Solid Waste Division
2002 Annual Report

Again -
Operating Safely
Exceeding Commitments
Delivering More Than Target Cost Reductions
Achieving Integration with DOE Complex-Wide Programs

BNFL

On the cover - October 30, 2002, The first “Double Header” TRU Waste shipment leaving SRS for the Waste Isolation Pilot Plant in Carlsbad, NM.

Written and published by Savannah River Site Solid Waste Division. Questions or comments should be directed to Sonny Goldston (803) 557-6314 or e-mail welford03.goldston@srs.gov

WSRC-RP-2003-00263

Solid Waste Division 2002 Annual Report

Westinghouse Savannah River Company
Solid Waste Division
Aiken, South Carolina 29808

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Solid Waste Division 2002 Annual Report

As in previous years this annual report provides a review of events in 2002. I am again extremely pleased to report another year of outstanding accomplishments, described more fully throughout the report.

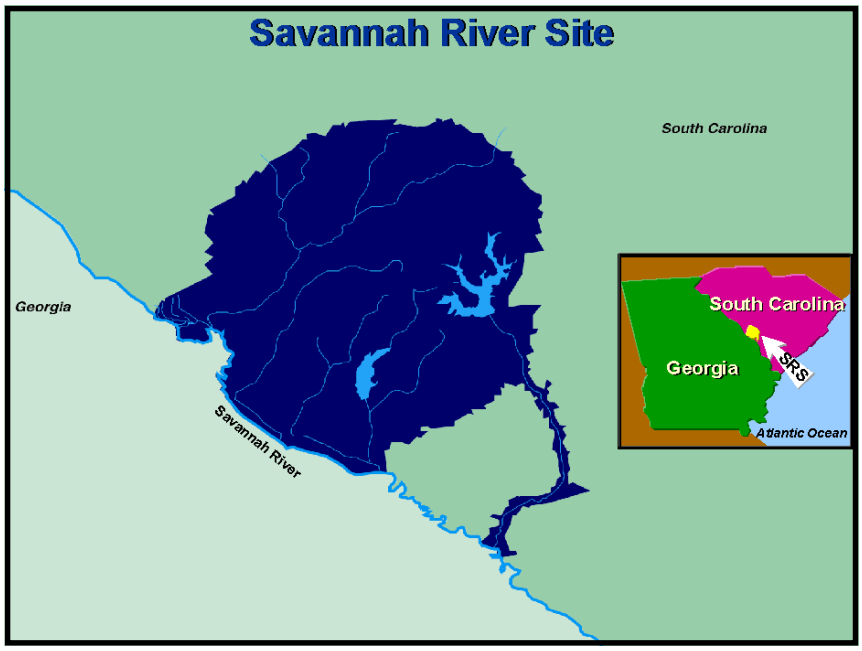
Some particularly good examples include the restart of Saltstone and the achievement of record production throughputs; the very significant reduction of low level, hazardous and mixed waste inventories beyond planned targets; and a twelve-fold increase in the rate of shipments of TRU waste to WIPP. There are many other examples in the report, but I am particularly pleased that they have all been achieved while continuing to improve our safety and cost effectiveness.

When I look back to the challenges and major uncertainties anticipated in last year's report, I am particularly proud to pay tribute to a workforce which has not only met but overcome those challenges handsomely; in doing so they have demonstrated an impressive level of commitment, flexibility and innovative thinking to get the job done.

It is also appropriate that I again recognize the support and guidance we have received from our DOE customers and stakeholders throughout the year; without this support many of the achievements described in the report would not have been possible.

As we enter 2003 the Savannah River Site is undergoing a major reorganization. Although this inevitably causes uncertainty for many, it does also represent an exciting opportunity for further cultural change and improvement. Solid Waste Division has clearly demonstrated a great ability for embracing such changes, and I have no doubt that we will do so again in 2003 and beyond.

W. S. J. Kelly
Vice President and General Manager
Solid Waste Division



The Savannah River Site (SRS) covers 198,344 acres (310 square miles) encompassing parts of Aiken, Barnwell, and Allendale counties in South Carolina.

As a key Department of Energy complex, SRS is committed to the stewardship of the environment and the transition from nuclear material production to national security, nonproliferation and environmental cleanup activities.

British Nuclear Fuels Limited (BNFL) is part of an integrated team that operates SRS, and, specifically, is responsible for the site's solid waste program within the Solid Waste Division (SWD). The mission of the SWD is to provide exemplary, high quality, and cost-effective solid waste management services in support of DOE missions at SRS and across the Complex. Integral to BNFL's role is the elimination of legacy waste left after the Cold War era and the treatment, storage, and disposal of newly generated waste. The Solid Waste Division has responsibility to manage the Transuranic, Low Level, Mixed, Hazardous and Sanitary waste programs at SRS. The purpose of each program and 2002 accomplishments are detailed elsewhere in this report. However, it is appropriate to note at the onset of this report that 2002 was a year of notable achievements within SWD. During this period, SWD achieved the highest site-wide percentage of planned objectives by significantly exceeding production goals for legacy waste reduction. The Division met all key milestones, including a major site initiative for Saltstone startup and processing of wastes in preparation for the Low Curie Salt Program. The Low Curie Salt Program is expected to free up much needed space in the High Level Waste Tanks. Successes in the TRU Waste Ship to WIPP Program have positioned SRS for a substantial acceleration of shipments to WIPP in FY 03 and beyond.

SWD's major focus areas include safety, operations, customers, management systems, people, and stakeholders. SWD's operating philosophy includes the following elements:

Our Mission — To provide an exemplary, high quality and cost- effective solid waste management service in support of the Department of Energy (DOE) missions at SRS and across the complex. While accomplishing our mission, we are also protecting human health and the environment.

Our Vision — To be recognized as "simply the best" in waste management practices and be an organization of which the workforce is proud to be a part.

In order to be successful, we must demonstrate our ability to rapidly adapt and continually improve the way we carry out our mission. Innovation, cost-competitiveness, safety excellence, conduct of operations, employee development and teamwork are the key to achieving that success.

Our People — Recognized as the best in their fields, our people are providing meaningful solutions for achieving our mission. Throughout this publication, the faces and actions of our people attest to their commitment in meeting SWD's vision.

...achieving our vision as "Simply The Best"

Customers, stakeholders, SWD personnel, regulators, and the community have all played an important role in the successes enjoyed in 2002. The contents of this Annual Report amplify some of these contributions that have contributed to SWD achieving our vision as "***Simply The Best***".

Building On Past Successes

In 2002, the Solid Waste Division (SWD) continued to excel by building on lessons learned, past successes, continuously improving processes and operations and seeking even greater opportunities for our innovative and operational excellence in waste management. The Solid Waste Division and the Department of Energy (DOE) partnered in this continued mission for excellence in both technical and programmatic areas. Successful results, which combined teamwork, communication and a continued joint mission for success, have made this team a group achieving outstanding performance.

Dr. Sam Kelly, BNFL, Dr. Ines Triay, DOE Manager WIPP, and Ralph DiSibio, President Washington Group Energy

This year, SWD has concluded several meaningful efforts, which covered a broad range of areas. The deep understanding of our customer, our collective technical knowledge and the continued commitment for improvement have combined for a highly successful team at Savannah River Site (SRS) and in the community surrounding SRS. Below are examples of just three areas where we partnered with our DOE and public customers to achieve success.

Accelerated Cleanup - PMP

Responding to challenges from Department of Energy- Headquarters (DOE-HQ) to accelerate site cleanup, Solid Waste Division and DOE-SR initiated a series of analyses to accelerate TRU waste shipments from the Savannah River Site. A team of SWD personnel developed a Performance Management Plan (PMP) that outlined critical activities that would substantially increase TRU waste shipments. The SRS PMP required full integration with the National TRU Program. A meeting conducted in July at the Washington Group International offices with Dr. Ines Triay, DOE Manager WIPP; Dr. Sam Kelly, President BNFL Savannah River Company; Ralph DiSibio, President Washington Group Energy and members of their staffs culminated in an agreement to accelerated completion of all SRS TRU waste shipments from 2034 to 2014.

America Recycles Day

On November 14th and 15th, 2001, the SRS Pollution Prevention team, consisting of both SRS-DOE employees and SRS Pollution Prevention Team employees, partnered with the City of Aiken, South Carolina in constructing an American Flag Replica made entirely of crushed aluminum drink cans. The flag made a statement to the community on SRS's commitment to recycling and

Presentation of completed 55' X 104' American Flag by Aiken Mayor Fred Cavanaugh

also helped raise awareness of America Recycles Day which is a national day set aside to encourage recycling.

TRU Waste Tour by CAB

On March 14, 2002 Bill Willoughby and Jerry Devitt, Chairman and Vice Chair of the Citizens Advisory Board Waste Management Committee, participated in a tour of Transuranic Waste facilities. Prior to the tour Virgil Sauls of Department of Energy- Savannah River (DOE-SR) and several of the Solid Waste employees discussed the TRU process for shipment of waste to Waste Isolation Pilot Plant (WIPP) located in Carlsbad, New Mexico.

Virgil Sauls DOE (center), Jerry Devitt CAB and Bill Willoughby CAB in pre-tour briefing

Jerry Devitt CAB, Howard Pope DOE, Keith Stone BNFL and Bill Willoughby CAB touring TRU Pad #4

Keith Stone BNFL, Bill Willoughby CAB, Sonny Goldston BNFL, Jerry Devitt CAB, Howard Pope DOE and Elmer Wilhite WSRC on tour in the TRUPACT II Loading Facility

Transuranic Waste

Transuranic (TRU) Waste is waste contaminated with radioactive isotopes that have decay rates and activities exceeding defined levels. TRU waste contains man-made elements that are heavier than uranium and decay slowly, thus requiring thousands of years of isolation. TRU Waste includes equipment, rags, residues, debris, protective clothing, and tools. These radioactive elements are man-made and have an atomic number greater than uranium. At the end of Fiscal Year 2002, about 11,000 cubic meters of solid TRU Waste remained in storage on TRU Pads located in E-Area.

Low Level Waste

SWD operates DOE's LLW disposal facilities in accordance with DOE Order 435.1, "Radioactive Waste Management" which delineates selection of the optimal waste facility for LLW disposal. Factors for selection are waste characterization, the waste form, and the waste volume.

Low Level Waste (LLW) is any radioactive waste not classified as high level or transuranic waste. Examples include protective clothing, job control waste, tools, filters and rags. In FY2002, 9,310 cubic meters of solid LLW were received into the E-Area LLW facilities, 2,637 cubic meters were treated and 14,551 cubic meters were disposed resulting in a decline of stored LLW by 6,021 cubic meters. The LLW program is currently two years ahead of schedule in meeting its goal of eliminating all stored legacy waste by the end of FY2006.

Onsite LLW disposal uses several different methods: the Low Activity Waste Vaults (LAWV), the Intermediate Level Vaults (ILV), Engineered Trench #1, the slit trenches, and Components-in-Grout.

- In FY2002, 2,327 cubic meters were disposed in the LAWV.
- 210 cubic meters were disposed in the ILV.
- 5,983 cubic meters were disposed in Engineered Trench #1.
- 5,128 cubic meters were disposed in the slit trenches.
- Two Component-in-Grout disposal evolutions totaling 397 cubic meters were completed in FY2002, including three zinc bromide tankers and collections of bulk boxes. Large objects selected for Component-in-Grout disposal are placed on a concrete base in excavated holes, filled with grout, and then immobilized in a grout pour that fills the remaining excavated space.

Virgil Sauls DOE, Leroy Williams BNFL, Win Smith DOE, Stan Massingill DOE and Sonny Goldston BNFL with DOE Order 435.1

Top - Bernie Mayancsik WSRC, Mary Granade WSRC, Sherri Ross DOE and Marcia Birk WSRC review shipping documentation with truck drivers
Bottom - Trucks loaded with Low-Level Waste

Top to Bottom Component-in - Grout Disposal Process 1) Trailer is lowered into excavation onto a concrete pad 2) Several lifts of grout entomb and fill the trailer 3) Final grout lift covers trailer 4) A soil cap covers the grout

Zinc Bromide trailer is disposed as Component-in-Grout

These figures include 1,303 cubic meters that were transferred from the LAWV to Engineered Trench #1 in order to conserve the more expensive LAWV space.

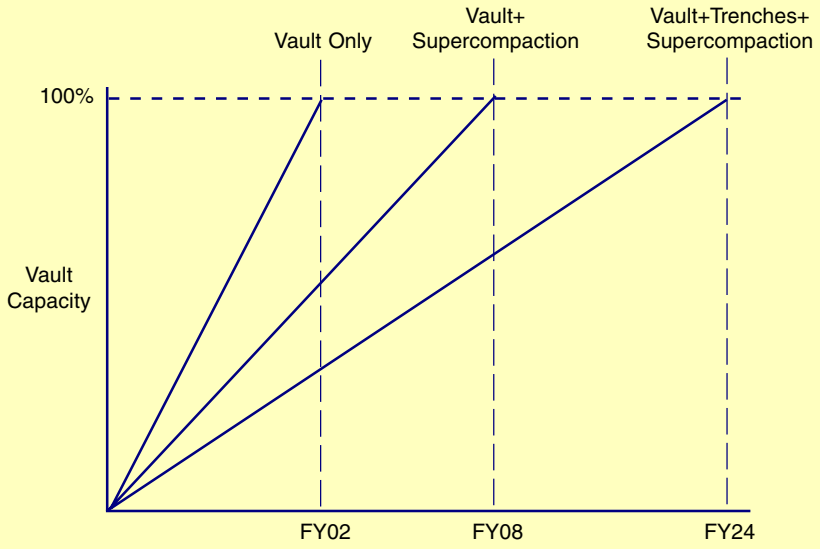
The Engineered Trench Expansion project was completed in June 2002. This project excavated approximately 23,000 cubic meters of additional disposal space, enough for 9,000 B-25s. By utilizing commercial standards, the project finished both under budget and ahead of schedule. The Engineered Trench now has a total capacity of approximately 13,000 B-25s. In FY2002, 5,983 cubic meters were disposed in Engineered Trench #1. A B-25 steel box holds 90 cubic feet of waste.

Engineered Trench #1 as initially constructed for disposal of Low Level Waste. 1303 cubic meters of waste was transferred from the Low Activity Waste Vaults to the trench conserving expensive vault space.

Engineered Trench #1 Expansion Project added 23,000 cubic meters of disposal space

The Waste Sort Facility (WSF), located in Cell 12 of the Low Activity Waste Vaults (LAWV), segregates LLW for treatment and/or disposal in accordance with appropriate technical safety requirements. LLW typically arrives at the WSF in B-25 containers and is either placed in 55-gallon drums for compaction or repackaged in B-25s for immediate disposal. In FY2002, 1,186 cubic meters were processed at the WSF.

The Supercompactor Facility (SCF), located in Cell 11 of the Low Activity Waste Vaults (LAWV), is used to volume reduce compactible LLW. It is designed for compacting 55 gallon drums containing LLW into pucks that are subsequently placed into reused B-25 containers for disposal in the LAWV or Engineered Trench. This process allows for a more efficient and cost-effective use of LAWV disposal space. In order to make compaction more cost effective, waste generators are now packaging compactible waste in drums versus the B-25 containers. In FY2002, 1,451 cubic meters of compactible LLW were processed at the SCF, resulting in a final disposal volume of 459 cubic meters - a greater than 3-to-1 volume reduction.



Using vaults, trenches and supercompaction extends the life of the Low Activity Vaults by 22 years

In FY 2002, the Hazardous Waste program completed all milestones and initiatives by disposing of 511 containers of Hazardous or PCB Waste in containers ranging in size from 5 gallon drums to 4,000 gallon tankers, all without incident. The volume of Hazardous and PCB Waste treated or disposed of in FY 2002 totaled 115 cubic meters; the majority of these were direct shipments, from generator to disposal agency, thereby, minimizing on-site handling and storage.

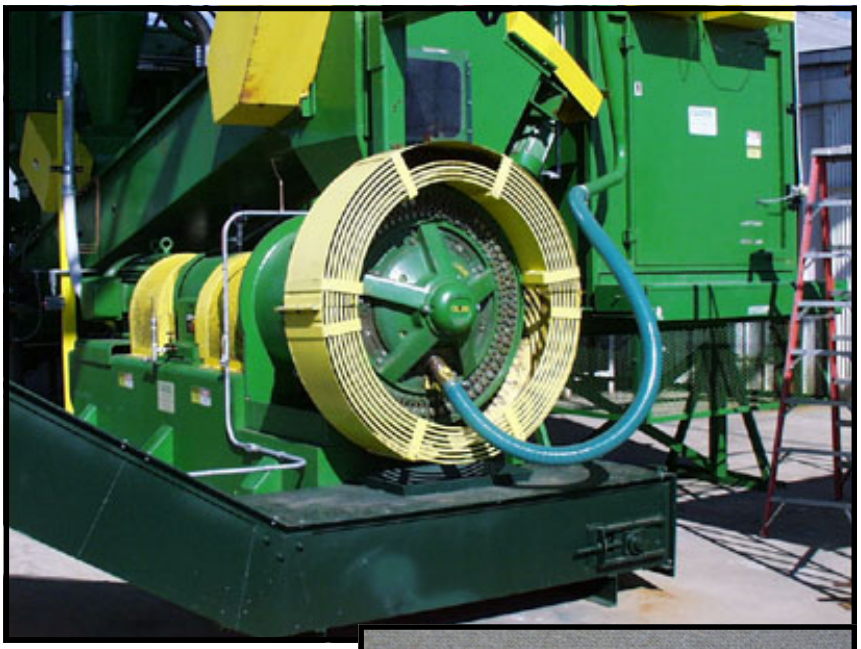
Sanitary Waste

Sanitary Waste includes both non-radioactive waste (office waste, food, garbage, refuse and other solid wastes that are similar to those generated by most households) and industrial waste (construction debris,

SWD Operator with supercompacted 55 gallon drum

Hazardous Waste

The Resource Conservation and Recovery Act (RCRA) defines Hazardous Waste (HW) as any toxic, corrosive, reactive, or ignitable materials that could damage the environment or negatively affect human health. The Toxic Substances Control Act (TSCA) regulates the storage, handling and disposal of PCB and asbestos waste. SRS Hazardous and PCB Waste includes liquids, solids, gases, and material/equipment contaminated debris.



Above - Equipment that makes paper pellets to replace coal
Right - Paper pellet made from recovered site waste streams

scrap metals, wood waste, etc.) During the year, 9,931 metric tons of Sanitary Waste were disposed from SRS, of which 2,391 were routine municipal-type waste and 6,540 were rubble (construction debris, scrap metal, scrap wood, large pieces of concrete, etc.)

SRS has a recycling program using the City of North Augusta's Material Recovery Facility (MRF). SRS has done start-up test operations of the Process Engineered Fuel Facility (PEFF) to produce boiler fuel from paper. Combined, these processes recovered 1,012 metric tons of the municipal waste stream material, including white office paper, newspaper and magazines, cardboard, plastic, steel and aluminum cans, and glass and allowed SRS to recover and recycle greater than 42% of this portion of the sanitary waste stream. PEFF eliminates landfill transportation and disposal cost and produces further cost savings resulting from a contract with the MRF to return combustibles to SRS as feed stock for the PEFF.

Earth and solid construction materials are disposed of at the construction barrow pit and the Three Rivers Regional Landfill. Wood wastes and untreated pallets are shredded at the landfill and sprayed with leachate water to accelerate the biological breakdown of the waste into compost for recycling. In FY2002 1,120 metric tons of these materials were recycled.

Construction recycled 99 metric tons of materials such as lead, antifreeze, silver photographic fixative, fluorescent light bulbs, etc. Salvage Operations processed 44 metric tons of materials such as scrap metal, toner cartridges, used drums, etc. Salvage operations were significantly impacted by the DOE moratorium on release of metals with any potential for radioactive contamination curtailing most metals recycle efforts. In total, 1,263 metric tons of industrial materials were recycled through site programs.

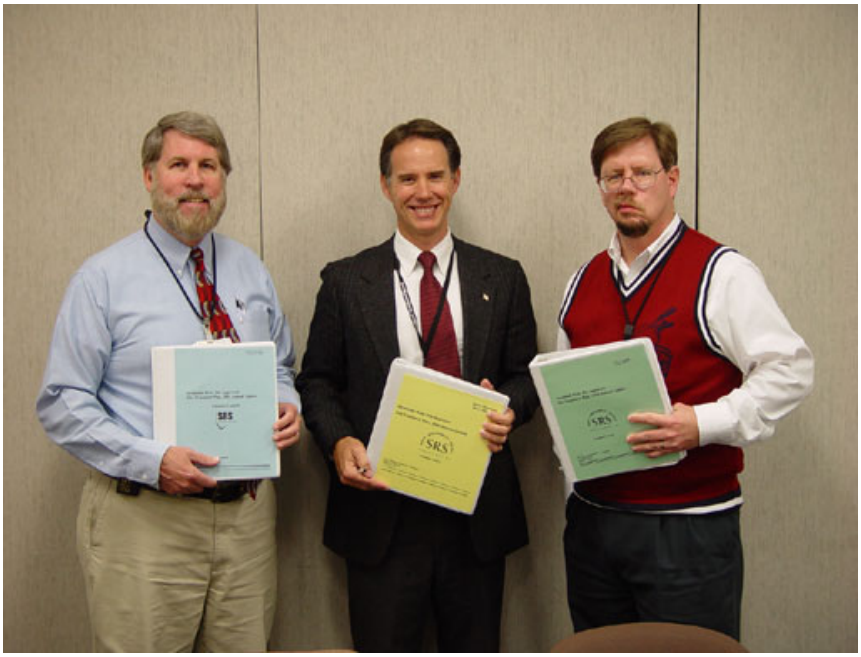
Mixed Low-Level Waste

Mixed Low-Level Waste (MLLW) is waste that is both radioactive and hazardous. This type of waste is subject to regulations governing both waste types.

In fiscal year 2002, the Mixed Low Level Waste Programs met all of its Site Treatment Plan (STP) commitments. The STP represents an agreement among the Solid Waste Division, the Department of Energy (DOE) and the South Carolina Department of Health and Environmental Control (SCDHEC) to properly treat SRS's Mixed Waste on a specific schedule. This accomplishment represents the Solid Waste Division's commitment to responsibly manage this waste. At the end of FY 2002, there were 859 cubic meters of untreated waste in storage.

Green is Clean

During FY 2002, the SWD continued the "Green Is Clean" program to directly dispose waste into the Three Rivers Regional Landfill. The "Green Is Clean" program ensures that waste segregated from operational areas with risk potential are non-hazardous, are non-radioactive and meet sanitary waste disposal criteria. In FY 2002, SWD processed and disposed over 7,800 bags of "Green Is Clean" and other associated waste directly to the Three Rivers Regional Landfill, thus avoiding management of this waste at a higher unit cost.



Bruce Lawrence WSRC, David Hoel DOE and Cary Stevens WSRC with the Site Treatment Plan

The Effluent Treatment Facility

Effluent Treatment Facility

The Effluent Treatment Facility (ETF) operated by SWD collects and processes low-level radioactive and chemically contaminated wastewater from both the HLW Tank Farm Evaporator overheads and from reprocessing facility evaporators. Additional waste streams include wastewater from the Consolidated Incineration Facility (CIF - operation currently suspended) and well water from Environmental Remediation processes. The ETF process, using micro-filtration, organic removal, ion exchange and reverse osmosis, allows approximately 99 percent of the water collected to be released to the environment through a National Pollution Discharge Elimination System (NPDES) permitted outfall.

The facility also maintains and operates cooling water basins designed to safely manage reprocessing facility contamination events, and two retention basins that collect storm water runoff from SRS's F and H Areas. The retention basin water is routinely collected, analyzed, and then released. In the event of contamination of one of these basins, the water can be routed through the treatment process prior to discharge.

Saltstone Facility

The Saltstone Facility is designed to treat and dispose of liquid wastes from various sources. The resulting grout is disposed by pumping it to engineered concrete vaults. After the curing process is complete, the waste form is then disposed as low-level waste.

With the concurrence of DOE, the Saltstone Facility was restarted in 2002 after suspending operations in 1999. The initial mission of the Saltstone Facility is to process waste in HLW Tank 50, freeing up required tank space within the HLW Tank Farm. 263,830 gallons of waste were processed from Tank 50 in FY2002.

The Saltstone Facility

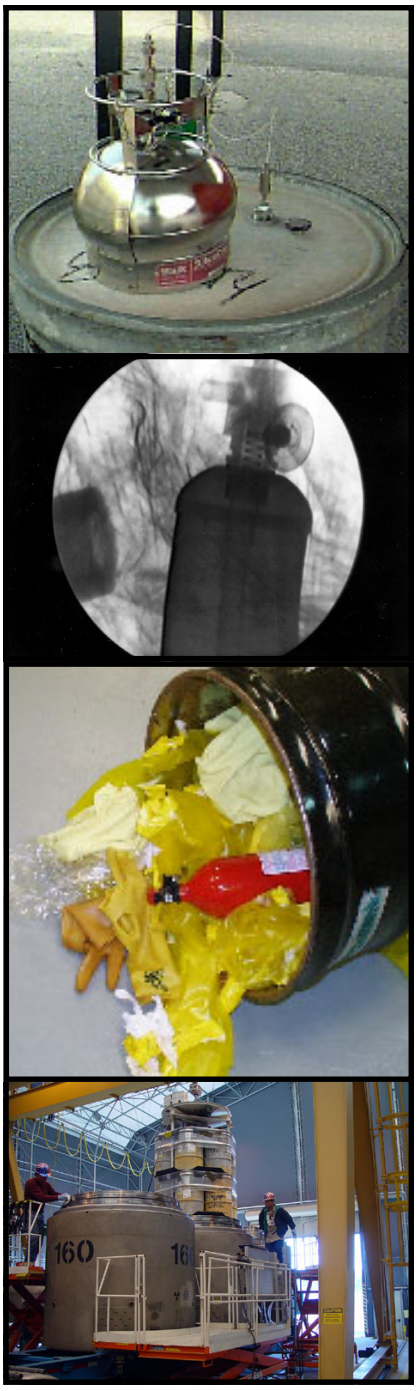
Safety

Safety is our #1 priority and, as such, we are continuing to improve our programs. The Behavior Based Safety (BBS) Process has become an established safety improvement tool for the Solid Waste Division. Safety Management has traditionally been a top down driven process, but BBS is an inclusive one that emphasizes participation by the workforce. To that end, many Solid Waste employees are trained to conduct peer-to-peer observations, using positive reinforcement to highlight safe behaviors while getting commitments to improve "at risk" behaviors. Additionally, both operating facilities (the Solid Waste Management Facility and the Waste Treatment Facility) have functional Local Safety Improvement Teams. These teams are made up of a cross section of employees that have taken responsibility for the minimization of "at risk" behaviors in their work areas.

Transuranic Waste to WIPP

During the past two years, the Savannah River Site has accelerated its shipments of transuranic waste out of South Carolina, more than doubling the number of shipments that had been scheduled through the end of the fiscal year. TRU waste must be disposed at the Waste Isolation Pilot Plant (WIPP) in New Mexico. Since May 8, 2001, the transuranic or TRU waste program has been shipping waste from SRS to WIPP. Since the TRU waste transports began, the site has sent 50 shipments to WIPP, compared with the 19 that were scheduled. There were seven shipments from SRS in 2001 and 16 in 2002, with another 144 planned for 2003, further accel-

SWMF Local Safety Improvement Team members signing charter in E-Area
Standing - Don Sink, Bill Polk, Jackie Bates, Helen Henderson
Sitting - Mike Shealy, Debbie Lambert, Chris Bush, Janice Shipes
Not Pictured - Harry Young, William Elliot, Tim West and Morgan Johnson



Top to bottom - 1) Taking a headspace gas sample for analysis 2) X-Ray analysis of drum contents showing spent fire extinguisher 3) Fire extinguisher found in TRU Visual Examination Facility 4) Loading 14 drums into one of three TRUPACT II

Shipments of Waste Offsite for Disposal

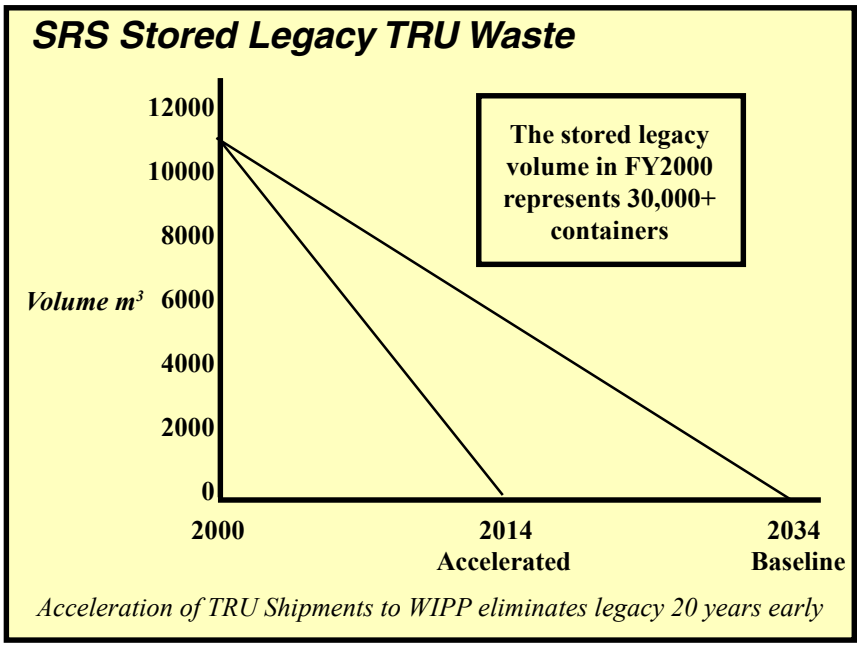
Our program to ship waste offsite for disposal was started last year and has expanded into a very successful effort in 2002. Some of the highlights of that program will be discussed below, but the overall program is off and running, allowing SRS to treat and dispose of waste not suitable or not economical to dispose at the site. We are extremely proud of this tremendous accomplishment.

erating the movement of TRU waste out of the site.

Each shipment to WIPP consists of 42 drums packed in 3 specially designed TRUPACT II shipping casks. Each drum must pass a rigorous characterization process that includes real time radiography, nondestructive assay, headspace gas sampling and analysis, and visual examination of selected drums.

SRS teamed with the National TRU Waste Program to host the first deployment of a mobile characterization capability. The mobile characterization systems were transferred to SRS and have served as the springboard for the accelerated shipments.

SRS had committed to make 12 shipments to WIPP in FY 2002, but, to do that SWD had to integrate the new Mobile Characterization Service subcontractors into the SRS system and move more drums through our characterization system than ever before. Upon recognizing that the TRUPACT II shipping containers were not available for our shipments, the Citizens Advisory Board passed a recommendation urging WIPP and DOE to supply the needed TRUPACT II's. As a result of all involved working together, we were able to make 16 shipments to WIPP (4 more than the original commitment). A specially designed transport truck carries three TRUPACT II containers along approved transportation routes to WIPP. The routes are designated by the U.S. Department of Transportation and the states along each route, and in compliance with DOE and Nuclear Regulatory Commission requirements.



Acceleration of TRU Shipments to WIPP eliminates legacy 20 years early

Howard Pope DOE, Jerry Devitt CAB, Bill Willoughby CAB and Keith Stone BNFL on TRU Pad #4 with mobile characterization equipment trailer

The Transportation Tracking and Communications System used communications and satellite equipment to track each truck along its route. State emergency response and law enforcement officials can use the system to track shipments through their jurisdictions. The system also makes the appropriate notifications before a shipment crosses a state's border.

In total 672 drums (over 130 cubic meters) of TRU waste was shipped to WIPP in FY02.

By the end of Fiscal Year 2003, the site will surpass the number of shipments that were scheduled through 2014. Overall, the accelerated schedule will mean all the TRU

waste that is going to WIPP is scheduled to be completed by 2014 instead of 2034.

Sam Kelly BNFL, Jeffrey Allison DOE, Tom Heenan DOE and Bert Crapse DOE with SRS arrival of third Mound TRU waste shipment on 12/18/02

Mound TRU Waste

SWD agreed that in FY2001 they would receive 300 cubic meters of TRU waste, approximately 8 shipments, from the Mound site for storage and eventual shipment to WIPP, provided that SWD ships to WIPP twice as much waste as it receives from Mound. The baseline of 12 shipments must be made before additional shipments count against the Mound commitment. In FY2002, the Ship to WIPP program shipped enough TRU Waste to allow for the receipt of one more shipment from Mound. The Central Characterization Program provided characterization support to expedite the required number of shipments to allow for the receipt of the Mound waste. Since one shipment was received in both FY2001 and FY2002, an additional 6 shipments are expected to be received in FY2003. This program saves the United States taxpayers significant money in that Mound will not need to duplicate SRS's facilities to ship this waste to WIPP.

As the year ended, SRS was making plans to accelerate the TRU Ship to WIPP program even more. A significant challenge awaits SWD as the program moves forward.

Accelerated Cleanup Initiatives

In FY2002, SWD management committed to two aggressive Accelerated Cleanup Initiatives. The first accelerates shipments of TRU waste to WIPP by 20 years saving $700 million dollars. The second accelerates the treatment of PUREX solvent by 10 years.

An aggressive Public Involvement program was conducted to better educate the public and receive public input concerning these accelerated programs. Public meetings were held in the states of South Carolina and Georgia, including the cities of Columbia, Augusta and Savannah.

Low-Level Waste (LLW)

A 65% reduction in LLW stored inventory represents a tremendous accomplishment for our division. We reduced legacy stored waste inventory by 6,000 cubic meters and accelerated our LLW disposition plan by 2 years.

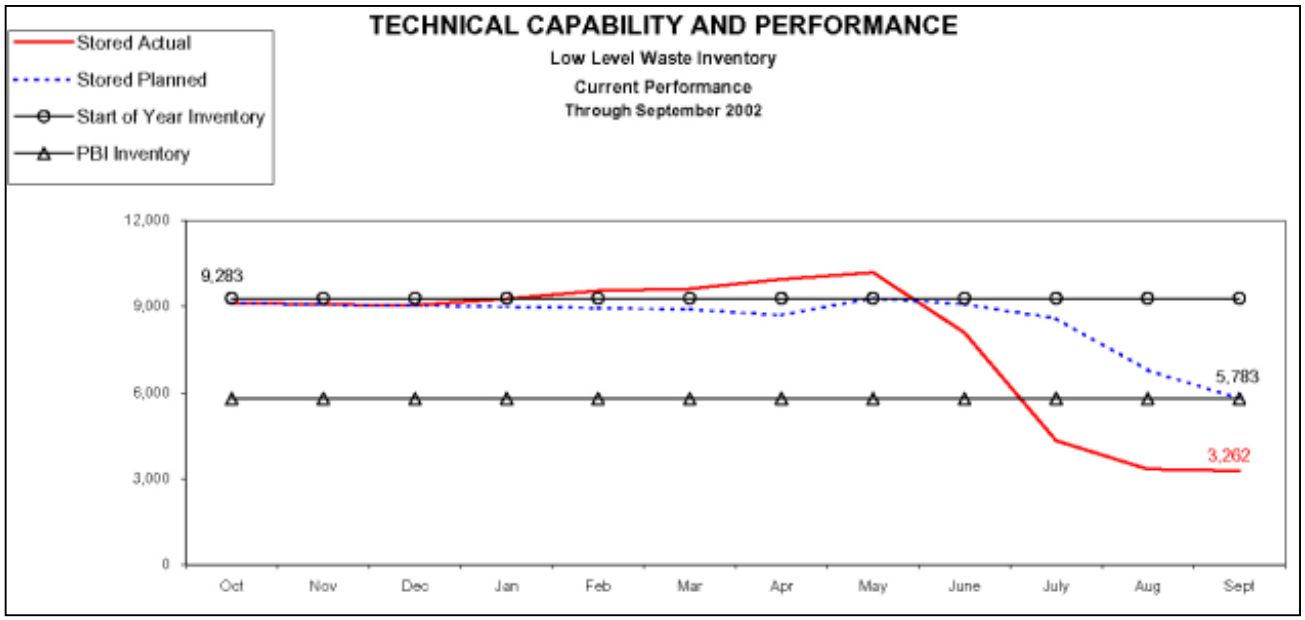
Solid Waste Division continued in its drive to develop lower cost, innovative, environmentally sound options for LLW disposal. As such, a study of the life cycle cost of compacting LLW destined for trench disposal versus not compacting was conducted to see the effects on long term management of the closure system in the future. It was determined that the cost to continue compaction of waste was high when compared to the benefit it may have to long term maintenance of subsidence due to the waste not being compacted. Therefore, a decision was made to discontinue compaction of waste destined for disposal in trenches.

The Performance Assessment (PA) program opened up additional options for waste disposal. The PA Program models waste disposals to ensure protection of the environment and the public. Expansion of the Engineered Trench was completed under budget as a result of the PA work to allow more types of waste to be disposed safely in the trenches.

The disposal limits were increased for several isotopes and expanded to include the M-Area Glass, Naval Reactor Wastes and resins from the F & H Groundwater Treatment Units.

In FY2002, SWD shipped more than 450 containers of LLW to Nevada Test Site (NTS) for disposal. This was comprised of sludge and resin wastes with high I-129 content from our Environmental Restoration Groundwater Treatment Facilities.

In all, SWD shipped 899 cubic



Reduction of stored Low Level Waste Volume reduction during FY2002

meters, or about 400 metric tons of LLW, to NTS. This total volume was nearly 50% greater than originally forecasted.

Mixed Low Level Waste

MLLW accomplishments during FY 2002 were as follows:

Top - Loading LLW for shipment to NTS
Bottom - LLW disposal at NTS

- 216 cubic meters of waste were shipped to Materials & Energy Corporation for stabilization & debris treatment.
- 102 cubic meters of treated mixed waste were shipped directly to Envirocare for disposal.
- 16 cubic meters of radioactive PCB waste and hazardous radioactive PCB waste were shipped to the TSCA incinerator at Oak Ridge.
- SRS received approval from EPA to delist 800 cubic meters of vitrified waste and dispose of it as low level waste.

M-Area Glass Delisting

SRS received approval of its first-ever delisting petition for vitrified radioactive mixed waste. Delisting means that this waste will not be subject to regulation as a hazardous waste under Subtitle C of the Resource Conservation and Recovery Act (RCRA), provided that it is disposed in a low-level radioactive waste landfill in accordance with the Atomic Energy Act. The approved delisting represents a $7 million cost avoidance for the Savannah River Site (SRS).

SRS electroplating operations generated 670,000 gallons of wastewater treatment sludge that met the definition of listed RCRA hazardous waste and radioactive waste under applicable provisions of the Atomic Energy Act. Westinghouse Savannah River Company (WSRC) hired GTS Duratek to use vitrification (glass making) technology to transform these ten waste streams into 800 cubic meters of marble-like glass pellets, a very stable waste form.

Starting in September 1996, DOE-SR petitioned the Environmental Protection Agency (EPA) to grant a one-time exclusion (delisting) for this vitrified glass waste because it no longer met the RCRA listing criteria. The EPA reviewed the information provided by SRS, performed calculations, and determined that the waste, which has a low level of radioactivity, could be disposed in a landfill as low-level radioactive waste without harming human health and the environment. The final EPA rule published in the August 21, 2002, edition of the *Federal Register* is a one-time delisting because the glass waste will be completely disposed of at one time and will not be gener-

ated again.

Effluent Treatment Facility

ETF had an outstanding year in 2002. The facility continued to meet site demand for effluent water treatments. ETF treated and released over 20 million gallons of water in FY2002. ETF also received and processed 15,126 gallons of Environmental Restoration purge water; received, sampled, analyzed, and released approximately 28 million gallons of stormwater from the retention basins, and approximately 9 million gallons of cooling water from the cooling water basins. In addition, 5,900 gallons of miscellaneous waste was received and processed.

Top - Nov 2, 2002 Glass stored on M-Area Pad
Middle - Dec 9, 2002 M-Area pad almost cleared.
Bottom - Bruce Rowland WSRC performing receipt inspection of delisted glass waste in the LLW Disposal Area

The Effluent Treatment Facility

Saltstone Startup and Regulatory Programs

DOE requested that WSRC and BNFL work to restart the Saltstone Facility to process the contents of its feed tank, Tank 50, containing wastes primarily from the Effluent Treatment Facility (ETF). The program and path forward was to empty the Saltstone feed tank to allow the beginning of a bold new initiative to process the salt cake from the High Level Waste (HLW) Tanks that were relatively low in cesium content due to evaporation and fractional crystallization. The program is called the "Low Curie Salt Program". This program will save millions of dollars by allowing closure of HLW tanks much earlier than the current schedules.

The Saltstone Facility

Even though difficult and challenging, the Solid Waste team restarted the facility on April 25, 2002. Prior to restart, it was necessary to obtain approval from the South Caro-

Saltstone Permitting Team
Standing - Marshall Looper BNFL, David Hoel DOE, Sonny Goldston BNFL
Sitting - Alicia Haire DOE, Soni Blanco DOE, Monte Hawkins WSRC, Elmer Wilhite WSRC, Robert Kemmerlin WSRC

lina Department of Health and Environmental Control (SCDHEC) through the existing permits for the Saltstone operation and conduct successful Readiness Reviews along with DOE validation of the Readiness Reviews. At year-end Saltstone was well on its way to completion of the processing of the waste solution from Tank 50. Concurrent with the restart activities Solid Waste Division teamed with the High Level Waste Division, the Environmental Protection Department and the Savannah River Technology Center to prepare the permit modification requests to allow (1) vault classification under new SCDHEC regulations and (2) processing of Low Curie Salt Solutions through Saltstone to disposal as LLW in the vaults. The permit modifications were submitted to the SCDHEC, but had not been addressed by SCDHEC at year's end. In addition the Team prepared a Performance Assessment Special Analysis to demonstrate environmental protection and set appropriate limits for disposal. The Team also prepared a Waste Incidental to Reprocessing (WIR) Evaluation to demonstrate DOE requirements were met to allow management of Low Curie Salt as LLW. DOE approved both the special Analysis and WIR. Preparations to process these materials in the Saltstone facility will continue into the next year along with the challenges they bring.

Saltstone had outstanding performance numbers by exceeding all previous production records. In a single day, the facility processed 52,110 gallons and in a single week 209,550 gallons. In a single month the facility processed 506,830 gallons against the best previous monthly record of 208,990 gallons. Since restart, Saltstone processed 837,270 gallons from Tank 50 by mid-January.

PUREX Waste Alternative Treatment

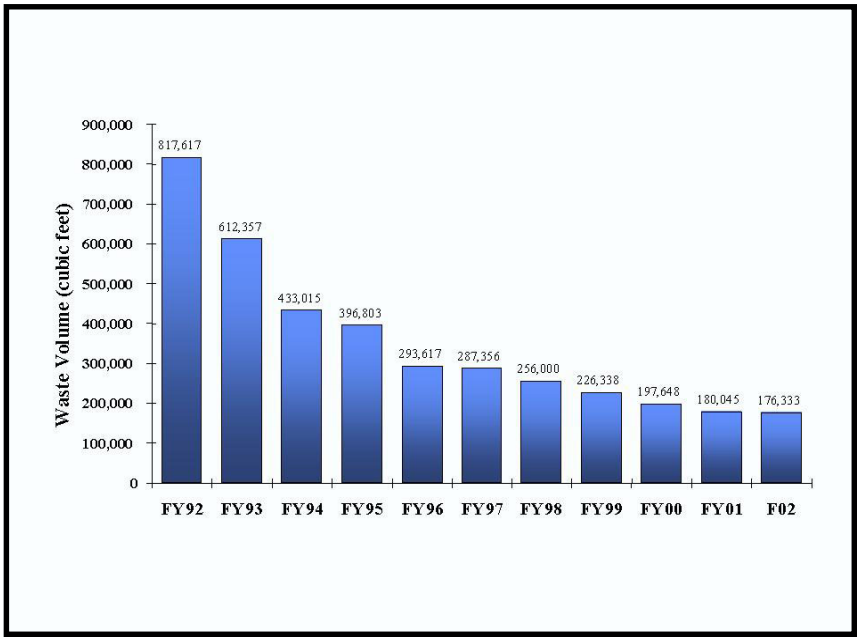
One of the major waste streams planned for treatment at the Consolidated Incineration Facility was PUREX waste. SRS has a Site Treatment Plan (STP) commitment to treat the legacy PUREX waste by fiscal year 2009. The legacy PUREX waste consists of approximately 37,000 gallons of organic and aqueous liquid stored in the New Solvent Storage Tanks (NSST) in H-Area. The current baseline plan is to restart and operate the CIF to treat this waste at a cost of approximately $50-60 million. Because of the high cost, it was determined that a lower cost alternative treatment for the PUREX waste was needed.

As a result of the Systems Engineering Analysis, technical feasibility and cost studies, the preferred alternatives for treatment of the organic and aqueous PUREX waste were selected. As expected the best alternative is to send the aqueous waste to the Saltstone Facility for treatment and disposal. The Organic waste treatment selected was direct stabilization using a low temperature solidification process. Parallel path tests are now underway to select the correct stabilization media and design of a processing facility or select an offsite contractor to stabilize the waste.

Waste Minimization and Pollution Prevention (P2)

Savannah River Site embraces pollution prevention and waste minimization as a primary strategy to operate in a compliant, cost-effective manner that protects the environment and the safety and health of SRS employees and the public of the surrounding communities. During FY2002, waste generators implemented 76 projects resulting in an avoidance of approximately 62,000 cubic feet of radioactive and hazardous solid waste. Implementing these projects resulted in an estimated annualized savings of approximately $16 million, with projected life cycle cost savings of $123 million.

SRS continues to advance in pollu-



Continued yearly reduction in Radioactive Waste generation at SRS from FY1992 to FY2002

Contaminated lead shipment leaving SRS for recycling at NMRC

tion prevention by implementing various projects and programs. Some of the significant examples of P2 projects and programs include:

- Contamination Area (CA) Rollbacks continue to drive down LLW generation while reducing employee hazard exposure and increasing productivity. During the year, the CA Rollback project reclaimed about 70,000 square feet of radiological controlled areas resulting in estimated annualized savings of approximately $190 million.

Rod Stewart WSRC and Charles Martin, North Augusta SC City Administrator, reach contract agreement

- Became integrated with the National Metals Recycle Center (NMRC) in Oak Ridge as disposal alternative for lead waste, excessed radiological instruments and other items. Shipped 17 tons of contaminated lead from Spent Fuels Division for recycle and 559 SRS excessed radiological instruments with asset value of $138,000 to the Center to support the DOE Homeland Defense program. Currently working plan to ship an additional 35 tons of lead and nine excessed air handling units from SRS reactors to the NMRC for reuse/recycle.

- Completed DOE-HQ P2 Program Review. The assessment report recognized the SRS Pollution Prevention program as "one of the best if not the best, pollution prevention program in the DOE complex." The report also provides positive highlights of the Process Engineered Fuel Facility, the Radiological Operations Support Center and the P2 Outreach activities.

- Finalized a new contract, effective in December 2002 with North Augusta Municipal Recycle Facility. The new contract has performance based incentives to increase recycle rates for the SRS routine waste streams and provisions to return combustibles to SRS for fuel materials to support the alternative fuel source program.

- The SRS P2 Program continues to distinguish itself as being a "nationally recognized leader" as evidenced by the following prestigious national and regional awards and recognition. Each year, the Department of Energy recognizes its top achievers in the area of pollution prevention through the DOE National P2 Awards Program. SRS has historically done well in competing for this recognition. In FY2002 SRS was awarded two first place awards out of the thirteen categories. The committee submitted four SRS award

write-ups for White House Closing the Circle awards.

- SRS voluntarily established itself as a Waste Wise Partner, an EPA program encouraging waste reduction, recycling, and affirmative procurement. Waste Wise goals and first-year annual report data have been submitted to the EPA. Based on the SRS submission, EPA requested SRS to self nominate for the Waste Wise Awards program.

- The P2 Group awarded a subcontract to Veridian Information Systems of Orlando, Florida to develop a Virtual Reality Training Platform. Veridian will develop a virtual reality glove box for training and systems analysis supporting new tritium missions. Three employees attended the product demonstration from Oak Ridge in addition to many SRS employees. The program has received interest from other DOE sites evaluating the technology for applications at their facilities.

- Funded startup of the new Radiological Operations Support Center (ROSC) to house the expanded containment fabrication services and to showcase equipment and technologies for radiological work improvement.

- Completed three P2 training workshops with total of 45 SRS employees attending. The course received positive feedback from participants. Also provided awareness level training to all new members of the Environmental Compliance Authority and to all new Generator Certification Officials.

Tom Heenan DOE "tries his hand" using the Virtual Reality Training Platform

Christine Williams constructing a custom contamination hut in the ROSC

P2 Training workshop held at the town of Jackson SC Community Center

EM Performance Management Plan

In 2002, public participation in Solid Waste Division (SWD) activities accelerated along with the Savannah River Site Environmental Management (EM) Program Performance Management Plan (PMP). The PMP reflects the Site's 2020 Vision to complete EM missions and transform SRS fully to a site focused on National Security. The PMP outlined specific actions that DOE is taking to accelerate the SRS Cleanup Program to 2025, while targeting an even more aggressive objective of achieving cleanup by 2020. The SRS Vision applies innovative cleanup reform approaches to accelerate both cleanup and risk reduction, reduce the life cycle costs of the EM program and enhance Homeland Security.

The Citizens Advisory Board

Citizens Advisory Board

The groundwork for implementing Top-to-Bottom approaches has already been laid at SRS. However, once again, the public and the SRS Citizens Advisory Board (CAB) played an important role in 2002 to ensure that appropriate measures had been taken to address the innovative approaches. Implementing decisions that stick is dependent on upfront stakeholder participation in decision-making, including reaching agreement with regulatory bodies on cleanup strategies and specific technical solutions. During the year, the Solid Waste Division built on its established processes for stakeholder involvement, including the CAB; to ensure all affected stakeholders had an opportunity for input into the decision-making process.

An independent panel of citizens chooses the CAB, which is comprised of 25 individuals from South Carolina and Georgia, from approximately 250 applicants. The board members reflect the cultural diversity of the population affected by SRS. The members, who serve two- or three-year terms, represent all walks of life, including the business world, academia, local government, environmental and special interest groups, and the general public. The CAB also works with the Environmental Protection Agency (EPA) Region IV, and the South Carolina Department of Health and Environmental Control (SCDHEC) on environmental remediation, waste management and other related issues.

In February 2001, the SRS CAB attended the first public meeting on the PMP where it heard about the Site's Cleanup Reform Initiatives, as well as SWD's initiatives to accelerate cleanup. The two SWD initiatives included:

- Accelerated shipping of low activity transuranic (TRU) waste to the Waste Isolation Pilot Plant (WIPP) by 20 years. These shipments reduce the risk of storing that material at SRS and saving the site $700 million dollars. This also reduces risk associated with high activity TRU waste stored at SRS, as well as expediting the schedule to ship this waste to WIPP by nine years thus resulting in life cycle savings of $840 million.

- Implementing a new stabilization technology for PUREX waste treatment that reduces the risk posed by this waste by completing its treatment ten years earlier than the current commitment. This approach also enables early closure of the Consolidated Incineration Facility (CIF) and provides treatment for PUREX waste contained in F Canyon.

The CAB strongly endorsed both SWD initiatives. In the case of accelerating TRU shipments, the CAB helped to elevate the program from that of a "bit player" at a site level, to becoming a major player in the National Transuranic Waste Program. Undoubtedly, the CAB's three recommendations on TRU waste in 2002 had a significant impact on the Ship to WIPP program at the national level. With the introduction of the National TRU PMP, which is an aggressive strategy designed to re-

duce risk and challenge individual sites within the DOE complex to develop innovative strategies. The CAB saw firsthand the fruits of how the technically supported risk-based plan to enable cleanup and closure was implemented. Instead of the 12 planned shipments of SRS's TRU waste to WIPP in 2002, a total of 16 shipments were made, increasing the number of scheduled shipments by four.

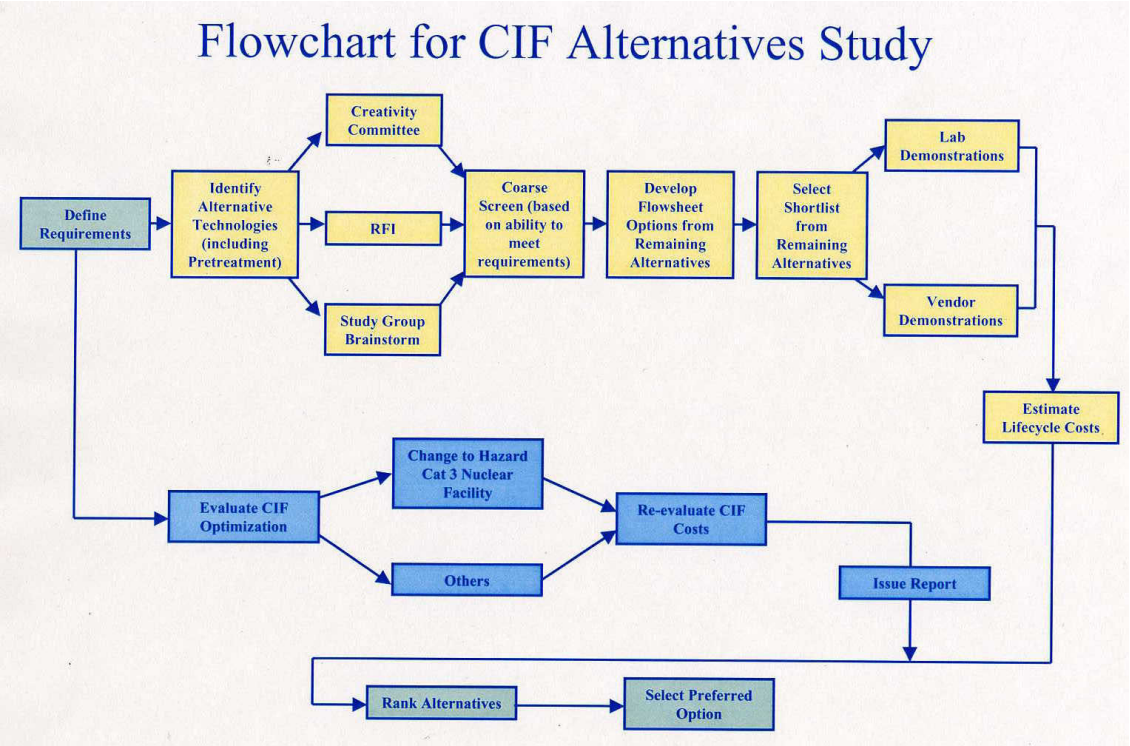
Consolidated Incineration Facility Focus Group

Another example of stakeholder involvement is the work of the CIF Focus Group, which had been chartered to track work on alternative treatments and technologies for PUREX legacy waste. SWD began a system engineering evaluation in mid 2000 to determine if there were viable alternatives to restarting CIF. In addition to the technical and cost analysis studies performed on each identified alternative, a separate study was performed to determine the technical improvements required to increase the throughput rate of legacy PUREX at CIF and to reduce its operational cost. In 2002, through the efforts of the CIF Focus Group, who followed the studies closely and agreed with the findings, the CAB sent two recommendations to DOE supporting the selected stabilization process under consideration at SRS.

LLW Compaction and Closure Management

The CAB expressed concerns about the technical issues of disposal of non-compacted waste. This concern, specifically potential long-term subsidence of the soil cover in the E-Area trenches, led to further evaluation of the potential cost savings for disposal versus the increase in the costs of treating subsidence and consequently the long-term costs of closing the trenches. As a result, the CAB recommended that DOE investigate alternatives to B-25 disposal containers, which included the possibility of direct shallow-land burial of appropriate low activity, low level waste. The recommendation also asked SRS to investigate alternatives to reduce the subsidence repair costs, evaluate alternative capping strategies, evaluate alternatives to optimize land utilization and provide the long-term public health and environmental impacts for each strategy. The CAB's active interest and involvement in SWD activities are due in a large part to our efforts to ensure that members are provided with timely, first-hand information on waste management operations.

Solid Waste public involvement continues to grow each year. In order to facilitate the growing need for public participation, SWD plans to continue providing information about DOE requirements and give examples of the activities required under the Solid Waste program, as well as those suggested activities that serve to augment regulator requirements. As our stakeholders attend meetings, in turn they will continue to provide significant insight and offer opinions that assist in the DOE decision-making process.



SRS P2 Team

The SRS Pollution Prevention Team works to promote Pollution Prevention awareness on-site at SRS and within the local community at public outreach events. In FY2002, P2 Team promotion efforts onsite resulted in the recycling of over 2,500 tons of sanitary and industrial waste. Forty-two percent of SRS routinely generated sanitary waste was recycled. Over 100,000 pounds of excess chemicals were distributed for reuse to on-site and off-site organizations.

Public Outreach

P2 Team personnel planned and participated in various local public outreach events in FY2002. These events involved both local community and on-site organizations to share their information on pollution prevention initiatives.

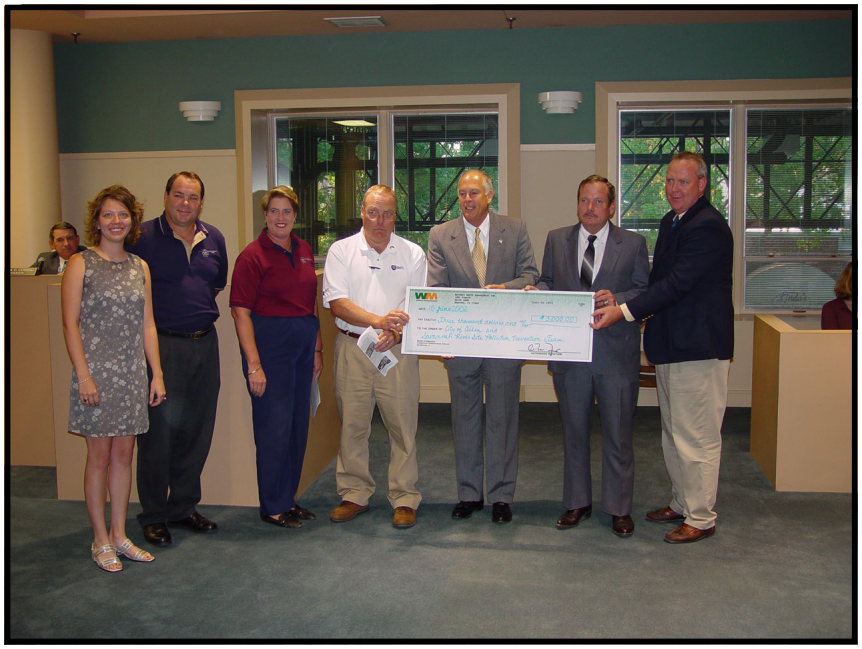
America Recycles Day

The State of South Carolina America Recycles Day Coordinator submitted the Crushed Aluminum Can American Flag project for a National America Recycles Day Award. We received notification on April 17th that we had won. As a winner, the SRS Pollution Prevention Team and the City of Aiken were presented a joint check for $3,000 in prize money from Waste Management and the National America Recycles Day Committee. These funds were presented to the City of Aiken to promote recycling and to raise Waste Minimization awareness in the Aiken Community.

Kids Earth Day

SRS, City of North Augusta and South Carolina Department Health Environmental Control (SCDHEC) Team Up for Kids' Earth Day.

The second successful event for the SRS Pollution Prevention team took place on Saturday, April 27, 2002 in celebration of Earth Day. Kids Earth Day North Augusta is a joint effort between the SRS Pollution Preven-



Above - Presentation of Waste Management award check to the City of Aiken Holley Storey SCDHEC, Steve Mackmull DOE, Sarita Berry BNFL, John Paveglio BNFL, Mayor Fred Cavanaugh, Sandy Haskell Waste Management and Glenn Parker Aiken Parks and Recreation
Right - Kids Earth Day activites April 27, 2002

tion team, The City of North Augusta and the South Carolina Department of Health and Environmental Control (SC-DHEC) and was a huge success in the first year. The old adage "two heads are better than one" was true to form as these organizations joined to start a new community awareness program. Over 35 different booths provided a hands-on learning experience for over 600 children and parents attending the event and all of this fun was at no cost to the participants.

Special guests included the Wackenhut Services K-9 Unit, the "Can Man," the Bottle Man and the SRS Top Dog, among others. Kids enjoyed a brown bag coloring contest, newspaper hat construction, tree and flower planting, clowns and a petting zoo, as well as numerous educational booths. Best of all, Kids' Earth Day helped young people and their families learn about taking care of our world and our future.

SRS Pollution Prevention Team at Belvedere Elementary School Teach-In Sarita Berry, Caroline Grosso and Glenn Siry

ECOMEET 2002

The second annual Central Savannah River Area ECOMEET 2002 was hosted by the combined team of the Savannah River Site Pollution Prevention Team, The National Science Center and the Environmental Science Educators Cooperative. The event originated in 2001 and is an ECOMEET for middle school students to compete in environmental categories in a team competition. There were four categories, which the students were judged: fish identification, forestry identification, snake identification and "How to establish a Pollution Prevention Program in your school". The Pollution Prevention Team provided judges for the Pollution Prevention category and also cooked lunch for the teachers and students participating in the event.

Middle School Students at the 2002 ECOMEET

SRS Pollution Prevention Team cook for ECOMEET participants

School Outreach

Equally important to SRS, outreach visits teach pollution prevention awareness to public school classrooms in surrounding counties. The SRS P2 Team visited almost 60

Top - Atomic City Cruisers Car Club at the Atomic City Festival
Middle - SRS Pollution Prevention Team at the Festival Sarita Berry, Glenn Siry, Caroline Grosso, John Harley, Monica Mace and Larry McCollum
Bottom - (center) Bob Ellison -Winner of the 2001 Atomic City Festival Womanless Beauty Contest with friends Jim Graves and Howard Rose

classrooms talking to 1,845 students during FY2002. During these visits, students participated in hands on experiments and were encouraged to openly discuss pollution prevention ideas for both their schools and homes. This outreach focuses on teaching students to eliminate waste at its source and to increase their recycling efforts.

Atomic City Festival, New Ellenton, South Carolina

The Atomic City Festival in New Ellenton, South Carolina has celebrated the town of New Ellenton's anniversary for many years. During October 2002 the SRS Pollution Prevention Team participated in this celebration. The Pollution Prevention team hosted a display on Recycling entitled "Strike Out Pollution". Members of the team dressed up like bowlers and had visitors at the exhibit try their hand at bowling over plastic drink bottles. The event highlighted recycling opportunities in the local community.

DOE National P2 Conference

SRS was well represented in the national DOE Pollution Prevention Conference. SRS provided a site program exhibit and several poster displays on specific initiatives including a hands-on exhibit of glove bags, launderable radiological goods, Super Sleever™ and information on new SRS technologies.

ROSC Personnel Visit LANL

Staff from the SRS Containment Fabrication Facility visited Los Alamos National Laboratory (LANL) to demonstrate several containment structures at the LANL Plutonium Processing and Decontamination Volume Reduction System (DVRS) facilities. SRS will partner with LANL to support deployment of the innovative containments.

DOE Complex Participation

SWD participated in the DOE-HQ evaluation of the Portsmouth Gaseous Diffusion Plant's P2 Program providing SRS lesson learned.

Also SWD hosted DOE-HQ sponsored team of representatives from LANL, Hanford and Oak Ridge sites to gather lessons learned and to evaluate and recommend improvements to the Radiological Operations Support Center (ROSC) business system effectiveness.

In addition, the program hosted DOE Oak Ridge National Metals Recycle Center to evaluate acceptance of obsolete SRS equipment as potential materials for an assets-for-services agreement.

The SRS P2 Program was represented at the Department of Defense (DOD) pollution prevention workshop that promotes information exchange and highlights new technologies to joint armed service branches.

Fort Discovery Tech Day

The Pollution Prevention team received 1st place "Peer Award" and 2nd place "Student Choice Award" at the Savannah River Site Technology Day 2002, held at the National Sciences Center's Fort Discovery in Augusta, Georgia.

The display title "Come One, Come All Prevent Pollution Y'all!!!" was the focus of the P2 Team effort to educate

The usual bunch of clowns (SRS Pollution Prevention Team) at Tech Day
Back row - Sarita Berry, Paula Croom, Larry McCollum, Pat Dunbar, Kelli Cagle, Cheryl Maccrum, Tony Nasol
Front row - Joe Kinney, Sarah Ross

As we move into 2003, Solid Waste enthusiastically anticipates the many challenges of integrating a newly defined Division into an efficient business unit. We enter the new year with a revamped, expanded organizational structure – the Waste Treatment Facilities (Effluent Treatment Facility and Saltstone Facility) have been transferred to the Closure Business Unit and organizations formerly part of Central Shops Work Engineering (CSWE) and Site Utilities Division (SUD) have been transferred into SWD as part of the Operations Business Unit. Once this transition is complete, Solid Waste looks forward to addressing the enhanced work scope taken on by this Division in support of the Site's acceleration missions.

Our safety record, excellent technical performance, and a talented, flexible workforce have postured SWD to be successful in both planned and emergent missions for both 2003 and the outyears. An integration and realignment of resources will be key to allowing SWD to be viewed as "simply the best" as a service organization managing key elements of the Site challenge. At the same time that we are working through business and organization details that surround the new organization, we will be aligning resources with production goals and customer expectations. The acceleration of TRU waste shipments to the Waste Isolation Pilot Plant (WIPP) is a prime example of our visibility on Site and across the Complex, and we look forward to demonstrating how well we can meet this challenge.

Throughout 2003, SWD will look for opportunities to address our new opportunities in the most efficient, cost-effective manner possible. Good Practices from organizations throughout the Division will be established as standard practices for all groups to implement. Resources will continue to be aligned with our operating goals and acceleration mission as our focus on administrative and bureaucratic details decreases. Safety, as it has in the past, will remain top priority and will reflect our Behavioral-based Safety philosophy. Innovative methods to accomplish the Site clean-up mission will be sought without compromising our safety posture.

In short, SWD views the challenges to be addressed within 2003 as an extension of the successes that have already been achieved. Integral to our past and future accomplishments is a culture that focuses on day-to-day safety performance, the fostering of teamwork and partnerships to maximize effectiveness and minimize costs, and a skilled workforce, committed to our missions. Finally, as we have in the past, we also look to the support of our customers, stakeholders, regulators, and the community to help us achieve our goals.

...achieving our vision as "Simply The Best"

Waste and Material Type Matrix

Presented to the Citizens Advisory Board in 2002

SRS Waste and Material Terms - *Waste*

Term	Acronym	Official Definition	Easy Definition	Sources
 High Level Waste	HLW	Highly radioactive waste resulting from reprocessing spent nuclear fuel and irradiated targets from reactors. DOE Order 435.1	Highly radioactive waste liquids and solids from dissolving used reactor fuels to recover uranium, plutonium and other isotopes. It remains radioactive tens of thousands of years or longer.	F and H Canyons
 Transuranic Waste	TRU	Solid radioactive waste that contains alpha-emitting radionuclides with half-lives greater than 20 years, in concentrations greater than 100nCi/g, except HLW. DOE Order 435.1	Junk (discarded clothing, equipment, tools & rags) lightly contaminated by radioactive elements “beyond uranium”, like plutonium and neptunium. Although total radioactivity is no higher than LLW, the radioactivity decays slowly over thousands of years.	Mostly from plutonium processing in HB and FB Lines.
 Low Level Waste	LLW	Any radioactive waste not classified as SNF, HLW or TRU waste. It does not contain chemically hazardous constituents. DOE Order 435.1	Junk (discarded clothing, equipment, tools & rags) lightly contaminated by radioactive elements but almost no long lived elements like plutonium.	Protective clothing, job control waste, equipment, tools, filters and papers from any facility that processes radioactive waste.

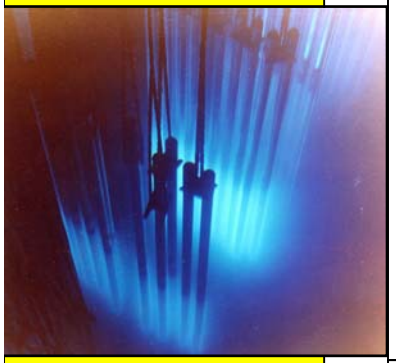
SRS Waste and Material Terms - *Waste*

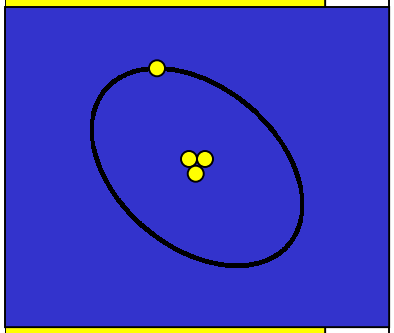
Term	Acronym	Official Definition	Easy Definition	Sources
 Mixed Low Level Waste	MLLW	Contains both radioactive and chemically hazardous constituents, as defined by the Resource Conservation and Recovery Act (RCRA) DOE Order 435.1	Same as LLW, but also has chemical contamination at a high enough level to be considered hazardous according to the Environmental Protection Agency (EPA).	Materials from any facility that process radioactive waste.
  Hazardous Waste	HW	Any toxic, corrosive, reactive or ignitable material that could damage the environment or negatively affect human health according to RCRA. 40CFR261	Same as MLLW but no radioactivity, just chemical contamination.	Oils, solvents acids, metals and pesticides from facilities, but no radioactive contamination.
 Sanitary Waste	SW	Waste that includes both non-radioactive waste and industrial waste. Also called “solid waste”. 40CFR240	Waste classified as garbage or refuse.	Office waste, food, garbage, refuse and other solid wastes.

SRS Waste and Material Terms - *Waste*

Term	Acronym	Official Definition	Easy Definition	Sources
Legacy Waste		Waste produced in the past when a generation-to-disposal management did not exist or was not operational.	These wastes are a legacy of the Cold War which have been placed in storage until technologies and facilities are developed to safely and effectively dispose of them.	At SRS, legacy wastes consist of mixed, low-level, high level and transuranic wastes.
Mission Waste		Wastes generated by present and future activities at SRS for which a generation-to-disposal management plan exists and is being used.	SRS Waste Management provides services which ensure that mission wastes are managed to not adversely impact the site's other activities.	At SRS, mission wastes consist of low level waste, radioactive liquid waste, transuranic waste, mixed low level waste and hazardous waste.
Orphan Waste		Waste for which disposition paths are undefined.	At SRS, orphan waste consists of contaminated large equipment such as trailers, ion exchange columns, etc.	All operations at SRS may have resulted in Orphan Waste

SRS Waste and Material Terms - *Materials*





Term	Acronym	Official Definition	Easy Definition	Sources
Spent Nuclear Fuel	SNF	Fuel that has been withdrawn from a nuclear reactor following irradiation, the constituent elements have not been separated. Not defined as a "waste" by DOE orders, but destined for disposal at Yucca Mountain, NV. **DOE Order 435.1**	Used nuclear reactor fuel. It remains highly radioactive for tens of thousands of years or longer. (SNF accounts for over 95% of the radioactivity for all US radioactive wastes combined, but less the 1% of their volume).	DOE (including SRS) plutonium and tritium production reactors, US and foreign research reactors.
Tritium	H3 T	An isotope of hydrogen with a mass number 3. Radioactive with a half-life of 12.3 years. Emits Beta radiation.	Radioactive isotope of hydrogen used in nuclear weapons, exit signs and watch dials.	Originally made in SRS reactors, now to be made in TVA reactors. Recycled in SRS tritium facilities.
Heavy Water	D_20	Water in which the hydrogen of the water molecule consists entirely of heavy hydrogen (deuterium) with a mass number 2.	Water with a heavy isotope of hydrogen called deuterium. Exists in all water in low concentrations, not radioactive.	Heavy water was separated from regular water at SRS (facility now shutdown). Used as coolant and moderator in SRS reactors.

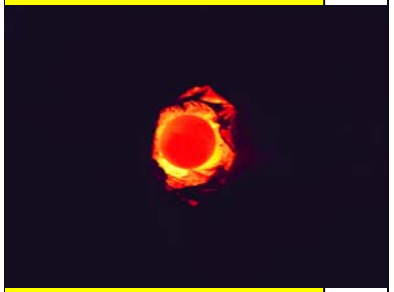
SRS Waste and Material Terms - *Materials*

Term	Acronym	Official Definition	Easy Definition	Sources
PUREX Solvent	PUREX	The Plutonium/Uranium Extraction Process is commonly used in reprocessing plants to recover Pu and U from reactor fuel. The solvent used in the process is an organic mixture of tributyl phosphate and n-dodecane.	The organic solvent used in the canyons to recover plutonium and uranium. It becomes contaminated with radioactive materials when used, but is not radioactive prior to use. **Becomes a** waste **if no longer used**	Used in SRS F and H Canyons to recover Pu and U.
Neptunium	Np Np-237	A radioactive element, atomic number 93, with a 2.2 X 10^6 year half-life.	A radioactive element produced in SRS reactors to make Pu-238.	At SRS, uranium was irradiated in the reactors to make Np-237. The Np-237 was recovered in the canyons and B Lines, put back in the reactors to make Pu-238 for space missions.
Depleted Uranium Nitrate Solution (also Uranyl Nitrate)	DUN	At SRS, solution created by dissolving uranium oxide targets from the reactors in nitric acid. Depleted - most of the U-235 has been removed	Uranium liquid stored in tanks at SRS. Depleted means it has less radioactive uranium than natural uranium.	Used in SRS reactors, then recovered in F Canyon as a nitrate solution.

SRS Waste and Material Terms - *Materials*

Term	Acronym	Official Definition	Easy Definition	Sources
Depleted Uranium Oxide	UO_3	Powdered uranium created at SRS resulting from heating DUN to drive off the nitric acid. Depleted - most of the U-235 has been removed	Uranium powder stored at SRS in drums. Depleted means it has less radioactive uranium than natural uranium.	Used in SRS reactors, then recovered in F Canyon as an oxide powder.
Enriched Uranium	EU	Uranium that has the amount of the isotope U-235 increased above normal. Special Nuclear Material	Uranium that has more U-235 in it than natural uranium.	At SRS, EU was used in reactor fuel and recovered for reuse in H Canyon.
Plutonium	Pu	A radioactive element artificially produced with atomic number 94. Several isotopes exist including Pu-234, 238, 239, 240 and 241. Special Nuclear Material under certain conditions	An artificially produced radioactive element. Different isotopes used in weapons, space missions and can be used for electric power generation.	Originally made in SRS and other DOE reactors.

SRS Waste and Material Terms - *Materials*



Term	Acronym	Official Definition	Easy Definition	Sources
Plutonium 239	Pu-239	An isotope of plutonium with an atomic weight of 239. Radiation is mainly from alpha decay. Fissionable, so it can be used for weapons or electricity generation. Half-life is 24,000 years. Special Nuclear Material	Radioactive isotope of plutonium used in weapons, usually as a metal (but can be in other forms like oxide).	Originally made in SRS and other DOE reactors. Shipped to Rocky Flats for weapons production. Now some being returned to SRS. Can be reused in MOX for electricity generation.
Plutonium 238	Pu-238	Isotope of plutonium with atomic number of 238. Radiation from alpha decay. Decay causes thermal emission which can be converted to electricity in nuclear batteries. Half-life is 88 years. Special Nuclear Material	Radioactive isotope of plutonium used in nuclear batteries, primarily in deep space missions such as Galileo and Voyager.	Originally produced in SRS reactors and shipped to LANL and Mound for nuclear battery production and testing.