

**TESTIMONY OF KAREN PATTERSON BEFORE  
THE SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT  
AND  
THE SUBCOMMITTEE ON ENERGY AND THE ENVIRONMENT  
OF  
THE HOUSE COMMITTEE ON SCIENCE AND TECHNOLOGY  
The Department of Energy's Support for the  
Savannah River Ecology Laboratory (SREL), Part II  
August 1, 2007**

Chairmen Lampson and Miller, Ranking Members Inglis and Sensenbrenner, Members of the Committee – thank you for inviting me to speak on the value of SREL to the public.

I *Introduction*

My name is Karen Patterson, and Aiken, South Carolina has been my home since 1973. From 1973 until the mid 1980's I was a technician and a graduate student at SREL. For approximately five years, I managed a project that characterized biological communities on the SRS for a subcontractor to the current Savannah River National Laboratory. Since 1990 I have worked for TetraTech NUS, an environmental consulting firm. Until 1995 TetraTech NUS was the technical support service contractor for DOE – Savannah River. I currently manage projects evaluating the environmental impacts of nuclear power reactors, including preparing environmental analyses for proposed, new nuclear electric generating plants. I am a biologist, and my entire career has been spent studying nuclear-related impacts, both radiological and non-radiological, on natural systems. While I have received income from SREL and been paid for technical support to DOE in the past, I do not receive remuneration from either at present and have not for many years.

I am the current Chair of the Savannah River Site Citizens Advisory Board (SRS CAB) – the group that Chairman Lampson mentioned in his opening remarks two weeks ago as being enthusiastically supportive of SREL. Indeed we are.

The CAB is a DOE-sponsored, FACA-chartered Site-Specific Advisory Board (SSAB) comprised of 25 citizens. The SSAB charter (Department of Energy Charter for the Environmental Management Site Specific Advisory Board,

attached) and the CAB's mission statement (Savannah River Site Citizens Advisory Board Missions & Principles, attached) are to provide advice and recommendations to DOE's Office of Environmental Management regarding environmental clean-up and remediation decisions at SRS. DOE has touted the SRS CAB as one of the best in the complex. Last month we received the federal EPA's national "Citizen Excellence in Community Involvement" award for our activities at SRS. The CAB provided only my travel expenses to testify before the Committee. My time, like that of all CAB members, is volunteered.

The demographics of the Board reflect the demography of the affected communities: half are women, one-third are African-American, half live in the counties surrounding SRS, and half live downstream in communities that use the Savannah River as their source of drinking water. These public representatives spend many hours, and dedicate many days, educating themselves about DOE's programs at SRS, particularly the programs for the environmental remediation of the "legacy wastes" produced in our Nation's Cold War.

## II *Testimony*

Two weeks ago Drs. Whicker and Schnoor described to this Committee the high regard the academic and scientific communities hold for SREL, and the reasons. I hope that my testimony will impart similar insights of the worth of SREL to the informed public. I will focus on three topics:

- the value of SREL to the local communities
- the value of SREL to DOE and
- the value of SREL to the country.

*(i) The value of SREL to the local communities, including those using the Savannah River as the source of their drinking water*

As Chairman Lampson stated in his July 17 opening remarks, the SRS CAB most certainly does enthusiastically support SREL. We have been concerned about the funding for SREL for several years, and made a recommendation to DOE regarding SREL funding last November.

On November 17, 2006 the CAB submitted Recommendation # 240 (attached) to DOE asking that DOE fund SREL at a minimum of \$4.5MM in the future, and establish permanent funding for the Laboratory. DOE responded (attached) that in future years SREL funding would depend on need, merit and funding availability, and that permanently establishing funding through DOE is not necessary (See DOE response to Recommendation 240, attached).

In the recommendation the CAB described SREL as a “national treasure” for the following reasons:

- the public considers SREL to be an independent and credible source of information about environmental issues at SRS and elsewhere
- SREL’s potential to support clean-up and remediation across the DOE weapons complex and throughout the nation
- the extensive body of knowledge captured in SREL’s ecological databases developed over 50 years
- SREL’s recognition throughout the world as a leader in the study of radioecology
- the training provided by SREL to young scientists from across the country and around the world

I would like to expand on each of these statements, as paraphrased from the recommendation.

- *the public considers SREL to be an independent and credible source of information about environmental issues at SRS and elsewhere*

Perhaps the most frequently cited reason for maintaining SREL is that it provides credible, independent support for DOE’s assertions that DOE is protecting the SRS environment. The CAB is sometimes cynical of DOE pronouncements that “all is well” in successfully pursuing its Environmental Management programs. In our experience, those pronouncements sometimes overlook or minimize information that could lead one to a different conclusion or, at least, question the full measure of success. However, when SREL provides the CAB with information that supports DOE’s conclusions, the CAB believes SREL based on past experiences. The Laboratory has a history of and reputation for doing good, careful, supported research, and of publishing the findings in peer-reviewed technical journals. This process of publication in peer-reviewed journals contrasts with the “gray” literature where most government-funded studies are published. There is no more rigorous test of research findings than independent, informed peer review. The open and public critique of SREL research automatically leads the public to trust the Laboratory’s findings. The loss of SREL would inhibit DOE’s ability to convince the public that their own study results are true and accurate. In other words, SREL increases the public’s confidence in DOE and its mission.

- *SREL's potential to support clean-up and remediation across the DOE weapons complex and throughout the nation*

Much, but not all, of SREL's research is done at SRS. However, the application of the findings is certainly not limited to SRS, or even to other sites in the DOE complex. SREL disseminates its research findings through presentations at national and international scientific meetings, the publication of research results in scientific journals, and collaboration with scientists at other sites. DOE could and should make available SREL research results across the complex and to other federal and state agencies, and industries.

One particular example may be instructive. Dr. Eugene Odum, who directed field work at SREL over the years and is referred to as the "father of modern ecology", urged scientific study of large natural systems, such as watersheds. DOE at SRS today is pursuing a more cost-effective and integrated cleanup of the Site by pursuing a watershed-by-watershed approach. The approach takes into account the relationship between, for example, groundwater and surface water, and the migration and transfer of compounds in natural systems. DOE scientists "think like ecologists" in part because of the lessons learned from SREL research.

- *the extensive body of knowledge captured in SREL's ecological databases developed over 50 years*

Beginning in 1951 with Dr. Odum and his graduate students perfecting the theory of ecological succession using data collected as the abandoned farm fields on SRS reverted to forest, SREL has collected data and managed vast amounts of long-term research. Ecological processes occur on a time scale not conducive to short-term study, and certainly not to the identification of ecological principles during the life of a doctoral dissertation's research. The databases covering decades, which are maintained by SREL, provide insights into ecological trends that it would not be possible to identify if one looked at data collected over a shorter time frame. Without real understanding of natural systems, we can not manage nor protect our environment. Maintaining massive databases takes effort and is expensive. If SREL closes it is not clear that funds to maintain such databases (let alone continuing the research to add to them) would be available. With the loss of the databases, 50 years of knowledge on ecological processes would be lost – a true waste of important knowledge and past funding.

- *SREL is recognized throughout the world as a leader in the study of radioecology*

SREL scientists, because they had studied the dynamics of radioactive materials in natural systems, were some of the first to study the effects on the environment of the Chernobyl accident. SREL radioecologists are known and their research is highly regarded throughout the world.

I personally believe that nuclear power is a safe industry and is beneficial to our country, but my opinions are not necessarily shared by the general public. Equally significant, many people have limited information about the science and technology supporting nuclear power, its federal regulation, and DOE's responsibility in ensuring adequate energy resources for future generations of Americans. With the United States' need to rely on existing nuclear power plants and deploy additional nuclear energy as a source of "non-carbon" electricity in the near future, it is imperative that public understanding and acceptance increase. Research, such as that done by SREL, increases the public's confidence in nuclear energy as a safe way of producing electricity. As the Department of Energy for the Nation, DOE should appreciate the positive public relations (or "PR") that SREL provides for a potentially controversial source of electricity.

- *the training provided by SREL to young scientists from across the country and around the world*

SREL has trained many generations of scientists, who have gone on to train additional generations of scientists. At any academic institution, or scientific meeting, the "six degrees of separation" to SREL are legion. As Committee members likely know, "six degrees of separation" refers to the idea that, if a person is one "step" away from each person he or she knows, and therefore, two "steps" away from each person known by one of those people, then no one is more than six "steps" away from any person on Earth. Around the world, the connection between SREL scientists and others is oftentimes only two steps away; it seems almost everyone knows someone who has studied at, or worked with, SREL scientists! Many of the career biologists in the Southeast have studied at SREL in some capacity. Most radioecologists in the country have done research at SREL. This legacy of education should not be taken lightly. The advancement of our Nation has been paralleled by our Nation's advancement of educated scientists.

*(ii) The value of SREL to DOE*

Pure and simple: SREL does not **cost** DOE money, it **saves** DOE (and the American taxpayer) money. As a taxpayer, I can not understand how DOE can portray eliminating funding to the Laboratory as an economy.

Dr. Whicker described last week how less than \$1M of SREL research saved billions of dollars and an important natural community on the SRS by convincing the regulators and the public that Par Pond did not pose a significant risk to public health or the environment, even though it is contaminated with radionuclides.

I would like to present just one additional example of how SREL research can save tax dollars. I can not and am not speaking for the federal EPA; however, I can relay to the Committee the gist of comments made by the EPA Region 4 liaison to the CAB last Tuesday, July 26, 2007, regarding SREL's closure. In short, EPA Region 4 and EPA-Headquarters are very concerned about the closure of SREL. They have been intending to rely on SREL research to make future closure decisions that could dramatically and detrimentally affect SRS ecosystems, and are concerned that this resource will be lost to them.

As you may know, SRS is a CERCLA National Priorities List site. The regulatory agencies have subdivided the Site into six "Integrated Operable Units" (IOU) based on the watersheds of the five streams that traverse the site, and the Savannah River and its river swamp. Currently DOE and the regulators are remediating the point sources of contamination within each IOU. Decisions on final closure actions for each IOU have been deferred to some time in the future. As occurred with Par Pond (and described by Dr. Whicker), EPA and the South Carolina Department of Health and Environmental Control will determine the final closure actions based on an analysis of the relative risks of potentially destructive remedial actions versus a more benign approach to decontaminating the ecosystem that the closure action is supposed to protect. The EPA would use SREL data to support the more benign, less-disruptive approach. In expressing EPA's concerns regarding the fate of SREL, EPA's liaison to the CAB noted that EPA intends to rely on the historic data of SREL, and data to be collected in the future to make the decision on whether or not additional remediation of an IOU (beyond eliminating source terms) is necessary. Without SREL's data, EPA will lack sufficient information to determine relative risks and will be forced to err on a less data-informed, more "conservative" side. Simply put, the loss of SREL may very well result in additional and unnecessary remediation of these watersheds at great cost to the taxpayer, and at a great loss of valuable natural habitats.

The CAB is always concerned about minimizing costs, but is most concerned about minimizing risk to public health and the environment posed by the legacy waste at SRS. Without SREL's research and analysis, just like EPA, the CAB will have no ready yardstick to judge the necessity of extensive remediation, and will be forced to recommend a conservative, costly and destructive approach.

The CAB recognizes that this is not good for taxpayers or the affected ecosystem.

*(iii) The value of SREL to the country*

Of course SREL's research is applicable to situations throughout the country, and indeed the world. Drs. Whicker and Schnoor touched on this in their testimonies. I'd like to present a different perspective of the value of SREL to the country – one that is not tied into scientific research, per se, and less quantifiable than papers published or PhDs granted.

First, in its 56-year history SREL has trained thousands of graduate students. Many have gone on to distinguished careers in academia, and many more work in state and national regulatory agencies, run research programs for industry, teach science in middle and high schools, provide legal and environmental consultation to clients trying to do the right thing by the natural environment, draft state environmental protection legislation, write books, and are generally advocates for the environment and "good science" in their various communities. This contribution to our country should not be dismissed as inconsequential.

Second, SREL's outreach programs have turned tens of thousands of young people (and their parents and teachers) on to the fun and excitement of science and the environment. I personally know people who chose their scientific careers based on experiences as K-12 students attending SREL outreach programs. No local program replicates the exciting way SREL scientists introduce young people to science, careers in research, and the environment. Teachers and parents throughout the Central Savannah River Area have expressed their dismay at the loss of such an outstanding teaching resource. At a time when we, as a Nation, recognize the vital importance of educating our youth in science and math in order to stay competitive in a global economy, the loss of SREL is an incremental step backwards.

Third, SREL is recognized internationally for the science it does, and for the support it provides to scholars and students from other countries. As such, one can consider SREL scientists as de facto good-will ambassadors for the United States. At a time when we need to repair our image abroad, SREL advances international scientific support and cooperation.

Finally, consider that perhaps the real legacy of SRS is not the vitrification of high-level waste, or the production of plutonium and tritium, or the clean-up of contaminated waste sites, but it is the body of ecological knowledge that SREL has discovered and documented for more than half a century. Ultimately that knowledge may turn out to be of greater value to our nation.

### III *Conclusion*

I'd like to put the take-away from my testimony into the parlance of those Master Card commercials I enjoy so much:

Cost of SREL to DOE: \$4.5 million

Value of SREL to local communities, DOE, and the nation: priceless.

There is no logical explanation for DOE's decision to eliminate funding for SREL. I am sure the Committee has read the editorials, articles and letters in our local papers regarding SREL's demise. No informed member of the public supports SREL's closure. The SRS CAB certainly does not support its closure.

I urge Congress to do the right, cost-effective thing. Restore funding for FY08, **and** find a way to ensure that SREL's future does not rest on the whims of DOE leadership.

Thank you again for inviting me to address the Committee. I very much appreciate the Committee's efforts on behalf of SREL and the American public whose interests are best served by ensuring SREL's continued existence and service to the Nation.