

ty teamwork
results safe
safety integ
tegrity team
ty teamwork
results safe
safety integ
tegrity team
ty teamwork
results safe
safety integ
tegrity team
ty teamwork
results safe
safety integ
tegrity team
ty teamwork
results safe
safety integ
tegrity team
ty teamwork

annual report
washington savannah river company

2005



safety ■ integrity ■ teamwork ■ results

from the president



Living Our Core Values

At the Savannah River Site (SRS), we live by four Core Values: Safety, Integrity, Teamwork and Results. Taken together, these values pinpoint how we operate this U.S. Department of Energy site.

Throughout this Annual Report, you'll see the evidence that we take the Core Values seriously, and that we apply each one of them every day. Whether it's closing a major area of the site or shipping waste out of South Carolina or calling on our expertise to find solutions to today's energy problems, SRS is there to fulfill our missions safely and effectively.

You'll also see in this report that our employees take the Core Values home with them, demonstrating their care for nearby neighbors, such as those in Graniteville, and demonstrating compassion for neighbors farther away, such as those in the devastating wake of Hurricane Katrina.

We at the Washington Savannah River Company Team (WSRC), along with the WSRC parent company Washington Group International, know we have a great responsibility to you, our workers, our communities and the environment. This report highlights just some of the SRS accomplishments because we know information is important to you. And while we have always enjoyed strong community support, we want that support to be informed support.

We will continue to earn your trust as we provide the safest, most cost-effective and responsible work possible. You expect the best from us; we expect no less from ourselves.

A handwritten signature in black ink, appearing to read 'Bob Pedde'. The signature is fluid and cursive, with a large initial 'B'.

Bob Pedde, President
Washington Savannah River Company

table of contents

Safety	2
Environmental Monitoring	3
National Defense Work	4
Future Missions	6
Waste Leaving South Carolina	7
Savannah River National Laboratory	9
Transforming Waste Into Glass	13
Cleaning Up the Site	14
Environmental Cleanup	15
Eliminating Risk	16
Future Cleanup	18
Helping Others	19

annual report
washington savannah river company

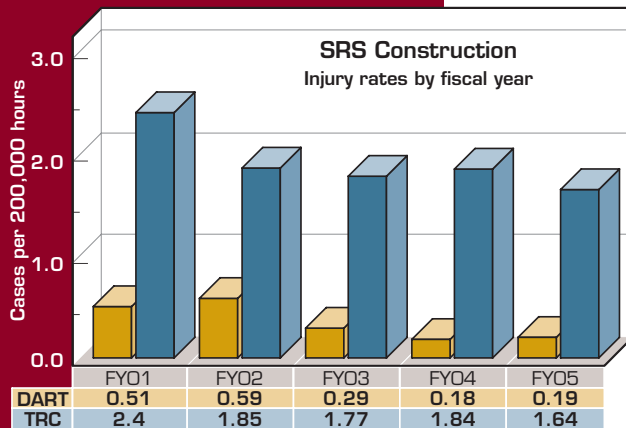
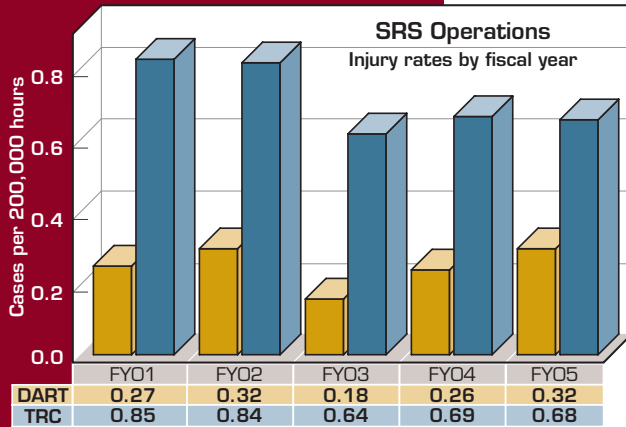
2005

Safety Remains Top Priority, Core Value

Although Washington Savannah River Company (WSRC) injury/illness rates trended slightly higher in part of Fiscal Year 2005, the company reversed that trend with a tremendous accomplishment: Working 38 consecutive days during August and September without a recordable injury of any kind. In 2003, WSRC achieved the lowest injury rate since assuming the Savannah River Site (SRS) contract in 1989. As of the end of Fiscal Year 2005, the injury rate was even lower than that record-setting pace. Such a record indicates significant progress toward realizing our corporate vision of a zero-injury work place.

An increased focus on decommissioning and demolition activities presents new and challenging hazards that require creative techniques to maintain a safe environment for our employees and the public. The WSRC team is totally committed to challenging at-risk work practices and conditions and adapting them to our changing needs. WSRC continues to be among the safest companies in the Department of Energy complex.

In honor of the site's safety performance, SRS has been recognized externally with awards that include re-verification as a Voluntary Protection Program Star site, safety achievement recognition by the S.C. Manufacturer's Association and S.C. Chamber of Commerce, and being named by Occupational Hazards magazine as one of the 12 safest companies in America.



TRC (Total Recordable Cases) is the term used to describe an injury that goes beyond first aid.

DART (Days Away, Restricted or Transferred) refers to any work-related injury or illness that results in either days away from work, restricted work activity or transfer to another job.

Construction workers continue remarkable safety results

The site's Construction Department once again attained a remarkable safety achievement during the past fiscal year. They continued the record-setting trend for hours worked without a Days Away, Restricted or Transferred-Days Away (DART-A) case. The previous site record (13,893,081 hours set in July 1988) was surpassed in June 2004 by Construction forces, and continued throughout Fiscal Year 2005. The current DART-A injury-free performance through Fiscal Year 2005 stands at 16.6 million safe hours.

The Construction Department's overall injury and illness rate for Total Recordable Cases continued to drive toward zero with an 11 percent improvement over Fiscal Year 2004, coming in at 1.64.

Radiological safety

WSRC workers are protected from radiological concerns by programs and work procedures that are designed to reduce workers' exposure. By the end of Fiscal Year 2005, personnel contaminations were at an all-time low.

SRS Annual Environmental Report

Radiation dose continues to be extremely low

The radiation impact of the Savannah River Site (SRS) on the off-site public continues to be far below the U.S. Department of Energy (DOE) all-pathway dose standard of 100 millirem per year, according to the SRS Environmental Report for 2004, released in 2005. (A millirem is a standard unit of measure for radiation exposure.)

The largest radiation dose that any off-site individual could have received from SRS operations in 2004 is estimated to be 0.15 millirem, which is less than 1 percent of the DOE limit. This estimated dose is also extremely small in comparison to the natural average dose of about 300 millirem per year to people in the United States – and 21 percent less than the site's 2003 all-pathway dose of 0.19 millirem.

Environmental monitoring is conducted extensively within a 2,000 square mile network extending 25 miles from SRS, with some monitoring performed as far as 100 miles from the site. The area includes neighboring cities, towns and counties in Georgia and South Carolina. Thousands of samples of air, rainwater, surface water, drinking water, groundwater, food products, wildlife, soil, sediment and vegetation are collected by SRS and state authorities and analyzed for radioactive and nonradioactive contaminants.

SRS did not receive any notices of violation (NOVs) under the Clean Air Act or the Safe Drinking Water Act in 2004. One NOV was issued in association with the National Pollution Discharge Elimination System (NPDES) program under the Clean Water Act for exceeding permitted limits for total suspended solids at a site wastewater outfall; this NOV has been resolved with the S.C. Department of Health and Environmental Control (SCDHEC). An additional NOV came under the Resource Conservation and Recovery Act for inadequate secondary containment of mixed-waste tanks at Savannah River National Laboratory; resolution of this issue is pending with SCDHEC.

SRS had a NPDES compliance rate of 99.8 percent in 2004 – slightly better than the 99.7 percent rate reported in 2003. The NPDES program protects streams, reservoirs and other wetlands by limiting release of nonradiological pollution into surface waters. Discharge limits are set for each facility to ensure that SRS operations do not impact aquatic life negatively or degrade water quality.

environmental monitoring



▲ Environmental monitoring data demonstrates safe operation of site processes.

safety integrity teamwork results

Achieving results by working together

SRS' exemplary compliance with environmental regulations and with DOE orders related to environmental protection provides assurance that on-site processes do not adversely impact human health or the environment.

supporting the nation's work



▲ An operator practices to become certified in waste handling.

**safety
integrity
teamwork
results**

SRS nuclear materials will power space probes

Neptunium from SRS will be converted to Pu-238 and used to power the nation's deep-space probes for the next 20-30 years.

H Area Stabilizing Legacy Materials

H Canyon and HB Line made major progress in 2005, stabilizing materials such as neptunium, uranium and plutonium. As of the end of Fiscal Year 2005, H Canyon had blended and shipped about 137,500 kilograms of low-enriched uranium solution in its Highly Enriched Uranium (HEU) Blend Down operation. HEU Blend Down is processing SRS' unirradiated fuels – those that had not yet been placed in SRS' reactors when the Cold War ended in 1991. HEU is recovered in H Canyon, then blended with natural uranium to form low enriched uranium (LEU). The LEU is sent to Tennessee to be converted into materials suitable for use in the Tennessee Valley Authority's (TVA) commercial power reactors.

HEU dissolution is expected to be completed in late 2006. LEU shipments to TVA are expected to be complete in mid-2007, well ahead of schedule.

H Canyon and HB Line supported F Area deinventory by receiving and stabilizing plutonium-containing materials. In September, the last F Area materials were completed, meeting a Defense Nuclear Facilities Safety Board commitment.

Also in HB Line, neptunium processing continues ahead of schedule. The neptunium solutions, which have been stored in H Canyon since the 1980s, represent the last of the United States' neptunium inventory. The solution is being converted to an oxide form in HB Line's Phase II facility, then shipped to Idaho for eventual use in the space program.



▲ An operator unloads cold chemicals for use in H Canyon.

SRS Rises to the Nation's Nuclear Need

The National Nuclear Security Agency (NNSA) Defense Programs (DP) missions represent significant long-term missions for the Savannah River Site (SRS).

In 2005, DP has had many accomplishments in execution of its important enduring NNSA Stockpile Stewardship missions. Investments for the future were made in facilities and personnel through planned projects and programs to support the nation's future nuclear weapons stockpile.

Improving facilities

In an effort to deploy new, cost-effective and responsive technology, the Tritium Extraction Facility (TEF) construction was completed, and the facility is being tested. The facility is scheduled to begin operations in late Fiscal Year 2006 or early Fiscal Year 2007. SRS is prepared to receive and store process materials irradiated in a Tennessee Valley Authority nuclear power reactor in preparation for processing in the TEF. The first cask of irradiated materials was delivered to the site in August and awaits processing in TEF.

Once placed in operations, TEF will re-establish our nation's capability to produce new tritium, a key element for modernization and responsiveness to our nation's nuclear weapons program. The project continues well ahead of schedule and under budget. The TEF Construction team was honored with Bechtel Corporation's 2004 Construction Team-of-the-Year award in the Direct Hire Category.

Honors continue to be conferred upon the Tritium Facility Modernization and Consolidation (TFM&C) Project team for its completion of the \$142 million tritium gas processing relocation, consolidation and modernization project ahead of schedule and under budget.

The TFM&C team was recognized with the 2005 Washington Group International Lion Award as the Energy and Environment Business Unit representative for the coveted Project of the Year award.

In addition to the Lion Award, the project team also received The Secretary's Award of Achievement from the U.S. Department of Energy and the Washington Savannah River Company President's Award.



▲ Employees work in the newly consolidated and tritium facility.

future missions

Turning Surplus Weapons Material into a Source of Energy



▲ *Preparing the MOX site are, from left, DOE-SR Manager Jeff Allison, U.S. Rep. Charlie Norwood, U.S. Sen. Lindsey Graham, U.S. Rep. Gresham Barrett, NNSA Administrator Linton Brooks, U.S. Sen. Jim DeMint and NNSA-SRS Manager Sterling Franks.*

safety integrity teamwork results

Electricity is a Cold War dividend

In March 2005, the first fuel from the SRS Highly Enriched Uranium Blend Down program was loaded into the Tennessee Valley Authority Browns Ferry reactor and is currently providing electricity.

The Savannah River Site (SRS) has been designated as the site for the National Nuclear Security Administration's fissile materials plutonium disposition missions, which includes converting highly enriched uranium to low enriched uranium for commercial fuel and transforming surplus weapons-grade plutonium

to commercial nuclear power reactor fuel in parallel with a similar effort in Russia.

The two key plutonium facilities will be built at SRS. First, the Mixed Oxide Fuel Fabrication Facility (MFFF) will blend plutonium oxide with uranium oxide to form a mixed oxide (MOX) fuel. The second is the Pit Disassembly and Conversion Facility (PDCF), which will supply most of the feed for the MFFF by disassembling surplus nuclear weapons pits and converting the weapons-usable plutonium to oxide. Washington Savannah River Company provides the Design Authority function for the PDCF project.

A consortium named DCS, formed by Duke Energy, COGEMA, Inc., and Stone & Webster, has a contract to design and license the MFFF, with future options to construct, operate and deactivate the facility, as well as use the MOX fuel in Duke's commercial reactors. Current status of the U.S. Plutonium Disposition Program is:

- Lead (test) fuel assemblies have been fabricated and are being successfully irradiated at Duke's Catawba nuclear station.
- DCS is nearing completion of the MFFF design. Initial site preparation and construction support activities will be performed by WSRC beginning in Fiscal Year 2006. MFFF construction will begin later under the direction of DCS.
- Design of the PDCF is being performed by Washington Group International and will be completed in Fiscal Year 2006. Development and testing of process equipment for the PDCF continues at Los Alamos National Laboratory. Construction of the PDCF will begin when MFFF construction nears completion.

Disposing of Waste

waste leaving south carolina

Transuranic waste

The Waste Isolation Pilot Plant (WIPP) is the Department of Energy's (DOE) facility for disposing of transuranic (TRU) waste from across the DOE complex. The Savannah River Site (SRS) made its first shipment of TRU waste to WIPP in 2001, initially making about one shipment a month. Thereafter, SRS increased its shipping schedule to 15 shipments per month and 24 shipments per month in 2003 and 2004, respectively.

In 2005, SRS maintained its accelerated TRU waste shipment program, making 125 shipments. At this rate, SRS expects to complete shipment of its legacy drummed waste in 2007. This target date, compared to the original date, will save taxpayers about \$100 million.

At the start of the SRS shipping program, about 30,000 legacy TRU waste drums (about 6,300 cubic meters) were stored at SRS. SRS has since shipped 17,339 drums (3,641 cubic meters) to WIPP. This number represents over 60 percent of the original inventory of legacy TRU waste drums at SRS, a milestone achieved significantly earlier than the original target date of 2014.

SRS received its final shipment of TRU waste from the Miami-Isburg (Ohio) Closure Project, in 2005, completing the transfer of waste from the Mound Site Closure Project. Over three years, SRS received about 302 cubic meters of TRU waste from Mound, helping DOE achieve the early closure of this surplus facility.



▲ Trucks loaded with TRUPACT-II containers prepare to leave for WIPP.



▲ Employees load TRUPACT II containers on TRU Pad 3 Burial Ground.

waste leaving south carolina

Depleted uranyl nitrate and depleted uranium oxide

Depleted uranium liquids and oxides continued to leave South Carolina in 2005.

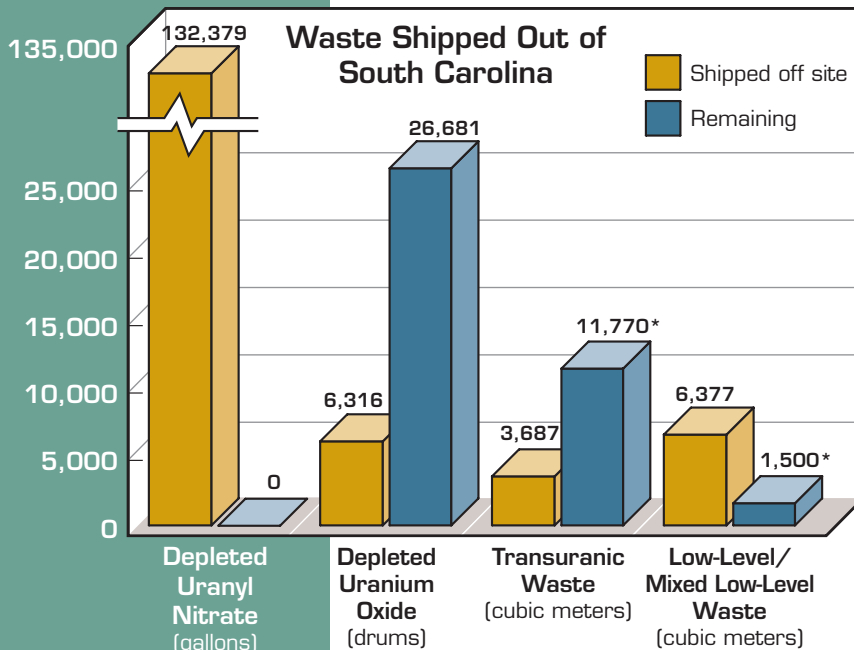
A milestone was reached in June when the final shipment of depleted uranyl nitrate (DUN) left the Savannah River Site (SRS). DUN was shipped from F Area to Permafrix in Tennessee, where it is treated and turned into a grout material. From there, it is sent to the Nevada Test Site (NTS) for final disposition.

Depleted uranium oxide (DUO), a powder-like, low-level radioactive

material that is stored in more than 33,000 55-gallon drums, is being sent by rail to Envirocare of Utah. By the end of Fiscal Year 2005, WSRC had shipped 6,135 of the 33,000 drums scheduled to be dispositioned.

Depending on funding, shipments are expected to be completed by about 2008.

DUN and DUO were by-products of the F Area process.



*Transuranic waste and low-level/mixed low-level waste are still being generated at SRS, so "remaining" numbers are estimates.

Low-level waste

At SRS, the low-level waste (LLW) program primarily involves disposing of waste in shallow land disposal facilities

and vaults, treating wastewater and shipping waste off site to commercial and other Department of Energy facilities for disposal.

The LLW program achieved a major milestone in Fiscal Year 2005 completing the disposal of all legacy LLW stored at SRS. At the start of Fiscal Year 2001, the SRS LLW inventory stood at 12,641 cubic meters, and in just four years, this inventory was reduced to zero, one year ahead of schedule. In addition, SRS disposed of over 21,340 cubic meters of newly generated LLW. The Effluent Treatment Project treated over 16.6 million gallons of wastewater, exceeding the target by 66 percent.

At the end of Fiscal Year 2005, SRS had shipped a cumulative total of over 2,050 cubic meters of LLW off site to NTS and over 1,330 cubic meters of DUO waste to a commercial vendor in support of decommissioning and demolition activities.

Mixed low-level waste

In 2005, SRS completed characterization, manifesting and shipment of 262.37 cubic meters of mixed waste for treatment and disposal. (Mixed low level waste is waste that is both radioactive and hazardous.) The 21 truck-loads of waste were shipped to certified off-site vendors for disposal.

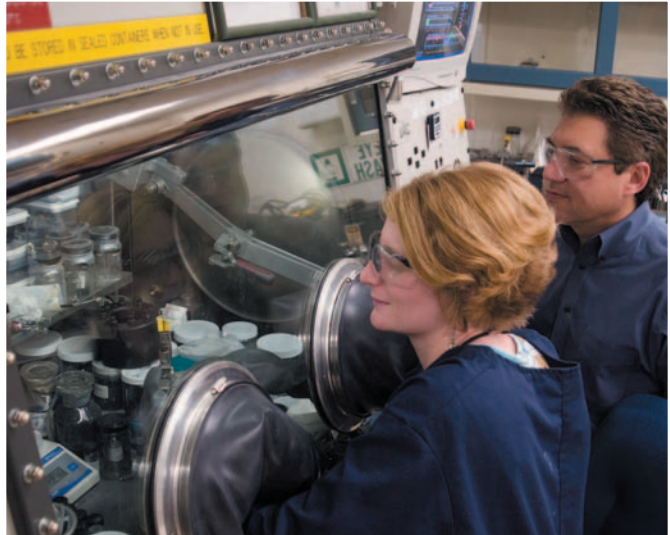


We Put Science To Work

Energy Security

Savannah River National Laboratory's (SRNL) hydrogen research supports President Bush's Hydrogen Fuel Initiative to ensure our nation's long-term energy security and a clean environment. Using hydrogen to fuel our economy can reduce dependence on imported petroleum, diversify energy resources, and reduce pollution and greenhouse gas emissions.

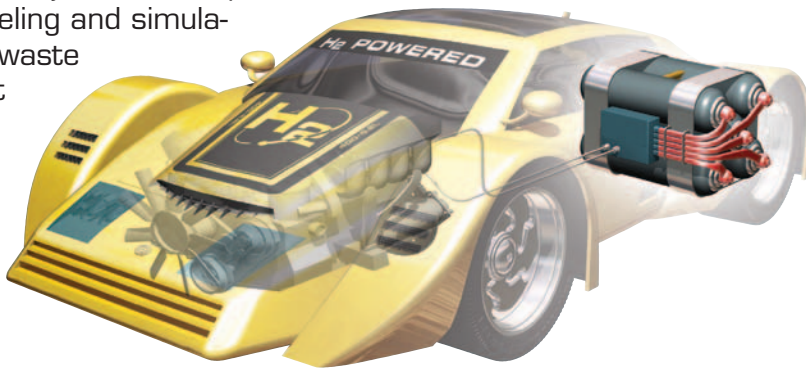
The Laboratory's half-century of support for the Savannah River Site's tritium programs has resulted in unmatched expertise in the handling, processing and storage of tritium and other forms of hydrogen. That expertise is finding new uses, as America prepares to move toward the use of hydrogen as a significant energy source for our cars, homes and industries. In particular, SRNL is addressing crucial technical issues that include hydrogen production and on-board storage.



▲ SRNL personnel are working to develop new, lighter-weight materials for storing hydrogen on-board a vehicle.

Toyota partnership

In 2005, SRNL joined forces with Toyota Technical Center U.S.A. (Toyota Motor Company's American technical center) to work together on improved hydrogen storage materials for possible automotive uses. Under a five-year cooperative research and development agreement, the auto giant and the Laboratory will identify and collaborate on projects in areas such as hydrogen storage, development of new materials, characterization of materials, reliability and failure prediction, modeling and simulation, and waste treatment technologies.



▲ Hydrogen storage technologies for the vehicles of tomorrow.

**safety
integrity
teamwork
results**

SRNL is working on a proposed process that uses heat from an advanced nuclear reactor to "crack" water into hydrogen and oxygen.

National and Homeland Security



▲ BritePrint™, a light-weight, hands-free system for detecting fingerprints.

safety
integrity
teamwork
results

SRNL assists law enforcement

SRNL developed BritePrint™, a hands-free light for detecting fingerprints.

Over the Savannah River National Laboratory's (SRNL) 50-year history, the Laboratory has contributed to the nation's security in a number of ways. Traditionally, the Laboratory has provided the research and development support needed to continuously improve the production, processing, storage and handling of tritium for our national defense; to safely package, transport and store nuclear materials; and to advance nuclear nonproliferation goals.

Tritium support

In 2005, SRNL enhanced its ability to support the Savannah River Site's (SRS) tritium operations with the installation and startup of electrical discharge machining, which sections tritium-exposed components for materials testing. With this machining, SRNL has a unique-in-the-DOE-complex method of evaluating the long-term effects of tritium on the structural properties of components.

The SRNL Tritium Storage Materials Production Team received the National Nuclear Security Administration Defense Programs Award of Excellence for their successful efforts to re-establish vendor competency to provide vital tritium process materials. The team performed extensive experiments, and worked with the vendor to understand the production procedures, processes and control parameters in order to resolve production issues, allowing the vendor to once again supply these materials necessary for SRS tritium operations.

Other developments

In recent years, SRNL researchers have also been applying their expertise – in fields ranging from robotics development to highly sensitive chemical and radiological detection and analysis – to a wide range of other security-related needs.

- The U.S. Department of Homeland Security (DHS) designated SRNL as one of its Strategic Partner National Laboratories. The DHS Science and Technology Directorate established the network of Strategic Partner laboratories to enable the agency to make the best use of the expertise available at these laboratories. SRNL has assisted DHS since the agency's earliest days, providing technologies, analytical capabilities, training and consultation. The "Strategic Partner" designation provides a mechanism for the agency to use SRNL's expertise in strategic planning as it outlines science and technology activities that will enhance its ability to fulfill its mission.
- SRNL developed a hand-held radiation detector for use by ship-boarding personnel to survey containers stacked on cargo ships. RadRope™ can be dangled in the gap

between stacked shipping containers and monitored on a hand-held personal digital assistant.

- SRNL developed the RadPoleCam, a search and detection device that gives a first responder remote visual inspection and real time radiological detection capabilities in confined spaces, containers, etc. The RadPoleCam features radiation measuring instrumentation and a camera in a collapsible pole that can be extended to 30 feet, with a cable that allows the detector and camera assembly to be lowered 50 feet through a small opening. Four duplicate devices have been built and are being deployed for testing and evaluation by first responders.
- SRNL conducts numerous training courses for personnel from the Federal Bureau of Investigation (FBI), Coast Guard, Customs and Border Protection, and other security-related agencies on topics that include packaging of radioactive and hazardous evidence, detection of contraband materials for weapons of mass destruction, radiological crime scene processing and others.
- SRNL assists the FBI in the areas of radioactive crime scene processing, hazardous evidence packaging and forensic examination of radioactively contaminated evidence.

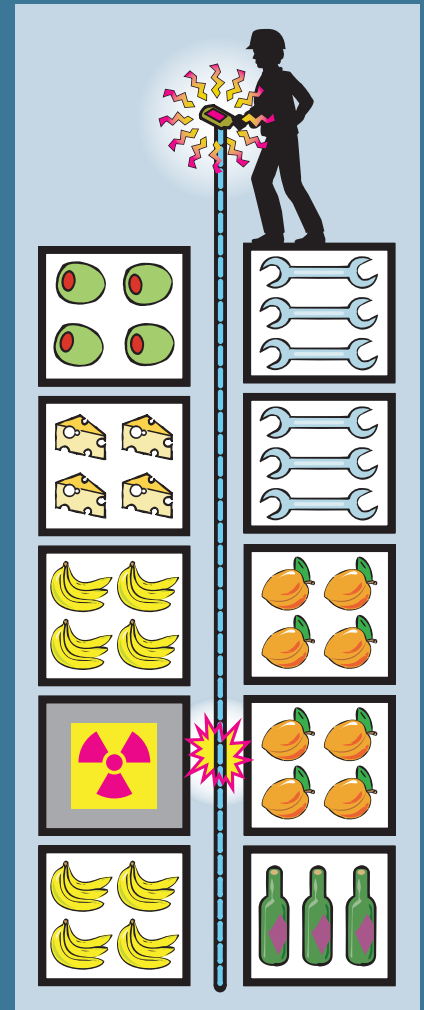
World's Best Technologies

An SRNL invention, the Plasma Screen Floating Mount, was named one of the top 25 World's Best Technologies by a panel of experts sponsored by the Federal Laboratory Consortium for Technology Transfer and the National Association of Seed and Venture Funds. The Floating Mount allows large flat-panel display screens to be used in moving vehicles, protecting the sensitive electronics from damage by shock and vibration.

University Partnerships

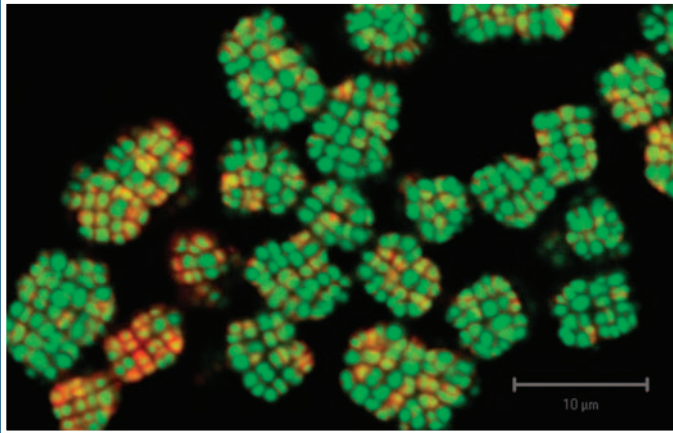
By partnering with universities, SRNL is able to apply the best available resources to meeting customers' technology needs while maximizing the economic benefits of technology development to the regional economy. The Laboratory seeks out and enters into a variety of partnership arrangements with universities, both locally and across the nation, to combine complementary expertise, skills and facilities. In the fall of 2004, SRNL and South Carolina's four research universities – University of South Carolina, South Carolina State University, Clemson University and the Medical University of South Carolina – came together to identify opportunities for cooperation and formulate plans for collaborative opportunities.

SRNL We Put Science To Work™



▲ RadRope™ allows inspection of stacked cargo containers for nuclear materials.

Environment



▲ *Kineococcus radiotolerans* is able to withstand radiation doses thousands of times the dose that is lethal to humans.

**safety
integrity
teamwork
results**

Monitored Natural Attenuation will aid cleanup

SRNL is leading this three-year, DOE complex-wide initiative to study the ways in which the earth repairs environmental damage. Results are expected to accelerate cleanup by a minimum of 10 years for DOE sites that have groundwater plumes contaminated with chlorinated solvents.

Over the decades, the Savannah River National Laboratory (SRNL) has developed and/or deployed over 1,000 technologies for protecting and cleaning up the environment. The Laboratory’s work spans the fields of biotechnology; soil and water cleanup; hazardous material stabilization, processing and disposal; and facility disposition in support of the Savannah River Site (SRS), the Department of Energy and customers around the world.

Biotechnology

Kineococcus radiotolerans, discovered by SRNL researchers, is undergoing genome sequencing to learn more about this amazing organism, which is able to live in the site’s liquid radioactive waste tanks. This naturally occurring micro-organism uses powerful self-repair mechanisms that simply repair cell damage caused by radiation and other toxic agents. Understanding how this self-repair mechanism works could have tremendous application in the medical field. Its capabilities are currently being studied, but so far, it appears that it can also degrade organics, like solvents and herbicides, while in the presence of radiation and other toxic agents. This finding makes it of interest for the environmental cleanup, as well as medical and space exploration fields.

Radioactive waste

SRNL continues its long tradition of support for the site’s Defense Waste Processing Facility (DWPF) by providing a strategy that allowed the DWPF to increase waste loading – the amount of waste that can be placed into each canister of glass – from 37 to 40 percent of each canister. The Laboratory also supported the design of a new glass pump, which resulted in a 7 percent improvement in the facility’s melt rate.

Hanford River Protection Program

In Fiscal Year 2005, SRNL completed small-scale vitrification of the last of three tank samples from the Hanford site – the final research and testing step in the major portion of SRNL radioactive work for the Hanford River Protection Program (RPP). Since 1996, SRNL has been helping to design, develop and test processes for treating Hanford’s tank wastes and closing their tanks, using the same skills and expertise that made the design, startup and operation of SRS’ DWPF possible. SRNL continues to support RPP with projects such as research and development testing of the Backup Cesium Ion Exchange removal resin and analytical method development work.

Solidifying Waste for Long-Term Safety

The Defense Waste Processing Facility (DWPF), the largest waste vitrification plant in the world, has produced more than seven million pounds of glass, containing more than two million pounds of glassified liquid (sludge) waste, in nearly 10 years of radioactive operations.

In Fiscal Year 2005, the facility increased the amount of waste contained in each canister by 7 percent, which will result in about 1,000 fewer canisters over the life of the facility and a savings to taxpayers of about \$1 billion.

DWPF has produced 1,969 canisters since operations began in 1996.

Melter 2, which has been in service since spring 2003, continues to perform even better than its predecessor, which functioned four times longer than its design life. DWPF's third melter has been completed and is ready when needed.

Storage in the Glass Waste Storage Building One, which is used to store canisters until they can be shipped to a national repository, is being maximized by utilizing previously unused storage positions whenever possible. So far, over 500 positions have been reclaimed, and DWPF has enough storage capacity for all the canisters that will be produced in the current contract period.

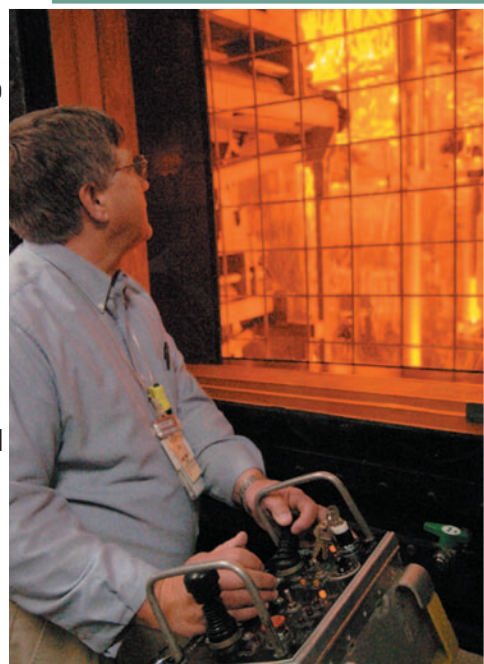
Glass Waste Storage Building Two is under construction and is scheduled to be turned over to Operations in January 2006.

The Saltstone facility, which converts the low-level portion of the site's liquid wastes into grout for permanent on-site disposition, is preparing to restart upon approval by the State of South Carolina. Modifications have been completed to allow the facility to process low-curie salt materials, putting in place the first piece of SRS' salt processing strategy.



▲ The Shielded Canister Transporter moves filled canisters into the Glass Waste Storage Building.

transforming waste



▲ An operator remotely moves a canister via overhead trolley from one DWPF cell to another.

safety integrity teamwork results

Safely immobilizing waste

For Fiscal Year 2005, DWPF produced 257 canisters of vitrified high-level waste – but those canisters contained as much waste as 367 canisters would have previously.

cleaning up the site

D&D Work Prepares SRS for the Future



▲ One of the more than 160 buildings being demolished on site.

safety
integrity
teamwork
results

Deciding to reduce the site's mortgage costs

In some closure areas – such as T Area and M Area – all buildings required for Area Closure are being demolished. In other site areas, buildings are taken down that have no future use to reduce SRS' mortgage costs and help set the stage for the future.

The footprint of the Savannah River Site (SRS) continues to shrink. So far, more than 160 buildings are gone.

Although D&D (decommissioning and demolition) work is concentrated in T, D, M, A and F areas, it is going on in every site area. The purpose is to remove buildings that have no future use, to better position SRS for the future. Each building that is demolished represents less money that has to be spent on upkeep, and those savings ultimately make SRS a much less expensive site to operate.

All T Area (also known as TNX) buildings included in Washington Savannah River Company (WSRC's) contract have been removed, and the area is undergoing final soil and groundwater remediation.

In D Area, demolition work is well ahead of schedule, with 34 of 35 buildings in the contract already down. Of those, five were demolished in the past year, including parts of the challenging 421-D distillation tower complex. All that will remain standing after 2006 is part of the power plant.

M Area's fuel fabrication facilities, where the site's production process once began, are gone. A total of 16 buildings have been torn down in M Area, including three in the past year. The 321-M complex was the most recent to be demolished. Also, demolition at 777-10A and 305-A, research facilities that once housed a total of six test reactors, is under way.

In A Area, 19 buildings have been demolished in the past year, bringing the total in this contract period to 34. This number includes warehouses, receiving buildings, the old motor pool and maintenance building, and pipes and sheds.

In F Area, seven facilities have been demolished in the past year, bringing the total in this contract period to 29. This number included the contaminated Laundry Facility. Deactivation work in the 247-F Closure Project is complete, and demolition of the five 247-F-related facilities is expected to be finished in March 2006.

Demolition work elsewhere on site includes:

- C Area Three buildings
- E Area Three buildings
- G Area Six buildings
- H Area One building
- L Area One building
- P Area Six buildings
- R Area Two buildings

Cleaning Up Soil & Groundwater

Cleanup of Savannah River Site (SRS) soil and groundwater continues under an aggressive area-by-area approach that integrates site D&D (decommissioning and demolition) work with Soil & Groundwater Closure Projects (SGCP). These and other efficiencies combine to save hundreds of millions of taxpayer dollars.

This approach will see one site area completely closed by the end of Fiscal Year 2006 and two others actively under way. An additional advantage to the area-by-area approach is that SRS industrial areas will be cleaned up and closed sequentially.

Final remediation work in T Area continues, and is on schedule for SRS' first Area Closure in September 2006. That final remediation will remove contaminated soils from the T Area Outfall Delta and cover the SGCP waste units and several concrete slabs from demolished facilities in T Area with soil. Then, the area will be capped, and grass will be planted over it. This approach shortens the closure schedule by four years and saves \$20 million over previous plans.

M and P areas are the next two areas targeted for final closure.

Several key remediation projects began operations in Fiscal Year 2005.

An operation known as the Dynamic Underground Stripping (DUS) system, which uses steam injection technology originally developed for use in the petroleum industry, started up near the M Settling Basin. As of the end of Fiscal Year 2005, the system had already removed more than 35,000 pounds of solvents from the groundwater. DUS will use steam injection for about 40 months to remove over one million pounds of subsurface solvent contamination by the end of 2008, compared with about 75 years of operating the previous pump and treat system.

Construction of underground barrier walls was completed in F and H areas to reduce the spread of groundwater contamination from the closed F and H Area Seepage Basins to Fourmile Branch. These walls are working as expected, and are reducing the mobility of the tritium contamination in the groundwater and saving more than \$24 million over two years.

In E Area, closure work is under way at the General Separations Area Consolidation Unit, which is considered SRS' highest risk site. This site streamlines cleanup by consolidating remedial actions at

five waste units into one closure project. This work is expected to be complete in 2007, a year earlier than required by the regulatory agencies. This approach will result in a cost savings of \$9 million, in addition to hundreds of millions of dollars in cost avoidance.



▲ Sodding work is conducted at a remediation site.



▲ Barrier walls have been installed in F and H areas to slow the migration of contaminants.

**safety
integrity
teamwork
results**

Cleaning up the site

As of the end of Fiscal Year 2005, 318 of the 515 waste sites at SRS have been completed, and another 47 are in remediation.

F Area Closure Achieving Milestones

Work continues ahead of schedule in F Area, with an overall goal of reaching specific end states in F Canyon and FB Line by the end of 2006.

F Area is one of two chemical separations areas at the Savannah River Site (SRS). Historically, these facilities were used to chemically recover useful nuclear products from materials that had been irradiated in SRS' reactors. F Canyon and its sister facility, FB Line, produced one third of the United States' plutonium during the Cold War.

All scheduled processing work was completed in 2002. Since then, employees have been working on suspension, deactivation, and decommissioning in specific areas and processes.

FB Line

For FB Line, the end state is deactivation. In February 2005, the final plutonium materials left FB Line, which meant a reduction in the security level in F Canyon and FB Line. For the first and last time, media representatives and guests were invited into FB Line.

Completing deinventory in FB Line also meant that concentrated deactivation work could begin. Previously, operations were still going on in some areas of the facility to stabilize, package and ship plutonium materials to other site areas. Now, workers can concentrate solely on deactivation.



▲ F Canyon employees perform deactivation work on equipment inside the canyon.

F Canyon

In F Canyon, deactivation is 85 percent complete. In September, F Canyon completed its final transfer of material to F Tank Farm, signifying the last planned operation of process equipment in F Canyon and setting the stage for deactivation of the outside facilities control room – which was F Canyon's last remaining operational control room.

Under recent direction from the Department of Energy, WSRC was instructed to develop new end states that would maintain specific systems in an operable condition, to prevent degradation of the facility's infrastructure. These systems included fire water, a diesel generator in the canyon, and the facility's cranes.

Full-scale deactivation continues, however, in FB Line.

Liquid Waste: Reducing Inventory and Ready for the Future

In 2005, the Savannah River Site (SRS) made steady strides toward managing space and reducing inventory in its 49 radioactive liquid waste tanks.

Facilities such as the Defense Waste Processing Facility (DWPF) and H Canyon must be able to send waste materials into the tank farms, or they cannot operate. Currently, the 49 tanks contain nearly 36 million gallons of waste, which is destined for processing in one of several site facilities.

One of those facilities, DWPF, gets its feed directly from the tanks in the form of sludge.

DWPF is currently processing Sludge Batch 3, and Sludge Batch 4 is being made. Each batch takes months, sometimes years, to process.

To ensure tank space is available for processing sludge, the tank farms must begin processing salt, which represents the largest volume of waste in the tanks. For the first time ever at SRS, core salt samples have been taken from a tank.

These samples will be analyzed to ensure the waste can be processed through a small-scale facility called MCU, or Modular Caustic Side Solvent Extraction Unit, which will be used for salt processing until a full-scale Salt Waste Processing Facility (SWPF) is operational.

Tank farm employees also continued work on existing facilities for use in removing actinides from waste. MCU, along with these existing facilities, will be able to treat a small stream of waste until SWPF is operational.



▲ Construction is under way on the Modular Caustic Side Solvent Extraction Unit, which will process some of the salt materials in SRS' waste tanks.



▲ A view of the F Area Tank Farm.

**safety
integrity
teamwork
results**

Consolidating control rooms in H Tank Farm

Work is under way to consolidate the H Tank Farm control rooms, paving the way for one control room to serve as the hub of most operational evolutions.

Staying Aggressive on Site Cleanup Work

Aggressive, safe cleanup continues ahead of schedule and under budget at the Savannah River Site (SRS). This important site work is scheduled to continue until 2025.

Some of the cleanup will be finished in the near-term. In the long-term, more than half of the Defense Waste Processing Facility's projected 5,000 canisters will still remain to be poured after 2006. Of the 51 original tanks in the liquid waste system, 49 will still remain to be closed.

Between now and 2019, four facilities – the Saltstone facility, the small-scale Modular Caustic Side Solvent Extraction Unit and Actinide Removal Process, and the full-scale Salt Waste Processing Facility – will process 85 million gallons of salt solution. This material currently exists in SRS tanks in a concentrated form, but water must be added to dilute the material before it can be processed.

SRS' entire decommissioning and demolition (D&D) effort encompasses about 10 million square feet of building space; about 2.5 million will be complete by the end of 2006.

In the soil and groundwater cleanup program, more than a third of the site's 515 waste sites will remain to be closed.

Finally, H Canyon represents a unique United States capability and is expected to be maintained for the foreseeable future.

Project	Complete in 2006	To Go	Completion Date
D&D	~2.5 million square feet demolished	~7.5 million square feet	2025
Tank closures	2 tanks closed	49 tanks	2020
Salt solution dispositioned	~1 million gallons	~84 million gallons	2019
Soil & groundwater remediation	64 percent of waste sites	36 percent	2025
Waste solidification	~2,200 canisters poured	~2,800 canisters	2019
H Canyon & HB Line	Maintain continuing processing capability		

Graniteville and Katrina

SRS employees figure heavily in Graniteville recovery

In the aftermath of the Jan. 6, 2005, train wreck in Graniteville, S.C., Savannah River Site (SRS) employees played a significant role in helping citizens in this nearby community.

At the incident command post, 52 SRS employees eventually signed in to help with the response and recovery. Generally, these were SRS Fire Department/Emergency Medical Service employees (including hazardous material responders), Aiken County Hazardous Material Team members, or part of the site's Critical Incident Stress Management team (who worked with victims and families). But there were many more.

The Savannah River National Laboratory's Atmospheric Technologies Group quickly supplied data on the projected plume path and other weather information to authorities and continued such help in the following days.

The SRS security contractor, Wackenhut Services Inc. (WSI), supplied people for door-to-door checks in a two-mile radius around the derailment, and WSI ensured that on-scene forces had the right personal protective equipment for chlorine.

Over the following days, specialized assistance, including the site's hazardous materials and rescue equipment, continued to be useful. In addition, selfless volunteers from SRS were put to use in many ways to help the community recover.

Employees contribute to Hurricane Katrina Relief

The Washington Savannah River Company (WSRC) Team pulled together to help Louisiana, Mississippi and Alabama cope with one of the largest natural disasters in United States' history, Hurricane Katrina. Efforts by the partner companies and their parent companies helped the three-state Gulf coast area begin the process of rebuilding lives and property. While hundreds of site employees went to the area to help, generous money donations also poured in from employees. WSRC employees contributed \$83,000 to the relief fund. Washington Group International matched every donation, doubling the SRS contribution to \$166,000.



▲ (top) Aerial view of the train derailment in Graniteville.

(bottom) Gulf Coast destruction from Hurricane Katrina.

helping others



▲ SRS employees volunteer their time to help those less fortunate.

safety integrity teamwork results

Even though the WSRC Team's workforce decreased to fewer than 10,000 people in 2005, the employees continued exemplary community support.

Employee Volunteerism

Last year, the Savannah River Site (SRS) employees continued to generously support the United Way, giving more than \$1.9 million – raising the amount given to the United Way to more than \$45 million since the mid-1950s. Also, additional contributions of more than \$13 million have been sent to communities through the Washington Savannah River Company (WSRC) corporate philanthropy program since 1989. During the year's SRS blood drives, over 2,905 units of blood were donated. Employees last year donated the equivalent of 103,338 pounds of food in the site's Holiday Food Drive. Also, WSRC reached over 62,000 students the past year through various programs designed to encourage learning, especially science and math. Finally, WSRC helped about 700 teachers with their classroom presentations.

Economic impact

The site's economic contribution makes a significant impact across the South Carolina-Georgia area. SRS employs more than 10,000 people, and the site's overall budget is approximately \$1.4 billion. Of that, nearly \$1 billion is payroll. Last year, the site purchased over \$200 million in goods and services in South Carolina and Georgia combined. The site's overall economic impact to the area is about \$2 billion a year.



◀ Site employees volunteer to work in United Way Projects Serve, Vision and Care as a way to give back to their communities.





The Savannah River Site is owned by the U.S. Department of Energy and operated by a Team of companies led by the Washington Savannah River Company (WSRC).

WSRC is a wholly owned subsidiary of Washington Group International.

The WSRC Team: Washington Savannah River Company LLC • Bechtel Savannah River, Inc. • BNG America Savannah River Corporation • BWXT Savannah River Company • CH2 Savannah River Company