SRS

Fact Sheet

End State Vision (ESV) Document

Background

After 40 years of producing nuclear material for defense and non-defense uses, the Savannah River Site (SRS) has shifted its strategic direction and resources from nuclear materials production to cleanup.

Cleanup operations actually began in the 1980s when SRS started inventorying waste units. Future use planning also reflected the site's changing mission with the development of the *SRS Future Use Plan* with stakeholders and regulators.

Today, the SRS cleanup effort reflects an increased focus on integrating area cleanup with facility deactivation, decommissioning and demolition work. The Department of Energy's (DOE's) recently-published document *End State Vision for the Savannah River Site* projects that the majority of SRS's legacy liquid radioactive, transuranic, hazardous, and mixed waste will be permanently removed from the site. This includes remediation of the remainder of SRS's 515 inactive waste units, disposition of the site's 51 liquid radioactive waste tanks and its more than 1,000 surplus facilities and support structures.

Introduction

In 2003, DOE issued Policy P 455.1, *Use of Risk-Based End States*. Based on this policy, SRS drafted an End State Vision that promotes accelerated cleanup by focusing on clearly defined end states. An end state is the status of a facility or waste site after decommissioning and/or cleanup activities are complete. These end states represent the final conditions or standards to which whole areas, and the hazards located in those areas, will be remediated. The end states are dependent on the intended future use of land and water resources and any associated long-term stewardship needs.

In keeping with the 2004 Environmental Management (EM) Program Performance Management Plan (PMP), SRS's end state vision is to complete the Environmental Management cleanup mission of legacy waste units and surplus facilities by 2025 and transition SRS to a site focused on national security. SRS will continue performing ongoing National Nuclear Security Administration (NNSA) missions beyond 2025.

End States and the Role of the ESV Document

The SRS EM cleanup program is focused on completing nuclear stabilization and processing in the canyons and separations facilities; removing waste from and closing all liquid waste tanks; treating and disposing of all solid wastes; deactivating and decommissioning EM facilities; and remediating contaminated soil and groundwater. The approach taken will continue to preserve the health and safety of workers, the public, and the environment; eliminate risks rather than just manage them; and significantly shrink the site's geographical "footprint."

The ESV document, therefore, functions to help inform and communicate the site's projected end states to stakeholders and serves as a key planning guide based on agreed-upon future land use. In so doing, it also proposes safe and cost effective cleanup alternatives for stakeholder consideration.

Hazard and Risk Depicted

The ESV document depicts the various hazards at SRS in five major categories:

- **Nuclear Materials**: plutonium, uranium, spent nuclear fuel, tritium and other miscellaneous nuclear material sources
- **Radiological Waste:** LRW, transuranic waste, low-level waste and low- level mixed waste
- **Non-Radiological Waste:** hazardous and sanitary waste
- **EM Legacy Facilities**: nuclear, radiological, and other industrial facilities and waste tanks
- **Inactive Waste Units:** soil, groundwater, and surface waters with known or suspected releases of contamination to the environment.

Each of these hazard categories is explained in the ESV document. The ESV document also describes risks and the controls in place to contain and disposition the nuclear material and hazardous waste hazards and legacy facilities. These controls and barriers serve to mitigate the risk that any given event might create.

The first four hazard categories, known as *contained hazards*, are incorporated in Conceptual Site Models (CSMs). The CSMs chart out the pathways and barriers available in the event hazards are released. Any *released hazards*, i.e., inactive waste units, are also described and depicted. The ESV document specifies potential human and ecological receptors while also summarizing the various risks associated with both current hazards and planned residual end states. These risks are based on the type of land use, what or who is exposed, and the manner or pathway in which a receptor might be exposed. The ESV document incorporates a risk-informed approach accepted by the National Academy of Science and utilizes its principles in depicting end states for various hazards based on regulatory law and industry standards.

Alternative End States (AES)

An important part of the ESV document is the evaluation of five alternatives to the current planned end states. AESs are defined as any significantly different cleanup approaches or end states than those described in the 2004 EM Program Performance Management Plan. The acceptance of these AESs is contingent on ongoing stakeholder input and regulatory concurrence, while some have already been implemented. If implemented, the remaining AESs could further accelerate SRS cleanup:

- Future Land Use and Exposure Scenario Modification
- Alternate Disposal for Plutonium (Pu-238) Contaminated TRU Waste
- In-Situ Decommissioning in lieu of Demolition
- Increased LRW Defense Waste Processing Facility (DWPF) Canister Loading
- Area Completion

Path Forward

The ESV document has been published with the help of extensive review and comment from local, state, and national stakeholders and regulators. The document specifies ultimate land use and projects' basic custodial standards. At the same time, it supports completion of the SRS EM Cleanup Project in a timely and effective manner. Since the ESV document is not a detailed plan of *how* to achieve the stated end states but rather a reasoned *target* for closure, a primary focus will be to ensure that the vision is mutually agreeable with regulators and stakeholders.

SRS is working with the End States Working Group, a national stakeholder group chartered by the DOE Office of Environmental Management, to obtain stakeholders' perspectives on planned and potential alternative end states at DOE facilities around the country, and to facilitate their evaluation of end states. The group comprises state regulators, citizens and officials from affected communities, and representatives of Tribal Nations. As such, the ESV document will be revisited on a regular basis, and planned end states will be periodically reviewed. In conjunction with regulator concurrence, stakeholder input and basic agreement is considered essential to identifying and achieving a safe and cost effective SRS End State.