DEPARTMENT OF ENERGY
OAK RIDGE OPERATIONS

ENVIRONMENTAL MANAGEMENT PROGRAM

LONG-TERM STEWARDSHIP STRATEGIC PLAN

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APPROVALS

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INTRODUCTION

Over the past fifty years, production and research activities performed by the Department of Energy (DOE) in Oak Ridge, Tennessee have left a legacy of contaminated sites and facilities. In recognition of its responsibility for these legacy environmental problems, DOE created the Environmental Management Program with a mission to:

- Remediate contaminated sites and facilities
- Dispose newly generated waste
- Dispose stored legacy waste
- Develop and deploy innovative remediation technologies

DOE has made significant progress in addressing its environmental legacy and has reduced the risks and costs associated with maintaining protective conditions at its sites. However, some contaminated sites, media, and facilities may not be remediated sufficiently to permit unrestricted use of soil, groundwater, and surface water due to factors such as technical impracticability, public and worker risk and environmental damage, and costs. Remediations will be accomplished consistent with established land use designations. Since residual contamination will remain in most cases, DOE is committed to conduct activities to assure that remedies remain protective. Through long-term stewardship the requisite activities will be conducted, and stakeholders will have access to the information necessary to evaluate the protectiveness, consequences of events, and proposed changes over time.

Long-term stewardship is the set of activities necessary to protect human health and the environment from physical hazards, residual contamination, and wastes remaining following remediation. Long-term stewardship starts when required remediation, disposal, or stabilization activities are complete or, in the case of long-term remedial actions, e.g., groundwater, surface water, and sediments, the remedy is shown to be functioning properly. Planning for long-term stewardship must be considered during remedial decision-making. Long-term stewardship ensures that remediation remains effective for an extended, or possibly indefinite, period of time unless or until residual hazards are reduced sufficiently to permit unrestricted use and unlimited access.

DOE acknowledges and accepts its responsibility for long-term stewardship. This Strategic Plan describes this responsibility in terms of what long-term stewardship is and why long-term stewardship needs to be performed. Details on how long-term stewardship is performed will be contained in a subsequent Long-Term Stewardship Implementation Plan. Following is a discussion of the vision, mission, principles, objectives, elements, priorities, strategic issues, and strategies for long-term stewardship.

VISION

DOE incorporates sound stewardship practices into all aspects of program planning and implementation. This assists DOE in reducing environmental liabilities and its footprint and returning land to its most beneficial use while promoting the vitality of human, natural and cultural resources for current and future generations. Long-term stewardship helps to accomplish this vision by:

- Implementing monitoring and maintenance measures to prevent the migration and uptake of residual contamination
- Promoting public trust in DOE through a cooperative partnership with stakeholders and state and local governments
- Incorporating long-term stewardship principles into DOE's planning and operations

MISSION

The mission of the Environmental Management Program is to manage risks to human health and the environment posed by contaminated sites and facilities, legacy waste, and newly generated waste in the most cost-efficient and responsible manner possible to provide for future beneficial reuse. The supporting mission of long-term stewardship is to:

- manage residual risks and promote the reduction of future environmental liabilities associated with DOE's cleanup and continuing operations
- protect human health and the environment
- sustain natural and cultural resources
- enhance the use of DOE's land and facilities for the public good

Long-term stewardship activities are intended to prevent receptors (people, plants, and animals) from encountering the residual hazard (usually through land use controls) and to prevent the residual hazard from migrating to the receptor (generally through engineering technologies).

PRINCIPLES

- **Long-term stewardship is a DOE-wide responsibility** – DOE is committed to the protection of human health and the environment in all of its actions. To ensure success, all DOE programs must consider long-term stewardship as an integral part of the DOE's mission.

- **Long-term stewardship is a component of all aspects of DOE decision-making** – It is the responsibility of DOE to ensure that long-term stewardship

is considered in each decision that impacts cleanup. This responsibility extends from the identification of remediation alternatives, remedial design, construction, and operation through all relevant decisions made over the lifetime of the hazards.

- **DOE is a Trustee of natural and cultural resources** – Residual hazards should be managed within the larger context of Federal land management, which includes trusteeship for ecologically and culturally important areas. DOE will manage these hazards in accordance with applicable regulatory requirements.

- **Long-term stewardship should be incorporated into relevant DOE policies, practices and systems** – Long-term stewardship will be most effective when integrated into existing DOE processes and management systems. As these DOE policies, practices, and systems (such as Life Cycle Asset Management, Integrated Safety Management and Environmental Management Systems) are reviewed and/or implemented, a broad range of long-term stewardship activities and needs may be incorporated. This will facilitate the establishment of long-term stewardship as an essential element of all facets of DOE missions.

- **An inter-generational approach is needed for long-term stewardship** – Long-term stewardship is an enduring commitment by the federal government. Due to the longevity of hazards, the ramifications and costs of current and future decisions and missions will be experienced by generations to come. As these generations' land use practices and local community structures change over time, current assumptions that guide DOE policy may require reevaluation and modification.

- **Long-term stewardship policy must provide a consistent framework and acknowledge the need for flexibility** – Although an overall framework for long-term stewardship is required for complex-wide management, the framework must be responsive to site-specific requirements. Therefore, DOE long-term stewardship policy must be sufficiently flexible to enable sites to perform necessary long-term stewardship functions within their individual regulatory frameworks and communities. .

- **The involvement of stakeholder and state and local governments is critical to long-term stewardship** – DOE has the responsibility to consult with these affected parties on issues of long-term stewardship. Ongoing interaction and exchange increases public awareness. In turn, heightened public awareness facilitates informed decision-making and increases the likelihood of successful implementation of long-term stewardship.

OBJECTIVES

The basic objectives of a long-term stewardship program are:

- Execute, document, and evaluate long-term stewardship.
- Incorporate long-term stewardship into DOE's existing planning and management processes.
- Ensure the availability of adequate resources to sustain long-term stewardship.

ELEMENTS

The basic elements of a long-term stewardship program are:

- Stewards – Stewards are those responsible for developing, implementing, and overseeing the stewardship activities. Identifying the stewards, defining their roles and responsibilities, and defining their interactions are essential for a successful long-term stewardship program.
- Operations – Operations are those activities necessary to ensure the integrity of the remedy and include operations, inspection, surveillance, monitoring, enforcement, maintenance, modification, replacement, and evaluation.
- Information Systems – Information systems maintain records of residual contamination, associated risks, and required long-term stewardship activities. Information systems obtain, maintain, and retrieve the information necessary as long as the residual contamination poses a risk to human health and the environment.
- Research – Research is needed in areas such as the long-term performance of stabilization and containment technologies and long-term migration of contaminants to reduce the cost of long-term stewardship and the risk of residual contamination.
- Public Participation – Public participation is required since the intent of LTS is to ensure the protection of public health and environment. Therefore, the public should be involved in selecting and reviewing the environmental aspects of performance of the remedy and long-term stewardship activities.
- Public Education – Public education is necessary to ensure that the nature and risk of residual contamination and the resultant types of land use controls are understood. This understanding will facilitate the enforcement of land use controls.

Each of these elements must work together to make long-term stewardship effective. First, stewards must be identified and their individual roles and responsibilities defined. Second, the tools of long-term stewardship, including operations, information systems, and research must be designed and implemented. Finally, the public must be involved and educated in long-term stewardship activities.

ISSUES

1. A clear commitment by DOE to long-term stewardship is needed. DOE needs to decide what stewardship activities it will perform as a matter of policy.
2. Long-term stewardship considerations need to be incorporated into the remedial decision-making process.
3. The extent and level of residual contamination and the risk it poses need to be known and documented.
4. Access to information on residual hazards shall be easily available to the public.
5. The long-term reliability and effectiveness of remedial actions, including land use controls, need to be evaluated.
6. Permanent, sustainable funding sources need to be developed for long-term stewardship.
7. The legal framework needs to be developed to ensure the continued effectiveness of long-term stewardship if property ownership changes.
8. A better understanding is needed of natural processes and their interactions with residual hazards and remedies.
9. Lifecycle planning for new activities should consider long-term stewardship to reduce future long-term stewardship costs.

IMPLEMENTATION STRATEGY

Oak Ridge Reservation

Remedial decision-making on the Oak Ridge Reservation is being phased. Interim decisions are being made on specific source areas (K-1070-A Contaminated Burial Ground), for migration pathways (SWSA-4 seeps), and for the majority of a watershed (Melton Valley). The strategy is to continue phasing interim remedial decisions until all aspects of a watershed are addressed. When sufficient scope is included in an interim decision to set an overall land use objective for the watershed, alternative methods of acceptable interim land use controls will be included in the remedial decision. The last element of the watershed will be documented in a final remedial decision for the watershed. At that time, final land use control decisions will be made by the appropriate parties. The interim and final remedial decisions assume DOE has a significant and ongoing presence and relies mostly on existing controls. The final remedial decision legally will require these existing controls to be maintained by DOE.

Environmental stewardship measures are described in several documents. First, Records of Decision state the environmental stewardship measures that are required as part of the remedial action. Post-remediation care and environmental stewardship requirements are recorded in project completion reports such as Project Construction Completion Reports (PCCR) and Remedial Action Reports (RAR). These describe in detail how the environmental stewardship measures will be operated, inspected, surveyed, monitored, enforced, maintained, modified, replaced, and evaluated. The annual Remedial Effectiveness Report captures these details and includes an assessment of the performance of the environmental stewardship measures. Subsequent to approval of this strategy document, a Long-Term Stewardship Implementation Plan will describe details on how long-term stewardship is performed on the Oak Ridge Reservation.