



**CSRA Region's Role in Nuclear Renaissance Requires
Successful and Timely Long-Term Waste Solutions**

A Position Paper Prepared by the



COMMUNITY REUSE ORGANIZATION

two states, one future

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What is SRS Community Reuse Organization (SRSCRO)?

As the U. S. Department of Energy's designated Community Reuse Organization (CRO), the SRSCRO is a 501(c) (3) private non-profit organization. SRSCRO is charged with developing and implementing a comprehensive strategy to diversify the economy of the five-county SRSCRO region in the Central Savannah River Area (CSRA) of Georgia and South Carolina.

SRSCRO is governed by a 22-member Board of Directors composed of business, government and academic leaders from Georgia and South Carolina. Initially, its mission was to develop and implement a regional economic development plan utilizing technology-based facilities at the Savannah River Site. Today, SRSCRO remains focused on diversifying the region's economy by supporting new business ventures that create new jobs in the region.

Located in the rapidly growing southeast, the region includes Richmond and Columbia counties in Georgia and Aiken, Allendale and Barnwell counties in South Carolina.

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CSRA Region's Role in Nuclear Renaissance Requires Successful and Timely Long-Term Waste Solutions

The Nuclear Renaissance

On virtually every continent of the world, nations are making the determination that "the future is nuclear." Today, 440 nuclear power plants generate 16 percent of the world's electricity needs. Aggressive new nuclear plant construction programs have begun, particularly in East Asian countries, Russia, and India. The United States itself is on the verge of resuming construction of new nuclear power plants, a process that has been dormant for more than 25 years. This is being viewed as the beginning of the renaissance of nuclear energy.

The SRS Community Reuse Organization's five-county region of Georgia and South Carolina finds itself at the heart of the atom's rebirth with high reliance on nuclear energy for electrical supplies and heavy involvement in new government initiatives aimed at spurring the nuclear renaissance.

Together, Georgia's four nuclear units account for more than one-fourth of the State's electricity generation. South Carolina's five nuclear units supply about half of the State's electricity demand. In addition, the Department of Energy's Savannah River Site is home to the Mixed Oxide Fuel (MOX) facility, which will assist the U.S. in disposing of some 34 metric tons of surplus weapons-grade plutonium.

The region is also competing to host facilities associated with the Global Nuclear Energy Partnership (GNEP), a government initiative designed to change the way used nuclear fuel is managed. GNEP will create recycling technologies that enhance energy security in a safe and environmentally responsible manner while simultaneously promoting non-proliferation.

Historically, the Central Savannah River Area of Georgia and South Carolina have welcomed a leadership role in developing and implementing technologies designed to advance both the peaceful and defense uses of nuclear energy. That support continues today, but increasingly the community is required to question the way in which major challenges associated with the future development of nuclear energy will be addressed.

This White Paper describes some of those challenges and how their satisfactory solution impacts our region's ability to participate fully in the nuclear renaissance and may ultimately affect future industrial recruitment, job creation and overall economic health.

Nuclear Power Growth Faces Challenges

To fulfill its ultimate destiny as a cornerstone of U.S. energy supply, nuclear power advocates must demonstrate to a doubting public that four key challenges are being satisfactorily addressed. Those challenges are:

1. Nuclear power must remain economically competitive in the world energy market; in particular, energy companies must better control capital costs.
2. In order to satisfy the public's expectations of exceptional safety performance, current plants must continue to operate safely and future plants must continuously improve safety in expanding world markets.
3. Nuclear materials from the nuclear fuel cycle must be protected from proliferation and use for non-peaceful purposes.
4. The nuclear fuel cycle must be closed with a foolproof solution for storage of spent fuel for the extended period that it remains highly radioactive or, more preferably, policies and technology must be put in place to allow recycling and reuse of this valuable energy resource.

It is this last point – the ability to safely store spent fuel from the commercial nuclear power production along with high-level radioactive waste from the nation's defense production facilities – that most affects the future of our region.

At present, the federal government is relying on a planned repository at Yucca Mountain in Nevada to provide a suitable long-term answer to storage of high-level nuclear waste and commercial spent fuel. But the facility is now nearly 20 years behind schedule. As delays continue to push its scheduled completion date further into the future, there are looming doubts as to whether the proposed site can weather nagging technical and environmental questions and stiff political opposition from powerful opponents.

Completion of the repository has been marked by repeated delays for more than two decades. In 1987, DOE announced a five-year delay in the opening date for a centralized repository, from 1998 to 2003. Two years later, DOE announced a further delay, until 2010. The latest schedule calls for completion in 2017. At present, the repository is nearly 20 years behind schedule. No site has been selected nor is there a program to construct an interim storage facility, and the federal government has defaulted on a long-standing obligation to begin moving used fuel for the nation's nuclear plants by January 1998. Meanwhile, stockpiles of defense nuclear waste and commercial spent fuel continue to grow at sites across the country, including Savannah River Site.

It is our belief that failure to complete construction on the Nation's sole permanent repository for commercial spent nuclear fuel and high-level defense waste will negatively impact opportunities for future growth and prosperity in the Central Savannah River Area (CSRA) and, as importantly, will impede the ability of our two states to realize fully the potential of the nuclear promise.

As a regional voice for issues related to the Savannah River Site, the SRS Community Reuse Organization has prepared this White Paper to raise awareness of this important topic among community leaders and to serve as a catalyst for dialog designed to ensure that the region's long-term interests are protected as signs increase that Yucca Mountain may never operate in its planned role as a permanent nuclear waste repository.

This paper contains important background and perspective about the Yucca Mountain project. It also contains recommendations for combined community action in light of an uncertain completion schedule and the accompanying long-term implications for our region.

The Situation With Respect to Yucca Mountain

If the proposed repository at Yucca Mountain is not completed and operated as planned, the Savannah River Site will become a *de facto* long-term repository for high-level defense waste materials planned for shipment to Yucca Mountain. Congress and the Department of Energy will have reneged on their pledge to transfer these waste materials to a permanent storage facility, and the five-county region surrounding SRS may pay a price in perpetuity in lost economic development opportunities stemming from an inevitable and unenviable reputation as a “permanent nuclear waste dumping ground.”

In addition, the absence of a suitable repository will jeopardize future operations of electric utilities in Georgia and South Carolina that operate commercial nuclear power plants for production of electricity.

While some may view this scenario as alarmist, mounting evidence points to the urgent need for community leaders around the Savannah River Site to become fully informed about the status of Yucca Mountain and the local implications of the Government’s failure to complete this critical project.

There is strong political opposition to completion and operation of Yucca Mountain on the part of key Congressional leaders. This includes comments by a spokesman for Senate Majority Leader Harry Reid (D-NV) quoted in a March 23, 2007, article in The Las Vegas Review Journal by writer Steve Tetreault, the unidentified aide is quoted as saying: **“Yucca Mountain is on its last breath, and everyone knows it.”**

This sentiment was echoed by former Secretary of Energy and Presidential Candidate Bill Richardson during a visit to Aiken on September 5, 2007. Asked about the status of Yucca Mountain, Richardson told the Aiken Standard **“he believed it was dead.”**

A 2006 survey in Nevada determined that more than 70% of Nevadans opposed locating a high-level nuclear waste repository at Yucca Mountain and would oppose it if given an opportunity to vote on it.

State opposition was underscored in August 2007 when a U. S. District Court Judge ordered the Yucca Mountain project to discontinue use of Nevada’s water supply for drilling test bore holes used to collect data for the project’s licensing application. In addition, the Nuclear Regulatory Commission, anticipating protracted public hearings on the Yucca Mountain project, has for the first time in its history built a dedicated hearing facility at the Nye County Airport.

Nevada survey respondents were also asked whether they agreed or disagreed with various actions the State could take in its efforts to oppose the project. Ranking of public support for various proposed actions was as follows:

Type of Action	% Agree	% Disagree
1. Stop waste shipments from coming into Nevada	73.1%	24.4%
2. Lawsuits to Stop the Project	70.2%	28.9%
3. Deny DOE water permits for the project	65.2%	31.1%
4. Actions to stop other DOE activities at NTS in protest	59.0%	33.3%

Spent Nuclear Fuel and High-Level Waste Inventories

As shown in Table 1, South Carolina has 6,887 metric tons of high-level defense waste and commercial spent nuclear fuel – just behind Washington State and Illinois in total volume. Georgia has 2,105 metric tons of commercial spent fuel. Source: DOE Office of Civilian Radioactive Waste Management (OCRWM)

TABLE 1. Spent Nuclear Fuel and High-Level Waste Inventories (MTU)									
State	Amount	A	B	C	State	Amount	A	B	C
Washington	9877		X		Mississippi	659	X		
Illinois	7372	X			Massachusetts	586	X		
South Carolina	6887		X		Montana	550	X		
Pennsylvania	4978	X			Maine	542	X		
New York	3561	X			Kansas	537	X		
North Carolina	2509	X			Vermont	526	X		
Florida	2505	X			Iowa	423	X		
Alabama	2458	X			New Hampshire	398	X		
California	2437	X			Oregon	359	X		
Michigan	2190	X			Colorado	15			X
Georgia	2105	X			Indiana	<1	X		
New Jersey	2092	X			New Mexico	<1	X		
Virginia	2088	X			Rhode Island	<1	X		
Connecticut	1787	X			Utah	<1	X		
Texas	1581	X			Delaware	0			
Arizona	1541	X			Kentucky	0			
Tennessee	1245	X			Missouri	0			
Wisconsin	1184	X			Nevada	0			
Arkansas	1059	X			North Dakota	0			
Maryland	1059	X			Oklahoma	0			
Louisiana	1004	X			South Dakota	0			
Minnesota	997	X			West Virginia	0			
Idaho	971			X	Wyoming	0			
Ohio	918	X			Alaska	N/A			
Nebraska	692	X			Hawaii	N/A			
Notes: • Commercial SNF and HLW inventories as of end-2006 • DOE SNF and HLW inventories are projected inventories by 2035 A) Commercial SNP and/or HLW and/or research reactor(s) B) DOE SNF and HLW and Commercial SNF and research reactor(s) C) DOE HLW and/or SNF and research reactor(s)									
Source: DOE Office of Civilian Radioactive Waste Management (OCRWM)									

Background on Yucca Mountain Project

Yucca Mountain is located in a remote desert on federally protected land within the secure boundaries of the Nevada Test Site in Nye County, Nevada. It is approximately 100 miles northwest of Las Vegas, Nevada. The Nevada Test Site has hosted numerous nuclear-related projects for decades.

Scientists have long considered Yucca Mountain a promising site for a repository due to the area's dry climate, remoteness, stable geology, deep water table, and closed water basin.

In 1982, Congress enacted a law called the Nuclear Waste Policy Act. The Act established a comprehensive national program for the safe, permanent disposal of highly radioactive wastes. The Act directed the U. S. Department of Energy to study suitable sites for a geologic repository. The geologic repository envisioned by the Act is an engineered disposal facility located deep underground.



Figure 1. Yucca Mountain is in Nevada 100 miles from Las Vegas.

In 1987, Congress amended the Nuclear Waste Policy Act and directed DOE to study only one site: Yucca Mountain. For more than two decades, the Project conducted an extensive scientific effort to determine whether Yucca Mountain, Nevada is a suitable site for a deep underground facility called a repository. The purpose of a repository is to safely isolate highly radioactive nuclear waste for at least 10,000 years. In addition, commercial spent fuel must be retrievable from this repository for at least 100 years to allow future reprocessing should that decision be made. Today, the mountain is one of the most thoroughly researched sites in the world.

After more than two decades of scientific study, in 2002 Congress and the President approved the development of a geologic repository at Yucca Mountain. On July 9, 2002, the U. S. Senate cast the final legislative vote approving development of the repository at Yucca Mountain.

In July 2006, DOE announced plans to submit a license application to the Nuclear Regulatory Commission by June 30, 2008, and to initiate repository operations in 2017. DOE called the 2017 opening date the "best-achievable schedule" and said it is predicated upon enactment of new legislation. Deputy Secretary of Energy Clay Sell recently said the completion schedule might now extend to 2020.

Pending Legislation: The Nuclear Waste Management and Disposal Act

Secretary of Energy Samuel Bodman submitted draft legislation to Congress on March 6, 2007. The proposed legislation entitled “The Nuclear Waste Management and Disposal Act” would facilitate the licensing and construction of the geologic repository. Among its provisions, the legislation would withdraw permanently from public use the land at and surrounding the Yucca Mountain repository site in Nevada and would facilitate Congress’ ability to provide adequate funding for the Yucca Mountain project.

DOE says permanent withdrawal of the land is needed to meet a Nuclear Regulatory Commission (NRC) licensing requirement for the Yucca Mountain repository and will help assure protection of public health and the environment. Funding reform is necessary to correct a technical budgetary problem related to the Nuclear Waste Fund and its impact on the Federal deficit that has acted as a disincentive for adequate funding.

The proposed legislation would also eliminate the current statutory 70,000 metric ton cap on disposal capacity at Yucca Mountain to allow maximum use of what DOE describes as “the mountain’s true technical capacity”. The “technical capacity” of the mountain is estimated to be 3 or 4 times greater than the 70,000 ton statutory limit. Utilizing this capacity is an important consideration to avoid building additional unneeded repositories. Also included are provisions for a “more streamlined” NRC licensing process and for initiation of infrastructure activities, including safety upgrades and rail line construction. Other provisions are designed to consolidate duplicative environmental reviews.

The Cost of Delay at Yucca Mountain

Currently, 55,000 metric tons of commercial spent nuclear fuel and defense high-level waste is being stored at more than 100 above-ground sites in 39 states (See Table 1). That number grows by about 2,000 metric tons annually.

South Carolina has the third largest concentration of high-level defense waste in the country with more than 3,000 metric tons in storage at the Savannah River Site and another 3,800 metric tons of spent fuel in temporary storage at South Carolina nuclear power plants. Only Washington State and Illinois have more. Washington State is home to the Hanford site with about 9,900 metric tons of defense waste and commercial spent fuel. Illinois has more operating nuclear power plants than any other state and currently has more than 7,300 metric tons of commercial spent fuel.

Continued delays in opening the federal repository create increasing financial burdens for U. S. taxpayers and heighten uncertainty about the viability of the repository project itself.

For each year beyond the current estimated completion date of 2017 that the repository’s opening is delayed, DOE estimates that U. S. taxpayers’ potential liability to contract holders who have paid into the nuclear waste fund will increase by \$500 million per year. This will be in addition to the current potential liability of approximately \$7 billion created by DOE’s failure to begin removing spent nuclear fuel in 1998 as required by its contract with the nation’s utilities. These figures do not include the added costs that have not

yet been calculated related to keeping defense waste sites open longer than originally anticipated.

Socio-Economic Impacts – A Nevada Study

What can the CSRA expect if a reputation as a “nuclear waste dumping ground” develops? A closer look at the impacts Nevada expects is instructive.

When the United States Congress passed the Nuclear Waste Policy Act of 1982 and the amendments to the Act of December, 1987, it recognized the potentially significant socioeconomic dimensions of siting, constructing, and operating facilities for the storage and disposal of high-level radioactive wastes.

Specific provisions were written into the Act to enable prospective host states, tribes, and local governments to carefully and comprehensively assess socioeconomic impacts associated with waste disposal facilities and activities.

The State of Nevada formally initiated a study of the socioeconomic impacts of a proposed high-level nuclear waste repository at Yucca Mountain in southern Nevada in 1986 after the Nevada site had been chosen as a potential waste disposal site. The State study recognized that the effort would need to go well beyond what is traditionally considered adequate for socioeconomic impact assessment because of the unique nature of the repository project. Between 1987 and 1996, the State's study produced over 300 reports and work products, plus numerous publications in the scientific and academic literature.

Key findings included:

- ***The greatest threat to Nevada's economy and way of life from the proposed repository stems from what has been termed the "special effects" of the project. These are impacts related to intense negative perceptions and stigma associated by the public with a high-level radioactive waste repository, combined with the vulnerability of the Nevada economy to changes in its public image.***
- ***Because of the high profile nature of the whole nuclear waste disposal program, the potential exists for Nevada to become associated with these negative perceptions to the detriment of its attempts to attract tourists, conventions, migrants, and diversified new industry to the state. Nevada's study concluded that this is especially troublesome in the event of a nuclear waste accident in or near Las Vegas that might stigmatize the area and cause visitors to stay away in significant numbers.***
- ***Each one-percent decline for Clark County in spending by visitors, retired people, and investors relative to the baseline levels assumed to occur in some future year (e.g., 2010) could produce an annual loss of 7,000 jobs and \$200 million in income.***

The Board of County Commissioners in Eureka County, Nevada, wrote in a separate letter to DOE that “a perception that the geologic repository would make Nevada less desirable for tourists or business strikes at the heart of Nevada’s tourism-based economy.

Similarly, a perception that transportation corridors for SNF (spent nuclear fuel) and HLW (high level waste) make adjoining private property less safe or less valuable threatens to degrade the fiscal health of local governments, such as Eureka County.”

“Clearly,” the Commissioners wrote, “such perceptions are real and can have real economic effects. Note, for example, that the brownfields programs of the USEPA and many individual states exist largely to counteract the *perceived* risk of site contamination by hazardous materials, which deters investment and wastes valuable resources.”

Leaders in the five-county region of Georgia and South Carolina around the Savannah River Site must take seriously the responsibility of protecting the region’s ability to attract new industry, create new jobs and maintain a stable economic base in the area despite continued downsizing at the Savannah River Site.

As the Nevada studies indicate, the image issues associated with being perceived as a “nuclear waste dumping ground” are serious, long-lasting and potentially damaging to our economic future.

DOE Payments to Nevada

Under provisions of the Nuclear Waste Policy Act of 1982, as amended, the Department of Energy has made regular payments to the State of Nevada and 10 affected counties related to construction of the permanent repository. As of June 2007, those payments have totaled more than \$466 million distributed as follows and payments continue to be made in the amount of approximately \$40 million each year:

DOE Payments to Affected Units of Government and Nevada University System

(as of 6/19/07)

Item	Year Started	Total To Date
Affected Units of Local Government - Oversight	1989	\$99,801,275
State of Nevada – Oversight	1983	\$87,662,109
Payments Equal to Taxes	1983	\$129,874,737
University and Community Colleges	1984	\$113,654,839
Clark County NV Transportation Grant	2004	\$2,000,000
Inyo County, CA Groundwater Monitoring	2002	\$2,839,750
Nye County NV Science and Verification Program	1996	\$30,416,868
Nye County NV Transportation Cooperative Agreement	2004	\$430,000
Total Funding All Years		\$466,679,578

Source: U. S. Department of Energy, Office of Civilian Radioactive Waste Management. The affected units of government are the State of Nevada and 10 counties designated affected by the Nuclear Waste Policy Act.

Community Recommendation

Based on its review, the SRS Community Reuse Organization has concluded that steps must be taken to address the impending impacts associated with DOE's failure to complete Yucca Mountain in a timely manner, to transfer waste from SRS as planned and agreed and to provide a means of relieving the spent fuel storage congestion at the nation's nuclear power plants.

Clearly, completion of the Yucca Mountain project represents an important goal for citizens of the CSRA. Operation of the Nation's designated permanent nuclear waste repository as planned will mean that high-level nuclear waste now stored at the Savannah River Site and commercial spent fuel being held at our commercial nuclear plants will have a long-term home in the remote Nevada mountains.

SRSCRO Recommendation:

We Demand Completion of Yucca Mountain Project by 2017 Without Further Delay

The SRS Community Reuse Organization recommends that local elected officials in our five-county region join with state officials in Georgia and South Carolina and with leadership of the electric utilities in both states to communicate to our Congressional delegation in the strongest possible terms the following:

- As the government's sole option for permanent disposal of high-level radioactive waste, it is imperative that the Yucca Mountain facility be completed and begin accepting waste on a priority basis. In no case, should it be later than 2017, the Government's currently scheduled date to begin operation.
- We are increasingly concerned about the uncertain and lengthening schedule for operation of the Yucca Mountain repository;
- We believe the Government's failure to complete Yucca Mountain in a timely way will have a lasting negative impact on CSRA communities as economic development opportunities are lost due to a perception that the region has become "the permanent dumping ground" for radioactive waste.
- DOE should recognize the importance of our longstanding community support by allowing the region to host more than radioactive waste but to serve as home for critical DOE missions – such as the Global Nuclear Energy Partnership (GNEP).
- Elected officials should consider this to be a defining issue for our region – one that could have long-term deleterious effects if not addressed in a timely and aggressive manner.

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