Savannah River Site

2008 Environmental Report

(Above) SWM Glovebox allows workers to safely handle and package radioactive materials

(Below) SWM developed TRU drum safety containers to safely transport drums of transuranic waste.

Introduction

On August 1, 2008, Savannah River Nuclear Solutions, LLC (SRNS) took over the Savannah River Site (SRS) M&O responsibility from Washington Savannah River Corporation (WSRC). SRNS is only the third M&O contractor at SRS in almost 60 years. During and after the contract transition, solid wastes at SRS continue to be managed safely and compliantly.

Solid Waste Management (SWM) had another successful year in safety performance, posting 34 consecutive months without an injury serious enough to result in lost time to the employee. The total of 10 first aid cases was the lowest since 2002. However, FY08 has not been without challenges. Several injuries in the F Canyon Transuranic Waste (TRU) program highlighted the hazards associated with glovebox work and the importance of stretching before, during and after glovebox work activities. Ergonomic tools and work practices were incorporated into routines that clearly prevented more injuries from occurring. Stretching areas equipped with Therabands© and instructional posters were established to reinforce the training the employees received when they were assigned to the project. The training was designed and presented by a DOE Glovebox expert who was a licensed Physical Therapist at Los Alamos . SWM personnel made a significant impact upon the safety of other site glovebox workers by developing detailed descriptions of safe glovebox work behaviors which became the entire section of Critical Safe Behaviors for Glovebox work on the site BBS Observation Form. These detailed descriptions of safe behaviors on the Behavior Based Observation were subsequently utilized during 811 observations of site glovebox workers during FY08. In 2008, there were no regulatory notice of violations.

Transuranic Waste (TRU)

SRS's waste management facilities provide services to facilities and organizations across the site

Since the Savannah River Site (SRS) began operations in the early 1950's, about 30,000 drums and 6,000 cubic meters of non-drummed transuranic waste (TRU waste) have accumulated on pads awaiting final disposal. TRU waste generated at the SRS is primarily debris waste which includes combinations of the following: plastic, paper, rubber, glassware, metal items and lead-lined gloves, filters and used equipment, and other contaminated materials from routine processing. TRU waste was generated primarily by the Plutonium Separations Facilities and the Analytical Laboratories. Other past generations of significantly smaller volumes included the Naval Fuels Facility, the Reactor Facilities, the Fuel Fabrication Facility, the High-Level Waste Tank Farms and the Solid Waste Management facility. Future TRU waste will be generated as a result of the deactivation and demolition of existing facilities as well as new missions such as MOX and the Salt Waste Processing Facility.

The Waste Isolation Pilot Plant (WIPP), which opened in 1999, is DOE's facility for disposing of TRU waste from across the DOE complex. In 2001, SRS began shipping TRU waste which had to meet strict WIPP requirements. Liquids and aerosol cans, for example, are prohibited. Each drum had to be examined to ensure all the contents are allowable. Drums that pass these tests are characterized, packaged and shipped to WIPP. Those that contain prohibited items were put aside and are to be dealt with later at a facility that is operational to perform the remediation. In 2008, SRS continued the use of the remediation facility set up in F-Canyon as well as the Modular Remediation System (MRS); 1,586 drums were remediated through F-Canyon and 247 drums through MRS. This allowed SRS to dispose of 2,556 drums in 2008 (2400 to WIPP and 1,622 re-classified as Low Level Waste/Mixed Waste). By the end of 2008, SRS has disposed of 28,840 drums (27,218 to WIPP and 1,622 as LLW/MW).

In 2003, SRS submitted a RCRA Part B Permit Application for TRU Pads 2-19. Unfortunately, rainwater was found in 31 of the containers on TRU Pads 7-13 and these pads could not meet the RCRA regulations governing secondary containment. These pads were removed from the permit application and SRS entered into several Site Treatment Plan (STP) commitments including removal of all TRU waste containers from TRU Pads 7-13:

- with known liquids by September 30, 2006
- remaining containers by September 30, 2008

The first commitment proved to be very difficult. A task team was formed to solve the following issues that confronted Solid Waste Engineering and Operations:

- Conducting Flammability Determinations
- Determining Radiation Dose Limits
- Verifying Structural Integrity
- Performing Lifting Calculations
- Meeting the Safety Authorization Basis
- Developing appropriate procedures
- Moving adjacent containers to allow movement

On July 29, 2008, the last container was removed from TRU Pad 7-13, two months ahead of schedule. During the nearly three-year process, there were no safety incidents or injuries to personnel and no container breaches or environmental releases, a remarkable record.

Low Level Waste (LLW)

At SRS, the LLW disposition program primarily involves disposing of waste in onsite engineered and slit trenches as well as off-site licensed commercial facilities, and other DOE facilities. Since 2000, SRS safely disposed of over 145,000 cubic meters of LLW on site, at the Nevada Test Site and at the Energy Solutions' disposal facility in Clive, Utah.

Mixed Waste (MW)

Mixed waste (MW) is defined as waste containing both hazardous and radioactive constituents as defined by the Resource Conservation and Recovery Act (RCRA), 40 CFR 261, Subparts C and D, the South Carolina Hazardous Waste Management Regulations (SCHWMR), and the Atomic Energy Act (AEA) of 1954. Mixed waste streams are generated at SRS by various activities including operations, including environmental cleanup, decommissioning and demolition (D&D), and construction. MW includes job control waste such as solvent-contaminated wipes, cleanup and construction debris, lead, laboratory samples, and soils from spill remediation. Treatment options identified must meet Land Disposal Restrictions (LDR). In 2008, SRS shipped 127 cubic meters of mixed waste offsite.

Hazardous Waste

The Hazardous Waste Program involves three primary operations: receipt of waste from onsite generators, interim storage, and shipment of waste for offsite treatment and disposal. Waste receipt and interim storage activities include receipt of newly generated waste, placement of the waste in storage, and subsequent surveillance and maintenance of the stored waste. Similar to MW operations, surveillance and maintenance activities at the HW facilities require an ongoing effort to inspect containers to ensure container integrity is maintained. This includes verifying secondary containment features, maintaining facility grounds and equipment, and conducting remedial actions to prevent releases from degraded containers. Hazardous waste is routinely shipped offsite to commercial facilities for treatment and disposal. In 2008, SRS shipped 215 cubic meters of hazardous waste offsite for treatment.

Sanitary Waste

SRS contracts with a local Municipal Recovery Facility (MRF) to process SRS's routine Sanitary Waste for recycling. The MRF recovers white paper, cardboard, steel (cans), plastic, mixed paper, newsprint, magazines and glass. The materials removed from this waste stream are accumulated, baled and sold to industry. In 2008, 2,552 tons of waste were sent to the MRF and 1,003 tons were recycled, achieving a recycle rate of 39 percent.

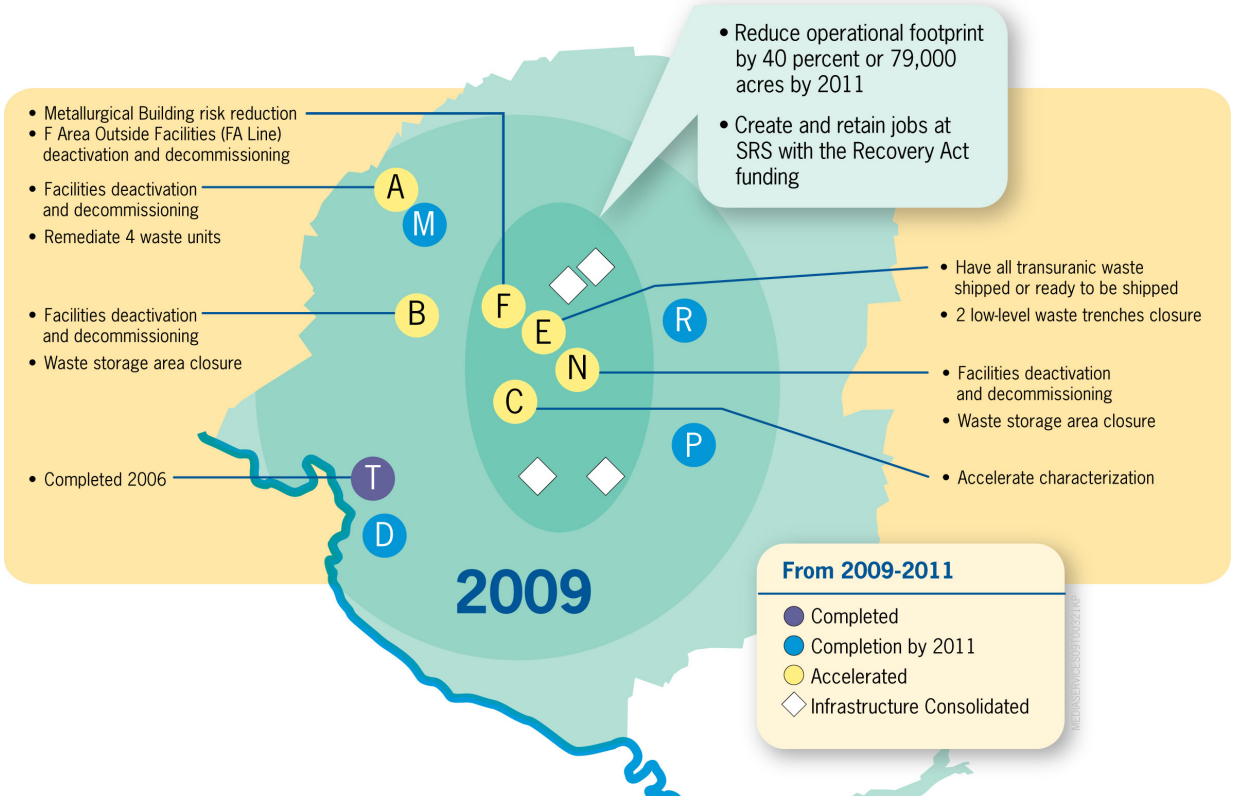
To this end, the SRS gifted a waste extruder to the Three Rivers Regional Landfill that allows for the processing of combustible waste material into Process Engineered Fuel (PEF). PEF is a high density fuel cube that is combined with coal or other combustibles to fuel industrial boilers. The cube is composed of paper, cardboard, newspaper, miscellaneous paper, and non-PVC plastics. The fuel cubes have between 6,900 and 9,000 BTU and burn much cleaner than coal. The fuel extruder is connected to existing waste sort equipment at the Three Rivers Landfill that removes all non-combustible materials (steel, hard plastics & aluminum) before the waste is converted into fuel cubes. The Three Rivers Landfill began test runs in October 2008 with SRS routine office waste. Use of the Three Rivers Landfill should significantly increase the routine sanitary waste recycle rate and reduce the overall cost for this program.

A Look Ahead: American Recovery and Reinvestment Act (ARRA)

2009 Solid Waste Management ARRA Investments

• In the Solid Waste Management (SWM) program approximately 4,500 cubic meters of legacy transuranic (TRU) waste presently in inventory at the Savannah River Site (SRS) will be shipped or characterized for shipping out of South Carolina.
• TRU waste generated at SRS includes plastic, paper, rubber, glassware, metal items, lead lined gloves, filters, used equipment, and other contaminated materials from routine processing.
• TRU waste was generated primarily by plutonium separations facilities and analytical laboratories.
• The TRU waste will be safely packaged for shipping to the Waste Isolation Pilot Plant (WIPP) in Carlsbad, NM, for final disposal. Any associated mixed low-level waste will be packaged for disposal at the Nevada Test Site.
• The SWM program will consolidate all of the waste facilities controlled by the Resource Conservation and Recovery Act into one area.
• In addition, SRS will ship 16,000 drums of depleted uranium oxide (DUO) to an out-of-state facility for final disposal. DUO is a by-product in the separations process that was used to make reactor fuel to produce plutonium.

SRS Footprint Reduction Initiative



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