 – The Department acknowledges this comment in Section 2.1 of the Study. The Department notes that the definition of long-term stewardship used in the Study is that which is stated explicitly in the Settlement Agreement. The Department agrees that long time frames may be involved, and has added a text box in Chapter 2 of the Study to help clarify that point. The Department's Long-term Stewardship Working Group recently identified the issue of developing a consistent, consensus definition of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. In addition, the Department notes that its cleanup decisions are in compliance with applicable laws and regulations and believes that it is and will continue to be in compliance with applicable laws and regulations during long-term stewardship. However, as noted in Chapter 10 of the Study, these and other laws and regulations may change over time, and the Department recognizes that long-term stewardship should be able to respond to any changing requirements.

Comments on USDOE Draft Long-Term Stewardship Study

Chapter 1. The Study needs a definition of Long-Term Stewardship that is more useful than the one in the 1998 Settlement Agreement. There is no time-frame mentioned in the current definition on p. 1 – as it now stands LTS has no real definition apart from the acts of "cleanup" or "closure" themselves. Most of this document assumes that LTS will be an institution over an extraordinarily deep geologic time period, but that is not at all reflected in the page 1 sidebar. There must be some indication in the definition that the standards for LTS required for DOE sites will probably not be the same as the stewardship mandates for closure under CERCLA, RCRA, UMTRCA, etc. 49.3

The phrase "completed or plans to complete 'cleanup'" assumes that "cleanup" has also been defined or characterized in a manner that is acceptable to all stakeholders. However, to date this has not been done. End states have not been fully examined or decided upon to the satisfaction of those to whom LTS will inevitably be charged, i.e., Tribes, states, local governments, etc. 49.4

The problem here is that the whole concept of LTS as it is discussed herein begins with certain assumptions that may or may not be true, and that has not undergone rigorous public scrutiny. Most prominently, the fundamental premise for LTS as defined in the Study is contained in its fourth sentence: *"Based on existing plans and agreements with regulators and affected parties, EM program cleanups will leave behind residual levels of radioactivity (e.g., buried waste) and other residual hazards at most sites."* 49.5

First, DOE does not have existing plans or agreements with all, or even most of the "affected parties" regarding cleanup standards. Some states have compliance agreements, but none of the affected Indian tribes have compliance agreements with any DOE sites (although the Yakama Nation has attempted to sign one). Second, the only document cited for the LTS premise is *Status Report on Paths to Closure*, DOE/EM-0526, March 2000. It would be extremely helpful to give a summary explanation in the Study of how the DOE arrived at the conclusion that large amounts of residual contamination will remain. Although it may be clear to EM, it is not entirely clear to most of the affected parties. The "plans and agreements" referred to in the LTS premise should be cited specifically in a footnote, for the record. 49.6

Chapter 3. Discussion of LTS and closeouts of remedial actions under CERCLA must include an analysis of how Natural Resource Damage Assessments fit into the scheme. Exhibit 3-2 is completely inaccurate because it does not address NRDA under "Operate and Maintain Remedy." Although NRDA has not been used by trustees extensively at DOE nuclear weapons complex sites, the statutory mandate is there for trustees to ensure that the remedial action chosen has mitigated impacts of contaminants upon natural resources. NRDA could potentially have an enormous effect on how LTS is implemented, and it is barely mentioned in the Study (in Chapter 9). 49.7

Chapter 5. DOE appears to have changed the EPA's regulatory LTS terms. "Active" controls are now "engineered," and only "passive" controls retain the "institutional" label However, the relabeling does not change the fact that the weakness of controls like deed notices, 49.8

49.3 – The Department acknowledges this comment in Section 2.1 of the Study. The Department notes that the definition of long-term stewardship used in the Study is that which is stated explicitly in the Settlement Agreement. The Department agrees that long time frames may be involved, and has added a text box in Chapter 2 of the Study to help clarify that point. The Department's Long-term Stewardship Working Group recently identified the issue of developing a consistent, consensus definition of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. In addition, the Department is required to comply with the long-term stewardship requirements pursuant to existing laws (e.g., AEA, CERCLA, RCRA, UMTRCA); however, as noted in Chapter 10 of the Study, these and other laws and regulations may change over time, and the Department recognizes that long-term stewardship must be able to respond to any changing requirements.

49.4 – DOE has attempted to define what it means by cleanup and understands that others may prefer a different definition.

49.5 – The Department acknowledges this comment in a text box in Section 2.1 of the Study. The Department agrees that the terms "cleanup," "end state," and "closure" are less than ideal. The term "cleanup" is a common word usage that can be confusing. To help clarify the limits of current cleanup technologies and the overall scope of long-term stewardship, the Department has added a text box to Chapter 2 of the Study that describes the limitations and challenges that preclude remediating many sites to levels that would permit unrestricted use; the types of residual hazards that will require long-term stewardship; the time frames that may be involved in long-term stewardship, and the activities that may be involved in long-term stewardship. The Report to Congress on Long-term Stewardship provides additional site-specific information on the projected scope of long-term stewardship. The Department also maintains a Web Site (http://lts.apps.em.doe.gov) that provides public access to numerous documents describing the scope and challenges associated with long-term stewardship. The Department's Long-term Stewardship Working Group recently identified the issue of developing a consistent, consensus definition of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. The specific language in question has been clarified to state: "Based on existing plans and agreements with regulators, with input from affected parties, ..." The Study also notes in several places the importance of ensuring that federal Indian Trust Responsibilities and federal treaty obligations consistent with the unique legal and political status of Tribes are met during LTS.

49.6 – The expectation that large amounts of residual hazards will remain after cleanup is complete is documented in several publications, including the 1996 Baseline Environmental Management Report, the 1998 Accelerating Cleanup: Paths to Closure, the 2000 Status Report on Paths to Closure, From Cleanup to Stewardship, and the 2001Report to Congress on Long-term Stewardship. These documents are based upon information provided by each DOE site and reflect site-specific cleanup decisions made at each site using required public involvement processes.

49.7 – NRDA considerations are discussed in Chapter 9 of the Study. The Department is concerned that a discussion of the special consideration of the CERCLA NRDA process at the suggested point in Chapter 3 might distract the reader from the main points discussed therein. In Chapter 9, DOE discusses the special case in which impacts to natural resources might be integrated into an environmental response action. Based on EM's "Policy on Integration of Natural Resource Concerns Into Response Actions" (see text box, Chapter 9, page 97) it is expected that a remedy that takes impacts to natural resources into account would be selected. Therefore, any O&M activity resulting from this special case of remedy selection would be expected to be incorporated into the Record of Decision for the action, and would become part of the long-term stewardship of the site. The O&M activity occurring as part of the LTS should, therefore, have the NRDA considerations associated with the selected remedies already "built-in."

deed restrictions, zoning and easements should have a major effect on the DOE's decision to convey property containing residual contamination to another government or a private party. The serious concerns that are raised in this chapter regarding such controls should be much more integrated into the discussion of "Post-Transfer Property Management" in Section 6.3 | 49.8

Chapter 6. In the first sentence on p. 64, should be "Tribal nations have reserved legal rights to pursue certain activities..." | 49.9

Discussion of Tribal treaty rights on p. 64 is incomplete and misleading, because it misses the point that once federal lands are conveyed into private hands, the treaty rights to hunt and gather foods and medicines could be extinguished. "Open and unclaimed lands" basically means "public lands" under federal court decisions; any property transfers from DOE to private entities will essentially violate the trust responsibility that the Study describes. Hanford, which is on Yakama ceded land, is entirely within this category. | 49.10

Chapter 7. The "four major aspects" of information management fail to include two more critical factors: 5) *accuracy* and 6) *public trust in DOE information.* These have been serious issues with both the AEC and DOE for the entire life of the weapons complex. Affected parties are still uncertain about whether they can rely on the information that DOE produces. All of this information identification, "quality control," preservation, and public access are not going to change the fact that most stakeholders do not trust the United States to tell the truth about contamination and its effects on human health and the environment. Any discussion of information should deal with whether the DOE will do as complete an assessment of contamination and its real or potential harm as possible before conducting remediation, closure and LTS functions. NRDA assessments may be critical in this analysis. Also, any DOE claim that "national security" is a legitimate excuse for withholding information is a relic of the Cold War and should be discarded immediately. | 49.11 | 49.12

Chapter 8. There should be a discussion of natural resource damages liability under CERCLA as a factor in costs associated with remediation and/or LTS. An explanation of how NRDA damages are estimated would be helpful. | 49.13

Chapter 10. Issues that should be included:

1. DOE may not be the proper institution to administer LTS. | 49.14
2. Congressional legislation may be needed for LTS directives, either generally or for particular sites. | 49.15
3. Ideas analyzed in the Resources For the Future (RFF) and National Research Council (NRC) studies on LTS are not really examined at all. | 49.16

49.8 – The Department appreciates the commenter's suggestion to more fully integrate the two discussions. However, the Department believes that the discussion of uncertainties about the long-term effectiveness of institutional controls (Chapter 5) provides sufficient context for the discussion of post-transfer property management (Chapter 6).

49.9 – The text has been altered to reflect this comment.

49.10 – The Department acknowledges this comment in a text box and footnote in Section 6.2 of the Study. The Study also acknowledges that there is disagreement as to whether Treaty rights and Federal Trust Responsibilities apply to specific withdrawn land.

49.11 – The Department agrees that accuracy and public trust are important aspects of information management and has added bullets in Section 7.1 of the Study to note this.

49.12 – The Department recognizes public concerns about residual site hazards and has acknowledged this comment in a text box in Section 3.2 of the Study. Information on the nature of residual hazards and their potential adverse effects on health, welfare, and the environment should be appropriately available to the public. The Department's Long-term Stewardship Working Group recently identified public involvement as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. This issue includes how DOE should balance the need to involve the public in maintaining controls (e.g., institutional controls such as water use restrictions) with competing needs such as classified information or activities, particularly at sites with ongoing national security missions.

49.13 – DOE policy is to integrate natural resources concerns into resource actions, as noted in Section 9.1 of the Study.

49.14 – The Department acknowledges this comment in a text box in Section 4.2 of the Draft Study. The Study has included examples of successful efforts to assist individual sites in establishing these partnerships. Developing partnerships, however, is both difficult and time-consuming, and it may be years before partnerships become function smoothly. Potential options for managing long-term stewardship include a centralized agency to steward Federal sites. However, a detailed discussion of the advantages and disadvantages of such a centralized agency is beyond the scope of the Study, which is required to focus on DOE sites.

49.15 – The Department acknowledges these comments in a text box in Section 4.1 of the Final Study. The specific mechanisms available for oversight and enforcement of long-term stewardship vary according to the applicable regulatory regime(s) and state laws on a site-specific basis. The Department has not developed a policy on potential alternative regulatory regimes at specific sites. These comments will be provided to the senior management Long-term Stewardship Executive Steering Committee for their consideration.

49.16 – The Department believes that most of the key issues addressed in both studies are addressed in the Study, including such issues as the integration of long-term stewardship into ongoing DOE missions; institutional controls; information management; environmental monitoring; creating a stewardship mandate; the potential role of other federal agencies; uncertainties about the long-term effectiveness of engineered and institutional controls; "bigger-picture" factors such as land use changes around sites; contingency planning, and flexibility.

OhioEPA

State of Ohio Environmental Protection Agency

12 Fifth Street
Ohio 45402-2811

Telephone: (937)785-6357 FAX: (937) 785-6749

Bob Taft, Governor
Maureen O'Connor, Lt. Governor
Christopher Jones, Director

December 15, 2000

Mr. Steve Livingstone
Project Manager
U.S. Department of Energy
P. O. Box 45097
Washington, DC 20026-5079

Dear Mr. Livingstone:

Thank you for the opportunity to review and comment on the Department of Energy's (DOE) Draft Long-Term Stewardship Study. As you know, Ohio has been an active participant in the discussion of Long Term Stewardship (LTS) at the national level. We also will have some of the first large sites that will move from cleanup to the LTS phase and, accordingly, this issue is critical to the long term protectiveness of the Department's sites in Ohio. We would like to provide the following comments based on our review of the document.

Comments of the Draft Long-term Stewardship Study

1. General Comment: This is a well written document encompassing the current situation of LTS, problems faced with it, and possible alternatives for how the LTS program can be managed. The manner in which the scoping comments were handled was excellent. The document has been significantly improved by the extensive interaction that has occurred with external stakeholder groups. DOE is to be commended for effective outreach in the LTS area. 50.1

2. General Comment: Ohio EPA has also been involved in the review of this document with both the National Governors Association and the State and Tribal Government Working Group. We would also like to support the comments submitted by both of these organizations. 50.2

3. General comment: Due to the quality of this draft and the importance of LTS, we urge DOE to make appropriate revisions and expeditiously finalize the report. While we are confident that the next administration will provide the necessary focus on this critical issue and will also receive considerable outside support for this effort, the transition process could result in a loss of momentum. Timely finalization of this report will assure that it serves as an effective building block for future efforts by the department. 50.3

4. Chapter 3: There is a real opportunity to include more LTS considerations in the remedy selection process. While the present process does contain some LTS considerations, many important LTS elements are omitted. Cleanup to unrestricted use would allow the avoidance of LTS costs and this should serve as the point of departure for the LTS evaluation. The clear inclusion of LTS considerations in the remedy selection process is an important factor in the acceptance of long term institutional controls. 50.4

5. 3.3 The "full life-cycle cost accounting" which is mentioned for the evaluation of each alternative by DOE is not an accurate account of future costs for LTS. The DOE definition of 50.5

50.1 – The Department appreciates this comment. Thank you.

50.2 – Please see responses to comment letter 19 and comment letter 28.

50.3 – The Study has been finalized.

50.4 – The Department agrees that site-specific long-term stewardship planning and decision documents should clearly identify problems, remedial objectives, and long-term stewardship implications to the extent feasible. Section 3.2 of the Study has been revised to emphasize this point. The Department acknowledges this comment in a text box in Section 3.2 of the Study. Chapter 4 of the Study discusses DOE's current policy requiring sites to conduct long-term stewardship planning.

50.5 – The Department acknowledges this comment in a text box in Section 8.1 of the Study. The Department agrees that more information is needed on the scope of future long-term stewardship activities and better life-cycle cost estimates are needed. The Study incorporates the cost estimates from the Report to Congress on Long-term Stewardship and will discuss the basis for these estimates. Accurate cost estimates are critical for long-term stewardship, particularly for ensuring accountability for the technical scope of the program. The Report to Congress on Long-term Stewardship is only the first step in developing the necessary cost figures. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites. This comment will be forwarded to the Executive Steering Committee for their consideration.

'life-cycle' currently only extends for 70 years. Many of these sites will remain under stewardship for much longer time periods. A new accounting method needs to be developed which can follow the costs of stewardship through the whole design life of the remedy.

6. Institutional Controls: It is clear that institutional controls are going to be an important component of the cleanup at many DOE sites where free release of the property is not possible. However, as the document describes, the historical use of these controls has been problematic. DOE, states, tribes and stakeholders will need to develop some new tools in this area if cleanups at these site are to remain protective into the future. This is also an area where it **would be helpful to have interaction with other federal agencies with similar long term responsibilities.** 50.6

7. Funding: Relying on annual Congressional appropriations to fund LTS is not adequate. A method which guarantees that the necessary funding will be available in the future is the only solution. Many remedies are being and will be based on the assumption that LTS will be performed. With annual appropriations, there may be years in which the LTS program does not receive the funding necessary to administer the stewardship plans. This could quite realistically cause the failure of a number of remedies, and in return no longer protect human health and the environment as required. 50.7

8. Sustainability: It is very important to recognize the fact that over time, LTS at sites will need to be reevaluated. Advances in technology as well as changes in contaminants could ultimately change remedies at sites. A timetable needs to be established as to how often sites undergoing LTS need to be reevaluated to ensure the best possible course of action for the site is being followed. 50.8

Thank you again for the opportunity to provide feedback. If you have any questions please contact us at (937) 285-6357.

Sincerely,

Thomas A. Winston, P.E.
Chief, Southwest District Office

and

Graham Mitchell
Chief, Office of Federal Facilities Oversight

cc: Christopher Jones, Director

TAW/GEM/br

50.6 – The Department acknowledges this comment in Section 5.3 of the Study. The Department believes that Section 5.3 of the Study appropriately discusses the difficulties and challenges associated with ensuring the long-term maintenance of institutional controls, including roles and responsibilities for enforcement. The determination of the type of institutional controls and enforcement of these controls (e.g., by DOE or external parties) will be determined on a site-specific basis as part of remedy selection and long-term stewardship planning and may change over time.

50.7 – The Department acknowledges this comment in a text box in Section 8.2 of the Study. As noted in Section 8.2 of the Study, developing an alternative funding mechanism will require additional study and eventually Congressional action. Section 8.2 of the Study also provides a summary of the recent study of Trust Funds by Resources for the Future. The Department's Long-term Stewardship Working Group recently identified funding of long-term stewardship as one of the most important issues that should be addressed by the senior management Long-term Stewardship Executive Steering Committee. Specific funding issues identified by the Working Group included: (1) difficulties in determining long-term stewardship costs now and in the future because there is no consistent procedure for how long-term stewardship activities are budgeted for and reported among DOE sites; (2) whether the annual appropriations process is the most effective mechanism for funding long-term stewardship activities that may be needed for decades or centuries; and (3) circumstances under which DOE should consider funding external parties (e.g., local governments) to conduct long-term stewardship activities or oversight. This comment will be forwarded to the Executive Steering Committee for their consideration.

50.8 – The Department acknowledges this comment in a text box in Section 10.2 of the Study. The Department agrees that remedies may need to be reassessed periodically in light of changing circumstances and information. Section 10.2 of the Study includes a discussion of these points. Specific timetables for re-evaluating remedies need to be established on a site-specific basis.