

GOVERNOR'S NUCLEAR ADVISORY COUNCIL MEETING  
Gressette Building, Room #210  
January 9, 2014  
1:00 pm - 4:00 pm

Present: Karen Patterson, Captain Claude Cross, Carolyn Hudson, Vincent Van Brunt, David Peterson, Steve Byrne, Representative Don Wells, Jim Little

Welcome: Chair Karen Patterson welcomed members and guests and entertained a motion to approve the minutes of the October meeting. The minutes were approved as submitted.

Ms. Patterson then reported on actions taken by or on behalf of the GNAC since the last meeting. Comments were submitted to the Nuclear Regulatory Commission on behalf of the SRS Community Reuse Organization and the Governor's Nuclear Advisory Council (GNAC) regarding out-year budgeting. These comments are on the GNAC website. Ms. Patterson also represented the state at an NEI-sponsored workshop on consent-based siting of nuclear facilities. States invited included SC and Idaho, as well as Kentucky, Texas, and New Mexico. Mississippi and Virginia were invited but were unable to attend. Ms. Patterson's assessment is that siting for spent fuel will not take place soon, as it will require Congressional action.

Ms. Patterson then introduced the first speaker, noting that he was invited in response to inquiries to the Governor's Office about fire protection at nuclear facilities.

**Reactor Fire Protection** – Alex Klein, Nuclear Regulatory Commission, Fire Protection Branch  
*Mr. Klein's presentation is available on the GNAC website.*

All South Carolina plants are transitioning to National Fire Protection Association (NFPA) standard 805 from title 10 of the Code of Federal Regulations part 50 (10CFR50) appendix R. Comprehensive self-analysis, not merely a paper exercise, results in a new analysis and modifications that improve plant fire management and protection. The NRC is still learning from the Browns Ferry plant fire, NUREG/BR-0361 has been updated, with hard copies available for the GNAC members.

*Questions from the Council:*

Capt. Cross: Can new units use either system?

A: New reactors are designed and built under the advanced guidance, and can install fire separation measures as the reactors are built, so they do not follow either of the systems described rather than a completely new standard.

Capt. Cross: With only 15 employees at NRC dedicated to fire regulation, how do you enforce?

A: My NRC office does not perform inspections, there are 4 regional offices, including Atlanta, that support enforcement and monitor reactors in SC. Their inspectors visit each plant every three years. Results of their inspections are available on the NRC public website. Resident inspectors at each site do quarterly inspections at each plant, and on an annual basis will observe a fire drill.

Dr. Van Brunt: Did your group develop NUREG1824?

A: Yes, our group developed the background for this. This is just one of several tools for fire modeling available. NRC works closely with NIST on fire modeling.

Dr. Van Brunt: Is there a requirement for fire modeling for new reactors?

A: No, since they are being built incorporating lessons learned.

Rep. Wells: What problems are created by the varied design of existing plants? Each is unique, so fully understanding the licensing basis of each of the plants is a challenge.

A: One response is to create a database to track relevant information. Other challenges include licensees understanding of what the rules are.

Rep. Wells: Are new reactors more consistent in design?

A: Application of rules is more consistent today than it used to be because it is hard to demonstrate complete compliance when back-fitting rules.

Karen Patterson: Asks for clarification about statement that facilities transitioning to 805 have come into compliance.

A: As older facilities are coming into compliance with 805 and identify exceptions, facilities can demonstrate adequacy of controls to meet requirements, with greater flexibility.

Dr. Peterson: How long do licensees have to demonstrate ability to control fires?

A: Licensees have to show they can control fires within a timeframe that would allow them to shut down the plant within a designated timeframe.

**Barnwell LLW Disposal Facility Annual Update**—Michael Benjamin, Energy Solutions, Barnwell and Susan Jenkins, DHEC

*Mr. Benjamin's presentation is available on the GNAC website.*

*Questions from the Council:*

Jim Little: Where are environmental reports made available to the public?

A (Benjamin): On the SC Department of Health and Environmental Control (DHEC) website.

Jim Little: What kind of information do you provide to the public?

A (Benjamin): Outside of this meeting, nothing formal, but the site maintains an open door policy for tours and questions.

Capt. Cross: It seems that the site is about to run out of room...at current levels, how much life is left at the site?

A (Jenkins): About 30 years at predicted rates, saving some additional volume for decommissioning of reactors.

Capt. Cross: Is contiguous land still available?

A (Jenkins): Yes, as Mr. Benjamin showed on the schematic in his slides. There is a large parcel within the fenced area.

Ms. Patterson: If Oyster Creek shuts down soon, how will that affect available space? How do you work out decommissioning waste?

A (Jenkins): Mr. Benjamin believes that the decommissioning demand has been worked into predictions. All of their waste will not come to Barnwell, but B&C class waste will add to the volume disposed. Economics will drive a lot of the decision making. For their purposes, the Utah site will be more economical than Barnwell.

Patterson: If asked, could you pull out long-lived vs. short-lived material?

A (Jenkins): Yes

Steve Byrne: Does the site still do military vehicle decontamination?

A: No.

Steve Byrne: What is non-utility waste?

A (Jenkins): Non-utility waste is industrial, not medical as some people think.

Steve Byrne: What is the status of site's license?

A (Jenkins): The license is in timely renewal.

Steve Byrne: How long has the license been in timely renewal?

A (Jenkins): For 10 years.

Steve Byrne: How long is the current license good for?

A (Jenkins): The license will be current until they are told by DHEC that it is no longer valid. The license can be amended while in timely renewal. License renewal period is typically every 5 years. They do not need to reapply while in timely renewal.

### **Barnwell LLW Disposal Facility Annual Update**—Susan Jenkins, DHEC

*Ms. Jenkins' presentation is available on the GNAC website.*

Ms. Jenkins began by introducing David Scaturo, who replaced Richard Haynes as head of the Waste Management Division. Mr. Haynes recently retired.

#### *Questions from the Council:*

Steve Byrne: (In reference to the Tritium plume) What about contamination to private wells in the area?

A (Jenkins): We sample once per year and have not seen any tritium in those wells. Compliance point is a dose consideration, assuming someone drinking water daily; they could receive up to 25 mrem per year.

What is the source of the Tritium? Was it a liquid?

A (Jenkins): Waste was disposed at the site in liquid form throughout most of the 70's. These liquids were disposed in the oldest trenches on the site, which is where we see the highest levels.

Based on the half-life of Tritium, should we not begin seeing a decrease soon?

A (Jenkins): The Tritium plume migrates downward and travels horizontally, so it is a very complex system.

Dr. Van Brunt: Tritium has a 12.3 yr half-life so we would expect to see the concentration going down...have you identified a specific source?

Karen Patterson: Does groundwater rise up into the trench?

A (Jenkins): There have been a couple of occasions where the level of the groundwater has come into contact with the bottom of a trench. When trenches are constructed, they are required to have 5 feet of separation between the highest historical water table and the bottom of the trench. Now that there are caps in place on the closed trenches, less surface water gets in. In the early days, there were no caps so rainwater would percolate through waste and carry it downward. One of the thoughts is that when the groundwater rises it collects tritium from the earlier trenches.

Karen Patterson: Where does Mary's Branch go after it leaves the Savannah River Site? Does it empty into Lower Three Runs?

A (Jenkins): I think it does and then onto the Savannah River from there.

Patterson: So if that's true, then some of tritium in Lower Three Runs is actually from Barnwell?

A (Jenkins): Some would be, yes.

Steve Byrne: Do New Jersey or Connecticut regulators ever interface with DHEC?

A (Jenkins): No, other than attendance at Atlantic Compact Commission meetings.

Susan adds that DHEC's update letter is published every December, and available on the website.

**Savannah River Site Update** – Shelly Wilson, Federal Facility Liaison, SC DHEC

*Ms. Wilson's presentation is available on the GNAC website.*

Today I have two topics: High level waste tanks at the Savannah River Site and DHEC "Permit Central" *Presentation available on the GNAC site.*

Aging high level waste tanks at SRS remain the single largest environmental threat in SC. The site has made significant progress with the closure of tanks 5 and 6 on Dec. 18, 2013. DHEC's paperwork was finished well before schedule demanded, so they were pleased to be a help and not a hindrance to the process. The site has set milestones through 2028, but those are in jeopardy due to a delay in the construction of the Salt Waste Processing Facility (SWPF) and a lack of funding for high level waste treatment in general. DHEC continues to push hard for budget action to address risk in the state. They are urging SRS to treat as much waste as possible so that the tanks can be closed. It is imperative to get SWPF up and running, and imperative to maintain the rate of treatment on site. The US Department of Energy FY14 funding is way too low. The SWPF is running at much slower rate than it could, due largely to a lack of funding. One possibility is to add treatment options to make up for lack of SWPF. For example, a small column treatment facility is one possibility, but just one.

DHEC permit central was launched in March of 2013. Permit Central is a web based tool to help assess permitting needs. Thanks to Tom Clements for his helpful comments as the site was being developed. They are currently getting 200 page views per day.

Karen Patterson offered her congratulations on award for the new site. Patterson also acknowledged the salt waste disposal vault remediation issue at SRS and requests an update from SRS regarding the leak at the April meeting.

In response to a comment from Ms. Patterson, Terry Spears, Assistant Manager for Waste Disposition at SRS, came forward from the audience to address recent information regarding leaks in the aging waste tanks.

Mr. Spears states that there is no new leak, but additional cracking in one of the type 1 tanks, one of the first constructed at the site, may be associated with a crack discovered some time ago. The new crack was discovered during an annual inspection. The crack is significantly higher than any waste in the tank, so they do not anticipate any leakage, but the crack is of concern. Mr. Spears agrees with everything Shelly Wilson had to say regarding the SRS budget issues and appreciated comments on tank closure, noted challenges with furloughs, budget and weather issues. He is hopeful that the site can maintain its goals to meet commitments, but budget challenges may interfere.

*Questions from the Council:*

Van Brunt: When an inner crack was found on tank 16 there was visible crystallization right in the crack. I was wondering if there was such observation in the crack in tank 4?

A (Spears): When the first crack was found, it was found because of the visible crystallized salt on the outside of the tank wall. We haven't noticed changes since that time until recently, which is what identified new crack. Discoloration around the newly formed crack is what drew attention.

**SRS Budget and Program Updates**—Doug Hintze, COO of SRS

*Mr. Hintz's presentation available on the GNAC site.*

The Savannah River Site received ARRA funds exceeding 1.6 billion dollars. With that money they were able to complete a biomass plant which resulted in 100k tons of CO2 reductions. The MOX facility is still being built, but preparations are being made to get started on fuel processing. Much of the waste on site was remediated. Liquid waste was vitrified into approximately 225 canisters. We did set a record for the month of August. However, appropriations have lapsed. Budgetary concerns continue to be a focus of future operations.

*Questions from the Council:*

Little: Are you controlled on separate line items for liquid waste and risk management operations or do you have latitude. Can you reprogram them yourself?

A (Hintz): Yes, these are the Congressional line items. When it gets to OMB, there are control points put in place that we cannot move. From our perspective, the more they can be lumped together the more flexibility we have.

Van Brunt: Is there any way to help SRS to move line items?

A (Hintz): You have already helped so much. We expect FY14 to be better because of your help. There is much greater awareness because of the letters that you have written. There has already been some progress on the budget because money is being put in the right columns.

**Savannah River National Lab** — Terry Michalske, Executive Vice President, SRNL

*Presentation available on the GNAC site.*

The Savannah River National Lab (SRNL) helps SRS meet its missions. It became a National Lab in 2006 and this gives us a great strength and future. We support national missions and we work for federal, university, and commercial clients. Our budget grew 6% last year because of our private client base. Most of the work done at SRNL is for nuclear security. We still produce tritium for weapons but we also have a growing portfolio in nuclear non-proliferation. One of the many projects we are currently

working on is with Ford motor company developing a home-based natural gas filling station for natural gas cars.

*Questions from the Council:*

Patterson: Does the non-nuclear DOE office come to SRNL for answers?

A (Michalske): We work with several offices in the DOE. We work with EERE and the natural gas folks in fossil energy. Natural gas, fuel cells, and nuclear offices are all collaborators. We work with six or seven different offices.

Patterson: What will you focus on short and long term?

A (Michalske): We look at a 10 year strategic plan, but tend to focus on our 5-year objectives. We actively work on items in our 5-year plan. Advanced chemical processing of nuclear materials have a 5 and 10 year plan. Right now we are working to become a natural gas storage leader. We are working toward becoming a center for natural gas and that is a five year time frame.

Little: What is the average age of SRNL worker?

A (Michalske): We have a peak of around 52. We aren't alone in this in the complex and it's why it's important to have cutting edge programs to attract younger people. It's hard to recruit folks into a super-secret program. You have to get folks in the door. We have difficulty hiring new workers because the labor force has not kept up with STEM advances.

Van Brunt: How long does it take to train a nuclear operator and maintain that skill and expertise? Are there any programs that you have that specifically look at the workforce?

A (Michalske): We have programs that look at the workforce, especially for newer workers and we have some outreach programs that tout the site's opportunities. We have established some programs that help the younger workforce have a social network and learn about opportunities across the site. Over the years, some positions have become automated or obsolete. We need new energy in our organization but it is a balancing act between experience and enthusiasm.

**Public Comments**

- I am Susan Corbett. I am not the chair of the Sierra Club but I am on the board. The meeting process bothers me. I would like to ask questions to the presenter at the time, not after everyone is done presenting. I would like to entertain the idea, it doesn't seem fair to the public. How about asking questions during the break? I would have liked to ask questions after the Barnwell presentation of Barnwell and DHEC. Do they track Cesium? Thank you.

-Tom Clements with Friends of the Earth. I don't agree with the importation of nuclear materials to SRS. The Canadian material can be taken care of in Canada. It doesn't need to be sent to SRS. The wisest thing to do would be to take care of it in Canada. There are 152 large casks filled with Uranium-graphite balls. It may be sent to SRS. There is no environmental impact statement. Due to Plutonium programs, Secretary Moniz (USDOE) is looking at making the MOX program more efficient. This may be difficult. This will impact the FY15 budget for SRS. The cost estimate, excluding decommissioning, is 30 billion dollars and will debilitate the DOE budget for decades. The numbers and costs don't add up.

-Clint Wolfe with Citizens for Nuclear Technology Awareness. I am a believer that SRNL is a great force in our state and region. It promotes infrastructure, research, and problem solving. We must decide, as a nation, that so much positive work has been done at the lab that it should be funded further. It would be helpful if the GNAC could promote this idea, that the SRNL is an asset that we cannot afford to lose.