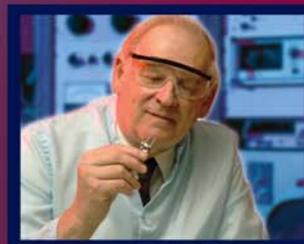
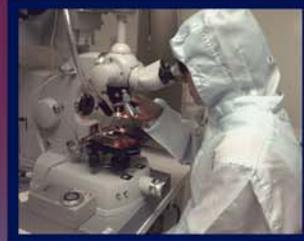


SRNL Strategic Plan

September 2006
25 Year Plan



We Put Science To Work

We Put Science To Work

Message from the Director

In 2006, the U.S. Department of Energy (DOE) designated SRNL the “Corporate Laboratory” for the Office of Environmental Management (EM), acknowledging SRNL as a key technical leader for EM and its programs at sites around the country. This designation also gives the SRNL a new mandate to provide targeted technical assistance and technology solutions for DOE cleanup efforts. In this role, SRNL will use its applied research leadership and a collaborative approach to assist DOE sites in enhancing cleanup, achieving cost reductions, and increasing safety by reducing technical risk.

As SRNL continues its transition toward becoming a leading national laboratory, we will substantially increase our work with other laboratories, universities, and industry. We will identify targeted investments in critical infrastructure, expand our technical capabilities, enhance our safe performance of work through adhering to the Conduct of R&D, and more broadly invest in our research engine—our people.

SRNL has prepared this plan to detail the Laboratory’s goals and share our vision through 2030. This plan presents our objectives and the methods we will use to accomplish the five strategic goals. This plan also describes the important initiatives within each of our three strategic focus areas: Environmental Management, National and Homeland Security, and Energy Security. Finally, we describe our critical elements of success—our human resources and the infrastructure investments we propose to ensure SRNL’s contributions and success in the future.

I am proud to help chart our Laboratory’s course and I look forward to a successful future as SRNL continues to put science to work.

Dr. G. Todd Wright
Laboratory Director
Savannah River National Laboratory

Introduction

This Strategic Plan seeks to focus our vision more sharply and define our significant strategic initiatives to position SRNL for the future. To ensure the laboratory's success and continued growth, we have mapped new strategies to institutionalize enduring missions in Environmental Management, National and Homeland Security, and Energy Security, meet our responsibilities, and achieve our goals. We have charted a course over the next 25 years for SRNL to lead the DOE Complex in cleaning up the environmental legacy of cold war weapons production. SRNL will continue to provide outstanding support to the programs that support the Nation's security and will utilize its core strengths to help ensure America's energy security. SRNL will execute its mission in a way that is fully integrated with the DOE vision and strategies for success detailed in the DOE 2006 Strategic Plan.

DOE's Vision

The Department's vision, as stated in the DOE Strategic Plan "is to achieve results in our lifetime ensuring: Energy Security; Nuclear Security; Science-Driven Technology Revolutions; and One Department of Energy—Keeping our Commitments."

DOE's Strategy for Success

The DOE's Strategic Plan identifies the following five strategic themes:

- **“Energy Security**—Promoting America's energy security through reliable, clean, and affordable energy.
- **Nuclear Security**—Ensuring America's nuclear security.
- **Scientific Discovery and Innovation**—Strengthening U.S. scientific discovery, economic competitiveness, and improving quality of life through innovations in science and technology.

- **Environmental Responsibility**—Protecting the environment by providing a responsible resolution to the environmental legacy of nuclear weapons production.
- **Management Excellence**—Enabling the mission through sound management.”

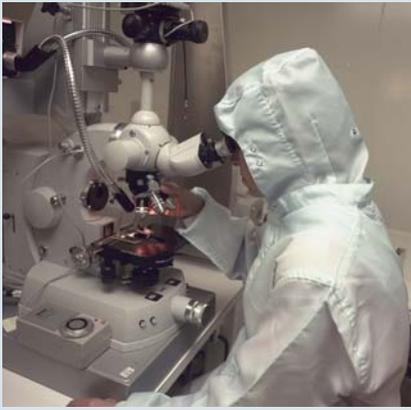
SRNL Mission

SRNL's mission as a DOE multi-program applied science laboratory and EM Corporate Laboratory is to address the challenge of cleaning up the environmental legacy from the Nation's weapons program and providing key support to help meet National and Homeland Security and Energy Security objectives. To support these missions, SRNL provides applied technology through multidisciplinary programs of scientific research and applied engineering directed toward applications for new and improved techniques, materials science, specialized equipment and systems, and capabilities to exceed our customers' expectations.

SRNL Vision

SRNL will achieve recognition as the Nation's premier applied science laboratory.

SRNL is the Nation's premier applied science laboratory in Environmental Management, National and Homeland Security, and Energy Security, leveraging its 50 year heritage to meet critical needs for the DOE and the Nation. SRNL has traditionally played a significant role in Environmental Management and National Security, and in the future SRNL will leverage these key core skills to provide critical solutions to the nation's alternative energy needs.



SRNL 2030 Vision

To lead the DOE Complex in timely resolution of critical EM technology issues, support realization of the hydrogen economy, support the renaissance of nuclear energy through the Global Nuclear Energy Partnership (GNEP), and establish the “Laboratory of the Future.” The Laboratory of the Future will deliver results through agile, collaborative, and innovative business practices and pace-setting safety performance.

Our objectives include:

- Achieve a business volume of \$500 million by 2015 and \$1 billion by 2025.
- Define critical investments in capabilities that leverage the accomplishments of Office of Science laboratories.
- Establish the Tritium Center of Excellence for handling future U.S. energy needs for tritium and tritium technology.

- Serve as a major technology deployment laboratory for basic science discoveries from Office of Science laboratories.
- Establish an EM Technology Center to address outstanding EM technical risk issues.
- Consolidate high-risk SRNL activities to the center of the Savannah River Site (SRS) in compact and efficient facilities.
- Complete a new Laboratory Complex by 2028.

SRNL Strategic Goals

1. Lead the DOE Complex as the EM Corporate Laboratory to reduce technical risk and cost for cleanup operations.
2. Establish a preeminent Center for Research, Development, and Deployment of technologies to clean up the environmental legacy of the Nation’s nuclear programs.
3. Establish SRNL as the National Security support laboratory for tritium weapons components and key technologies.
4. Become the acknowledged technological leader in areas that reflect SRNL’s world-class competencies and that are critical to the success of Homeland Security, Nonproliferation, and Intelligence programs.
5. Extend SRNL’s core competencies in tritium, microbial remediation, and high-temperature chemical processing to make significant contributions to America’s energy security.

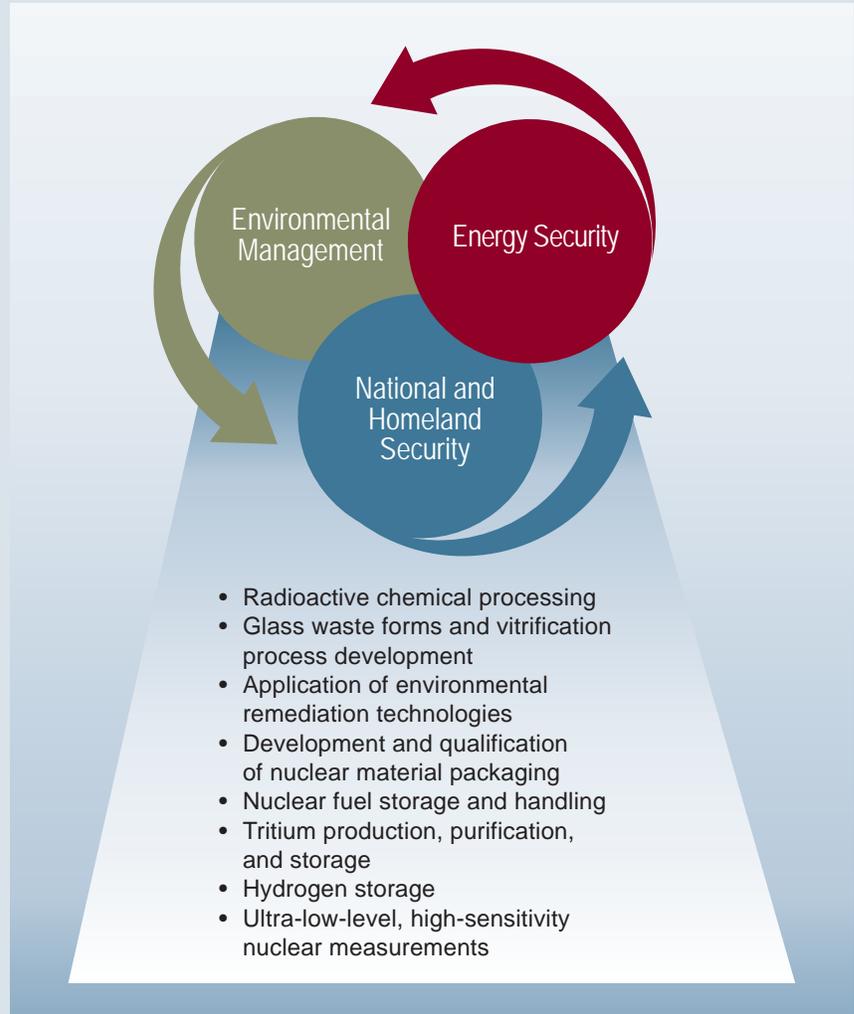
Core Values

Customer Satisfaction

We partner with our customers and continually strive to anticipate their requirements, exceed their expectations, and enable their success.

People

- We value each individual's personal health and safety and proactively work towards safety excellence.
- We highly regard each other as business associates and individuals.
- We treat each other with respect, courtesy, and honesty at all times.
- We appreciate and recognize each other's contributions.
- We value the innovative and creative abilities of our people and their sense of ownership and accountability.
- We embrace the value and strength found through collaborations and teamwork.



SRNL World-Class Competencies. SRNL's core competencies across our three strategic focus areas support initiatives that are vital to our Nation's future and security.

Environmental Management



Strategic Goal 1—
Lead the DOE Complex
as the EM Corporate
Laboratory to reduce
technical risk and cost for
DOE cleanup operations.

EM Corporate Laboratory

The DOE designation of SRNL as the EM Corporate Laboratory establishes SRNL as the technical lead for EM and its programs, and gives the Laboratory a new mandate to provide targeted technology assistance and solutions for cleanup efforts at DOE sites. In particular, both fundamental and applied research is needed to enhance ongoing projects to meet the following key objectives: stabilize high-level radioactive waste; clean up groundwater and soils; deactivate and decommission legacy facilities; and stabilize and disposition transuranic waste, plutonium, and spent fuel. These tasks are technically complex and require innovative and advanced technologies to achieve success. As EM's Corporate Laboratory, SRNL will use its applied research experience and program leadership to help DOE sites enhance cleanup, achieve

cost reductions, and increase safety by reducing technical risk. Additionally, as the EM Corporate Laboratory, SRNL will leverage national laboratory, university, and international expertise to address technical issues across the EM Complex.

Objective:

Make substantial contributions as the EM Corporate Laboratory.

Strategies:

- Integrate a comprehensive knowledge base and new technologies into EM through expanded partnerships with other national laboratories, universities, industry, and international experts. These collaborations will allow SRNL to better support DOE decision-making in key technical areas.
- Lead the technology planning and road mapping initiative to identify needed investments.
- Establish fundamental research programs that support DOE mission needs in environmental sciences, waste stabilization, and biotechnology programs—an initiative that will also help build and retain core competencies.
- Significantly broaden SRNL's interactions with federal and regulatory agencies on EM technology and policy initiatives.
- Establish expert panel reviews to provide consultation on key scientific and technical issues.
- Serve on national program committees to further build SRNL's national reputation and advance EM's understanding of scientific accomplishments and unresolved scientific issues.

Strategic Goal 2—
Establish a preeminent
Center for Research, Devel-
opment, and Deployment of
technologies to clean up the
environmental legacy of the
Nation's nuclear programs.

SRNL has the unique capabilities required to effectively serve DOE as a center of technical expertise for the EM mission. Specifically, these capabilities include SRNL expertise in the following areas:

- Characterizing, processing, and stabilizing high-level radioactive waste
- Closing high-level waste storage tanks
- Characterizing and cleaning up groundwater and soil
- Processing, packaging, transporting, and disposing of legacy nuclear materials
- Managing, storing, and processing spent nuclear fuel
- Managing the surveillance and packaging of nuclear material and the modeling and flow sheet development to support these activities.

Objective:

Lead the national effort in the disposition of legacy nuclear materials.

Strategies:

- Establish SRNL as the recognized DOE environmental technology leader through the development of technologies to stabilize, package, store, and monitor legacy nuclear materials.



- Establish SRNL as the recognized DOE laboratory authority in characterizing legacy nuclear materials for storage and shipment.
- Establish SRNL/SRS as a leader in spent fuel storage, handling, and treatment at an international level through interactions with other technical experts on nuclear materials processing and policy.
- Provide support to the Office of Civilian Radioactive Waste Management (OCRWM) Science and Technology Program on the technical bases for Yucca Mountain.

Objective:

Advance leadership of radioactive waste management.

Strategies:

- Advance current performance assessment modeling capabilities to accelerate disposal of new and existing low-level waste streams while reducing costs.
- Aggressively pursue the development and implementation of innovative salt removal and processing options to accelerate tank closure.
- Develop and implement innovative salt sampling and characterization capabilities to achieve greater reliability and confidence in salt processing techniques.
- Provide specialized technical expertise and targeted technologies that will make a step change in performance in support of waste retrieval, heel removal, and tank closure goals.
- Provide leadership in developing waste containment structures and demonstrating their safety and structural integrity.



Objective:

Lead the complex in environmental remediation technology.

Strategies:

- Support large-scale remediation projects at DOE, federal, and commercial sites using the core competencies of SRNL and other national laboratories.
- Provide expert scientific bases and technical leadership to advance the understanding and integration of cost-effective passive and natural processes for environmental remediation and stewardship.
- Aggressively pursue, develop, and implement technical strategies and technologies to meet state and national environmental regulatory requirements at SRS and other DOE sites.

Objective:

Lead end-state transition activities across the complex.

Strategies:

- Provide scientific technical bases and performance assessment modeling for regulatory concurrence on tank closures and disposal operations, and provide technical support for the 3116 Waste Determination efforts.
- Reduce closure program cost and schedule by applying innovative tools and methods

derived from external sources (for example, other sites, commercial vendors, and universities).

- Support DOE Complex deactivation and decommissioning (D&D) projects by using SRNL expertise in characterization, risk assessment, stabilization, and decontamination technologies.
- Develop a long-term DOE stewardship program that bridges the gap between ongoing EM cleanup activities and long-term Legacy Management ownership.

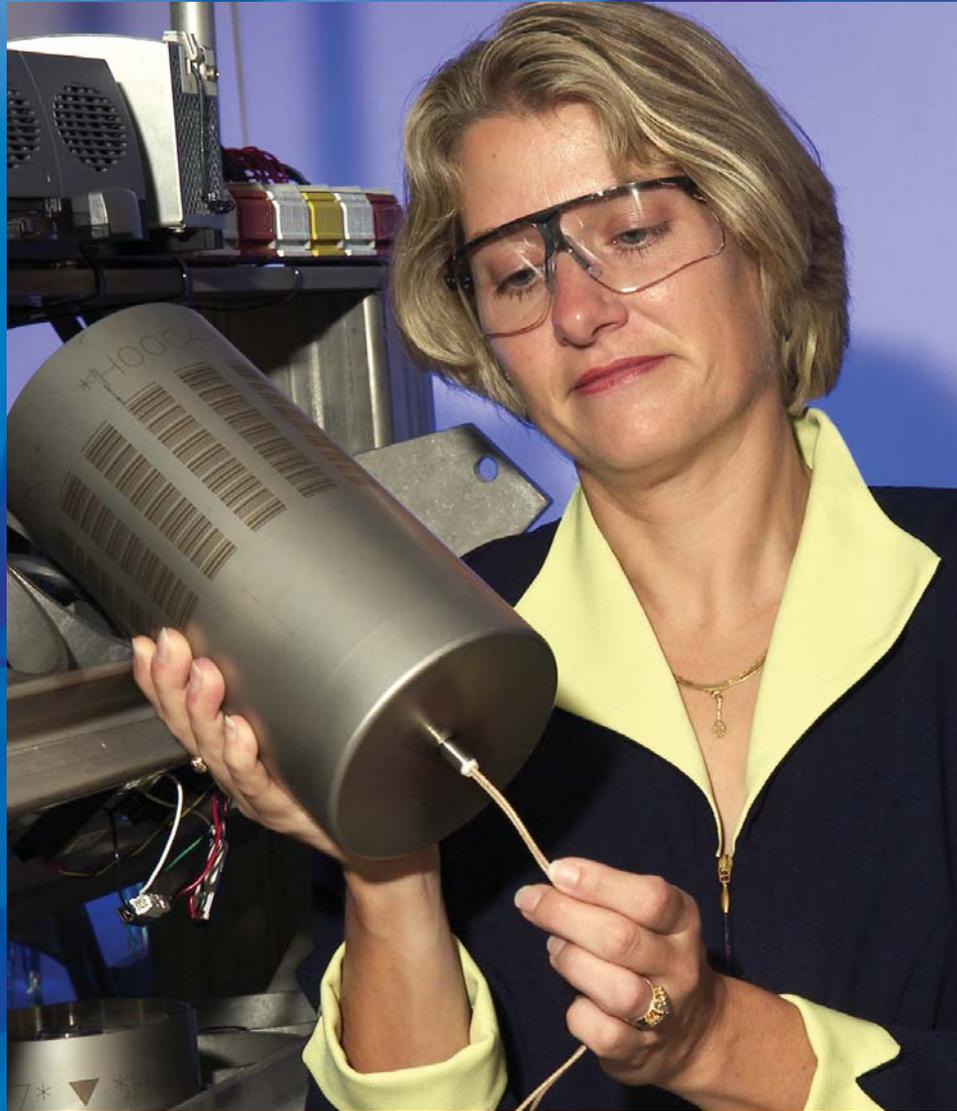
Objective:

Advance the current state of technology to enable further cost reductions.

Strategies:

- Increase utilization of molecular modeling to simplify and streamline the development process for EM chemical processes.
- Mature sensor and geospatial platforms to provide simplified, highly reliable, long-term monitoring capabilities.
- Increase utilization of nanotechnology techniques developed by DOE Office of Science laboratories for encapsulation and stabilization of legacy materials.

National and Homeland Security



Strategic Goal 3—
Establish SRNL as the
National Security support
laboratory for tritium weapons
components and key
technologies.

Our Defense Programs work is focused on support of Tritium operations at SRS, technical assistance to the Tritium Extraction Facility project, stewardship of the reservoir life storage and surveillance programs, and research efforts included in the Enhanced Surveillance and Advanced Design and Production Technology (ADAPT) programs. New opportunities are associated with the consolidation of the Nation's tritium operations at SRS/SRNL and support for the International Fusion Energy (ITER) and High Average Power Laser (HAPL) programs.

Objective:

Strengthen SRNL's expertise in tritium and special nuclear materials to ensure a safe and viable weapons complex capability for the future.

Strategies:

- Advance technology to support a responsive, reliable, and cost-effective infrastructure for current and future stockpile requirements.

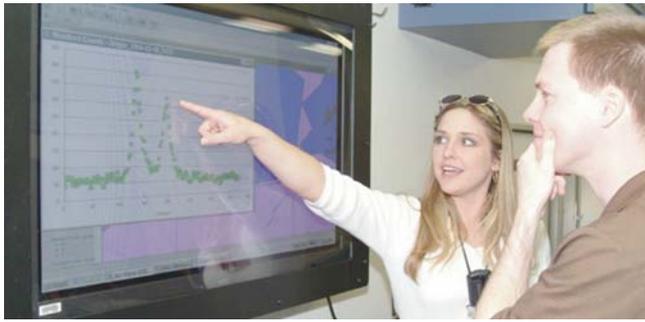
- Increase sponsorship of SRNL technology development by the Enhanced Surveillance and ADAPT programs.
- Support the successful completion of Defense Programs projects, including Tritium Extraction Facility and Loading Line Modifications.
- Establish enhanced SRNL development laboratory capabilities inside the Tritium facilities in collaboration with Operations.
- Build broader relationships with National Nuclear Security Administration (NNSA) and other partners in the Nuclear Weapons Complex to support technology development, technology transfer, and business development.
- Establish a significant role for SRNL in the reconfiguration of the Nuclear Weapons Complex through active participation in planning activities.
- Establish SRNL as the tritium technology lead for the international fusion programs (ITER, HAPL, and National Ignition Facility [NIF] programs).
- Perform nuclear weapon gas transfer system surveillance in support of the nuclear weapons stockpile.

Strategic Goal 4—
Become the acknowledged
technological leader in
areas that reflect SRNL's
world-class competencies
and that are critical to the
success of Homeland
Security, Nonproliferation,
and Intelligence programs.

SRNL's initiatives in the National and Homeland Security strategic focus area include a diverse and rapidly growing portfolio of programs that service NNSA Defense Programs, Nuclear Nonproliferation, and Department of Homeland Security (DHS) customers.

The Nuclear Nonproliferation program is growing as SRNL builds on decades of experience supporting the Nation's intelligence community. New opportunities exist in diversifying our support and extending into the bioterrorism arena.

National and Homeland Security programs cover a wide array of customers, including Customs and Border Patrol/Immigration and Customs Enforcement (CBP/ICE), NNSA, federal law enforcement, Defense Threat Reduction Agency (DTRA), Coast Guard, Domestic Nuclear Detection Office (DNDO), National Institute of Justice (NIJ), and a variety of other DHS programs. Priorities include establishing the federal law enforcement Nuclear Forensics Center, expanding CBP training, assisting the new DNDO, and diversifying DTRA efforts.



The Plasma Screen Floating Mount was named one of the world's best technologies.

Objective:

Expand SRNL's role in international nuclear nonproliferation activities.

Strategies:

- Establish SRNL as vital to the Office of Nonproliferation and National Security programs.
- Provide leading-edge technology to NNSA/NA-22 to detect and deter proliferation of weapons of mass destruction.
- Provide technical assistance to the Nuclear Nonproliferation Project Office (NNPO) in support of the Pit Disassembly and Conversion Facility (PDCF), Mixed Oxide Fuel Fabrication Facility (MFFF), and Waste Solidification Building (WSB).
- Strengthen our relationships with other federal agencies in the intelligence community to identify and meet their future technology needs.
- Expand the customer base in the Office of International Material Protection and Cooperation (NA-25).
- Enhance the SRNL leadership role in cyber security by increasing capabilities and capacity.

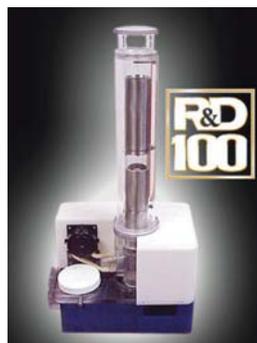
- Assist NA-21 in implementing the Global Threat Reduction Initiative by completing numerous programs.
- Leverage SRNL capabilities in the biological sciences to enter niche areas of the Nation's bioterrorism programs.

Objective:

Apply SRNL's expertise to enhance DOE's Nuclear Materials Management Program (Plutonium and Spent Fuels).

Strategies:

- Champion a major SRS Dry Storage/Road-Ready Storage Demonstration Project initiative.
- Establish a Center of Excellence for material package and surveillance development at SRNL in collaboration with national experts.



The ALPES particle collection device won the prestigious R&D 100 award.

- Strengthen DOE Complex recognition of SRNL as the DOE Center of Excellence for aluminum-clad fuels.
- Strengthen leadership in the interim Wet Basin Storage and Life Management program.

Objective:

Assist DHS through the development and deployment of ready-to-use technologies.

Strategies:

- Broaden contributions to DHS Science and Technology programs through SRNL's designation as a Strategic Partner Laboratory.
- Fill DHS technical leadership positions with SRNL staff members.
- Solidify and build on leadership roles in federal law enforcement, Coast Guard, ICE, and CBP technology and training programs.
- Provide strong foundational support in the operation of the DNDO.
- Achieve designation of SRNL as a regional or backup Atmospheric Sciences Center.
- Define niche areas where SRNL can contribute to the bioterrorism program.

Objective:

Become a lead institution for the support of federal law enforcement agencies.

Strategies:

- Establish SRNL as the lead investigative laboratory for nuclear forensics.
- Gain NIJ recognition as a technology leader in law enforcement, critical incident response, and public safety assistance.

Objective:

Become a provider of choice for the Department of Defense (DoD).

Strategies:

- Enhance SRNL's position as a leader in the development and deployment of robotic platforms to meet the nuclear incident response needs of the DTRA and other elements of DoD.
- Leverage extensive SRNL expertise in environmental sensors and materials to provide unique capabilities to DoD.



SRNL successfully demonstrated the sulfur dioxide-depolarized electrolyzer to generate hydrogen.

- Establish SRNL as the recognized leader in hydrogen technology for all DoD applications.
- Establish SRNL's reputation in DoD as a rapid response organization that can leverage its core skills to provide quick solutions to problems encountered by ground forces.
- Provide technical assets and solutions for DoD Explosive Ordnance personnel responding to suspected nuclear devices.

Energy Security



**Strategic Goal 5—
Extend SRNL's core
competencies in tritium,
microbial remediation, and
high-temperature chemical
processing to make signifi-
cant contributions to the
Nation's energy security.**

SRNL is actively pursuing high-capacity, low-cost, solid-state hydrogen storage materials development programs with DOE-EERE and several automobile companies. In addition, we are working with DOE-NE to develop the hybrid sulfur process for production of hydrogen. In nuclear energy, SRNL has partnered with universities in the southeast to define an innovative concept to enable installation of a research reactor at SRS. We are a key participant in the ITER program. In the fossil and renewable energy area, SRNL will leverage biotechnology and chemical processing capabilities into site initiatives, such as the replacement of the D-Area powerhouse, and into collaborations on *in situ* coal bed methane recovery, oil shale, and effective utilization of regional renewable energy sources.

Objective:

Leverage SRNL competencies in chemical process development and microbial sciences to enhance the Nation's fossil energy resources and develop new renewable energy resources.

Strategies:

- Create a clean-energy test platform as part of the D-area replacement powerhouse to expand SRNL's role in clean, renewable energy technology within this decade.
- Apply SRNL capabilities in microbial science to enhance oil recovery methods (conventional and shale/tar sands) with the goal of greater access to fossil energy resources.
- Apply SRNL's chemical and biotechnology expertise in support of clean coal initiatives and utilization of renewable energy sources. This initiative will enhance energy security by decreasing dependence on foreign fossil fuel imports.
- Partner with regional and national power producers to pursue innovative approaches to mitigating carbon emissions.

Objective:

Leverage "dual use" hydrogen technology to develop and support the Nation's emerging hydrogen energy infrastructure.

Strategies:

- Aggressively pursue a substantive role in the Nuclear Hydrogen Initiative by applying SRNL's extensive capabilities in hydrogen technology, chemical

process development, and contributions to the hybrid-sulphur process for thermochemical (TC) production of hydrogen.

- Increase SRNL's participation in the DOE Basic Energy Science programs by furthering our fundamental understanding of the hydrogen storage behavior of complex hydrides.
- Lead local and regional activities for hydrogen infrastructure demonstration projects.
- Aggressively expand existing industry partnerships to deploy the latest developments in hydrogen storage technology.

Objective:

Leverage SRNL capabilities in nuclear technology development to achieve a substantive role in the worldwide nuclear industry renaissance and GNEP.

Strategies:

- Leverage SRNL's singular actinide chemistry expertise and SRS's considerable assets to contribute to the Advanced Fuel Cycle Initiative (AFCI) through partnerships with ORNL and other key participants.
- Support DOE-NE in the planning and demonstration of technologies key to the success of GNEP.



SRNL develops hydrogen storage technologies for the vehicles of tomorrow.

Critical Elements of Success

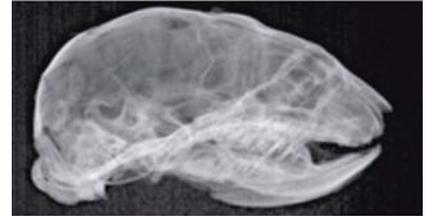
People

Objective:

Attract and retain the best applied scientists available.

Strategies:

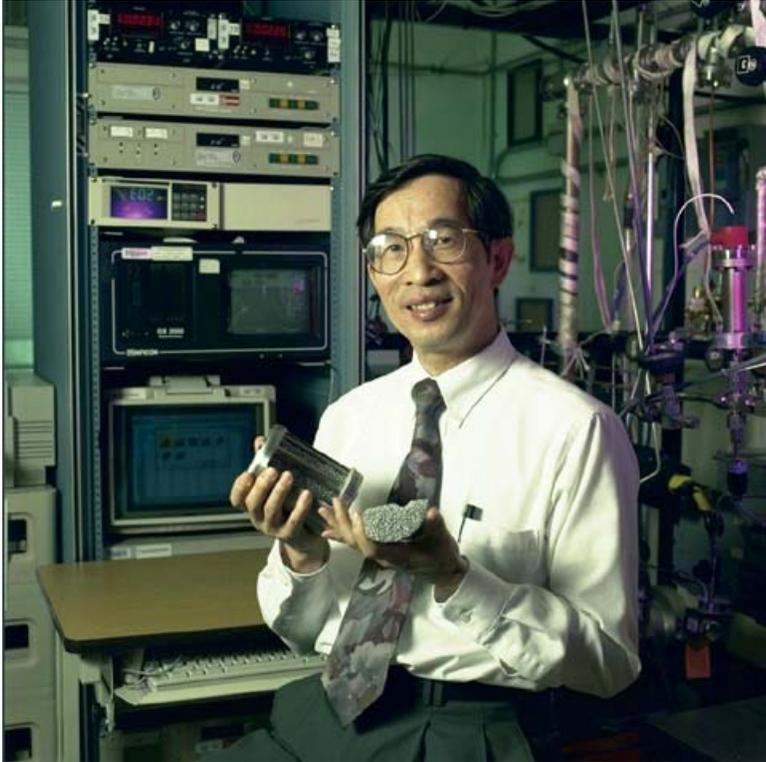
- Invest in the development and retention of SRNL research and support staff.
 - Recruit and retain a highly qualified, motivated, diverse, and flexible workforce that is aligned with SRNL future business objectives.
 - Leverage SRNL's LDRD program to attract diverse, high-quality personnel, both recent college graduates and senior scientists.
- Promote professional growth through participation and leadership in national and international technical societies.
 - Increase workforce flexibility to allow scientists to utilize their skills in ways that benefit a broad cross-section of SRNL customers.
 - Enhance mechanisms to facilitate working with universities and other labs, such as Work for Others and Memorandums of Understanding.



Our partnership with the Medical College of Georgia applies SRNL expertise to medical areas, including digital radiography.



SRNL supports education outreach, including DOE Science Bowl, Hydrogen Fuel Cell Challenge, Tech Days, Traveling Science, and others.



Infrastructure

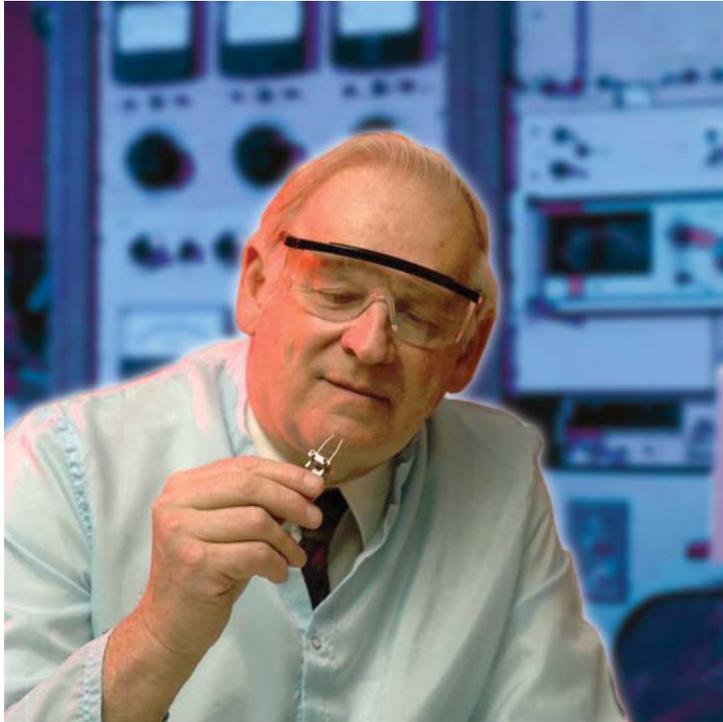
Objective:

Provide the highest quality infrastructure possible to support SRNL's current and future missions.

Strategies:

- Develop a comprehensive plan to relocate high-risk research activities to new laboratory facilities in the center of SRS by 2028. This plan will focus on reducing the footprint and lowering maintenance costs.
- Expand the utilization of low-overhead facilities and increase the amount of “research per dollar.”
- Secure targeted infrastructure funds required to maintain the nuclear core of SRNL as a viable and safe facility capable of supporting ongoing and new SRNL growth missions.
- Develop an aggressive utilization plan that will allow the reuse of existing facilities at SRS to accommodate new SRNL growth missions.
- Develop an overarching plan that blends new and existing facilities in support of SRNL's vision of the future.
- Ensure that the complete plan for the infrastructure of the future is designed to cost effectively meet SRNL business goals.

SRNL Growth Initiatives



Supporting the Global Nuclear Energy Partnership – Strategic Goal 1

The breadth of our technical expertise uniquely qualifies SRNL to support DOE’s GNEP initiative. Specifically, SRNL is the only national laboratory with recent technology development activities in support of an *operating*, large-scale radiochemical processing facility. SRNL is currently performing radiochemical separation, nuclear material handling, and waste immobilization—all

critical components of the advanced nuclear fuel cycle. SRNL will continue to actively participate in the Idaho-led multi-laboratory panel currently planning the GNEP Technology Development program. Additionally, as the EM Corporate Laboratory, SRNL will ensure that the resources of EM and its affiliate programs are brought to bear for the GNEP program.

Natural and Engineered Systems Computational Institute – Strategic Goal 2

SRNL, in collaboration with Clemson University, the Medical University of South Carolina, South Carolina State University, and the University of South Carolina, will establish the Natural and Engineered Systems Computational Institute (NESCI). SRNL’s recognized strength in delivering technology solutions will be coupled with the basic science expertise of the regional universities using a unique integrative systems approach. The computational capability developed and implemented by NESCI will focus collaborations and enable SRNL and its partners to respond to the Nation’s complex, critical challenges with timely, innovative solutions. The purpose of the

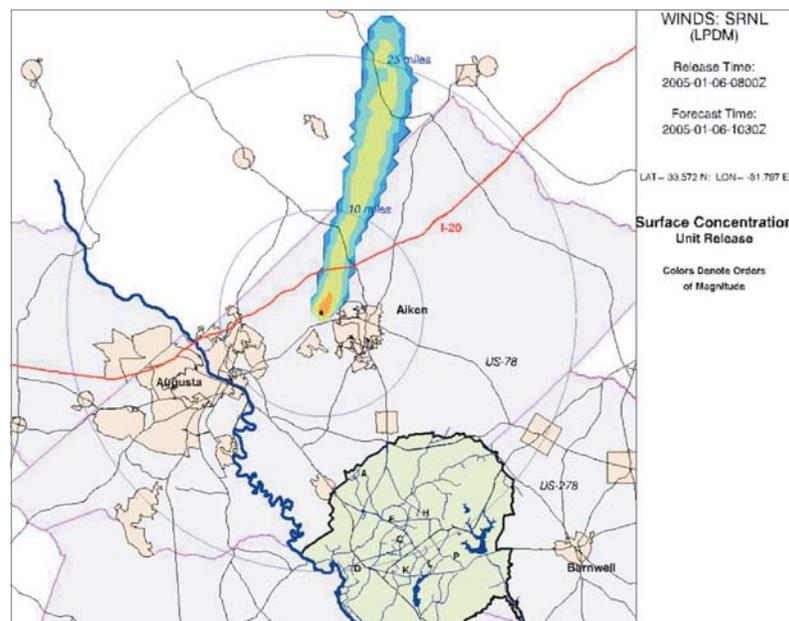
Institute will be to develop breakthrough advances that address the national priorities of Environmental Management, National and Homeland Security, and Energy Security. Additionally, NESCI will contribute to excellence in education, workforce development, and economic development for the region.

Southeastern Center for Sustainable Solutions – Strategic Goal 2

SRNL, in partnership with the South Carolina Sustainable Universities Initiative (SUI), will establish the Southeastern Center for Sustainable Solutions (SeCSS). Sustainable solutions are developments that meet the needs of the present without compromising the ability of future generations to meet their own needs. Sustainability has become a watchword within government, the military, and industry—entities that consider this concept the “triple bottom line” of financial, social, and environmental responsibility. Thus, the overall goal of SeCSS will be to integrate economic activities with natural systems in a way that preserves existing resources for future needs.

SeCSS will establish a research center in South Carolina that will partner with government, industry, and academia to address sustainable solutions from a perspective of local, regional, and national priorities. SeCSS will lead collaborative research teams that focus on the activities described below:

- Help entrepreneurs and enterprises create jobs and generate revenue for the region through the research and development of:
 - Water supplies, through advances in treatment and conservation technologies
 - Energy conservation and alternative energy technologies
 - Novel materials and processes to make more efficient use of resources
- Renewable resources
- Risk management methodologies for the protection of human health
- Ways to enhance healthy life styles
- Metrics to evaluate the viability of the research and development activities, technologies, and enterprises associated with the efforts of the center
- Foster the rapid transition from R&D to useful applications.
- Prepare the workforce of the future through outreach programs for K-12 teachers, technical schools, colleges, universities, and industry.



National Security Center – Strategic Goal 4

To address the growing threat of terrorism to the U.S., SRNL proposes to establish the Southeastern Applied National Security Center. The National Security Center will consist of several facilities that will provide a broad spectrum of capabilities for SRNL's national security customers, including the following:

- Secure computing and conferencing facilities
- Secure facilities to support the intelligence community
- Training center with state-of-the-art classrooms and facilities capable of atmospherically controlled simulations or complete field situation simulation
- Facilities that support a full range of instrument testing and analysis
- Integrated capability to deal with nuclear and biological materials

The Center will operate specific forensic facilities capable of handling nuclear, radioactive, and biologically contaminated evidence. These facilities will serve as a resource to federal law enforcement agencies as well as local law enforcement entities. It will also provide atmospheric and aqueous plume modeling, emergency response vehicles, and robots to respond to any regional emergency—accidental or man-made. The Center will provide support to ports in the Southeast to help protect against terrorist attacks and smuggling of weapons of mass destruction.

Center for Hydrogen Research – Strategic Goal 5

The Center for Hydrogen Research will partner with universities and industry to investigate critical elements of the hydrogen economy and demonstrate new technologies prior to deployment. The Center will evaluate the hydrogen production, distribution, and storage for commercial fuel use. The Center also will develop the data to validate the codes and standards required for safe implementation of hydrogen as a commercial fuel in the public sector. Consequently, one of the center's primary areas of investigation will be the effects of hydrogen on materials. The Center for Hydrogen Research is located in a new facility constructed by Aiken County.



To help secure a clean, hydrogen-based domestic energy economy for the U.S., SRNL will expeditiously address the technical issues facing the nuclear-hydrogen option. This can best be accomplished for the TC cycles by establishing a program to support the laboratory-scale development efforts that are currently planned as part of the National Hydrogen Initiative. This program would include process modeling and component testing to optimize the flow sheets for the various TC cycles and to support the decision on the cycle selected for the pilot plant. A pilot plant would then be designed to address the key technical issues and perform the necessary development. These efforts will support the design of the engineering-scale facility that will be coupled to the next generation nuclear plant (NGNP), which is scheduled to be demonstrated at the Idaho National Laboratory in 2016.



Research Training Reactor – Strategic Goal 5

To support the nuclear program that is expected during the first half of the 21st century, SRNL and its Southeast Universities Nuclear Reactors Institute for Science and Education (SUNRISE) Consortium partners are proposing a next-generation research reactor at SRS to serve the university community. The proposed SUNRISE reactor will be a modern facility producing enough core energy that it will not duplicate research possible at existing research reactors. It will be based on evolving technology

to support advanced nuclear energy initiatives. These initiatives include the NGNP, which is the flagship of DOE's advanced nuclear energy program. The SUNRISE reactor will provide facilities for neutronic and operational studies, high-temperature materials and component testing, and training facilities for the future workforce to support the nuclear resurgence. It also will be designed to support the research needs of the space nuclear program for space exploration and small-scale radioisotope production, which is slated for significant funding in the coming years.

The SRNL Message

SRNL is positioned to contribute to the success of the EM cleanup mission, to support national and homeland security initiatives, and to enable an energy security-driven economy. Our motto—***We Put Science To Work.***

- SRNL's safety record has consistently been among the best of all the DOE Laboratories.
- SRNL, as the EM Corporate Laboratory, will work to enable the success of the EM mission.
- We have a proven track record in the successful deployment of technologies across the DOE Complex.
- We provide critical support for many DOE programs.
- Our 50 years of experience in hydrogen research will be successfully leveraged to support the President's initiatives for the hydrogen economy.



We Put Science To Work