Soil & Groundwater Closure Projects

Introduction

The Savannah River Site's (SRS) Soil and Groundwater Closure Projects (SGCP) is responsible for waste site and surface and groundwater remediation. In its efforts to remediate waste sites and groundwater units, thereby reducing risks to the environment, SGCP approaches environmental restoration by utilizing effective project management, effective communications, and strong working relationships with regulatory agencies by deploying numerous innovative technologies to expedite the cleanup process for the Department of Energy (DOE).

Remediation of SGCP waste sites and groundwater began in the early 1990s and continues at an aggressive pace with more than 70 percent of the 515 inactive waste sites in the cleanup program now complete or in the remediation phase. By the end of 2006, SGCP will have successfully completed more than 330 waste sites.

Safety

SGCP demonstrates its commitment to maintaining a safe environment for both its workers and the public by continuing to maintain a record-setting safety performance including more than 7 million safe hours, which means there have been no "lost time" injuries since 1997.

To maintain its safe ranking, SGCP personnel participate in Behavior-Based Safety (BBS) by serving on Local Safety Improvement Teams, by becoming active BBS observers, or by volunteering for a BBS observation of his/her own activities. Every employee is encouraged to practice STAR (Stop, Think, Act and Review) while participating in activities for which safety is a concern. SGCP has effectively demonstrated that a team-oriented approach to safety can be a successful method of maintaining a safe workplace.

Field Remediation

The SGCP focuses on cleaning up contamination that exists in the environment. The approach is by treating or immobilizing the source of the contamination to mitigate transport through soil and groundwater and cleaning up or slowing the movement of contamination that has already migrated from the source. From capping waste sites to installing more efficient groundwater treatment units, SGCP keeps field work as a top priority. Field work includes closure of inactive seepage basins, rubble pits, rubble piles, and disposal facilities. Major groundwater cleanup systems operate in A/M, C, F, H, and T areas as well as in the Mixed Waste Management Facility, the Chemical, Metals, and Pesticides Pits, and in the Nonradioactive Waste Disposal Facility.

Technology Deployment

SGCP is executing remediation in a fashion that completes environmental cleanup and facility decommissioning area by area until all areas at SRS are completed by 2025. Units that leave waste in place will be under institutional controls that feature access restrictions, inspection, maintenance, and long-term stewardship monitoring. Typically, soils will be remediated to an acceptable residual risk for industrial workers. Groundwater will be addressed in a manner such that required cleanup levels will be achieved over time.

SGCP has pioneered the use of numerous ground-breaking technologies to increase the effectiveness of its remediation efforts and to reduce risk. These technologies range from solvent cleanup methods, such as Dynamic Underground Stripping, to waste site capping and sealing approaches using grout mixtures. Traditional kaolin clay caps, previously used as a protective cover over large landfills, have been replaced with a new geosynthetic cap closure technology. The geosynthetic cap is very effective in preventing rainwater infiltration and is more cost effective as well.

SGCP also employs a variety of natural remedies such as phytoremediation (using natural vegetative processes), bioremediation (using naturally occurring microbes), and monitored natural remediation (establishing a groundwater mixing zone). These technologies are proving to be a cost-efficient means of reducing risk.

Project Management & Strategy

An important aspect of SGCP's project management is the effective development and control of its projected scope, schedule, and costs. Additionally, SGCP is currently working with Site D&D to accelerate whole closure areas in T, M, and P Areas. Specific approaches to environmental restoration include the following strategies:

- Accelerate the completion of high-risk waste sites to protect workers and the public
- Implement an area-by-area remediation strategy as a means of bringing closure to whole areas of the site
- Deploy and utilize cost-effective technologies and natural remedies such as bioremediation, phytoremediation, and monitored natural attenuation
- Further accelerate project closure by formally transitioning complete sites to long-term stewardship
- Maintaining an accurate, approved baseline of scope, schedule, and cost using change control methods

Regulatory Communications

SGCP personnel are working with DOE, the U.S. Environmental Protection Agency (EPA), and the South Carolina Department of Health and Environmental Control (SCDHEC) to reduce risk and accelerate SRS's waste site cleanup activities.

SGCP is driven by two major federal statutes: the Resource Conservation and Recovery Act (RCRA), which establishes a system for tracking and managing hazardous wastes from generation to disposal; and the Comprehensive Environmental Response Compensation and Recovery Act (CERCLA), or Superfund, which addresses the protection and cleanup of the environment from known operable units. RCRA requires corrective action for releases of hazardous waste from active or inactive waste units and treatment, storage, or disposal facilities.

In addition to these two statutes, SRS waste unit remediation and closure is subject to the requirements of various Settlement Agreements, Consent Decrees, Memorandums of Agreements (MOAs), and a Federal Facility Agreement (FFA) with DOE, USEPA Region 4, and SCDHEC. The FFA, effective August 16, 1993 specifies how SRS will address contamination or potential contamination at waste units in accordance with RCRA and CERCLA requirements. The FFA is required under CERCLA.

SGCP enjoys a strong working relationship with DOE, USEPA, and SCDHEC through the implementation of a Core Team process. This relationship greatly enhances communication and productivity to streamline the CERCLA documentation process. The Core Team process also facilitates waste unit resolution at an early stage.

In 2003, the parties signed an MOA to accelerate cleanup at SRS. The parties have worked together to develop a Comprehensive Cleanup Plan, a Program Performance Management Plan, and an End State Vision that includes both inactive waste sites and facilities.

Public Involvement

SRS values communication with its stakeholders. For this reason, SRS has built strong working relationships not only with its regulatory agencies but other public stakeholders such as the SRS Citizens Advisory Board (CAB) and Citizens for Environmental Justice. Once a waste site has been fully characterized, cleanup alternatives evaluated, and a preferred method selected, SRS solicits comments from the general public, which includes representatives from the media, legislators, educators, and other citizens. During the public comment period, SRS also seeks comments from the CAB. The CAB is an independent group of citizens that regularly makes recommendations to the DOE, USEPA, and SCDHEC regarding cleanup of the SRS. Once comments on how to address a waste unit are received from the public and the CAB, a Record of Decision is issued that documents the selected remedial alternative.

February 6, 2006