

GOVERNOR'S NUCLEAR ADVISORY COUNCIL MEETING

Gressette Building, Room #209

April 9, 2015

1:00 pm - 4:00 pm

Call to Order – Approval of Minutes & Karen Patterson, Chair (10 minutes)

Attendees: Steve Byrne, Claude Cross, James Little, Karen Patterson, David Peterson, Vincent Van Brunt, Rep. Don Wells

The minutes were approved as distributed.

Ms. Patterson noted that staffing of the Governor's Nuclear Advisory Council (GNAC) will pass to the newly created Department of Administration and thanked Jennifer Satterthwaite for all of her efforts on behalf of the GNAC.

Update of GNAC activities

Ms. Patterson noted that she is finishing a letter on behalf of the GNAC to the South Carolina legislative delegation asking for full funding for Savannah River Site infrastructure.

She said that she has been asked why GNAC is not weighing in on the issue of expanding waste classes accepted at the Barnwell low level waste facility. She noted that the site is licensed for several different classes of waste, so allowing additional classes of waste is a business decision and stated that GNAC does not weigh in on business decisions.

Ms. Patterson reported that she had visited the SWPF, and was so impressed she asked them to present today.

SCE&G Nuclear Update Steve Byrne, President, Generation and Transmission, South Carolina Electric & Gas

(slides and audio available here <http://energy.sc.gov/gnac/meetings>)

Questions from Council:

Mr. Little: How many licensed operators will you need?

Mr. Byrne: We're going to run 5 shifts and will have two senior reactor operators and two reactor operators on each shift. So you are looking at at least 20; we intend to include 21 in the first class, we expect 16 to pass, and we'll have another 20 in the November class, so will have approximately 30 licenses by the end of the year. We will also run two classes next year so we should have plenty of operators.

Mr. Little: What is the investment you had to make to accommodate the FLEX program?

Mr. Byrne: The equipment is not the major cost. More funding is required for training personnel and writing procedures. The regional response centers were about \$44 million each and the on-going O&M

cost per site is about \$4 million. We've probably spent about \$125M to \$150M on FLEX over the last four years.

Captain Cross: Are the modules holding up the timeline?

Mr. Byrne: Currently the delays are associated with the modules. We expect the shield building to become the next critical path. It is difficult to construct these modules because you have to fit them with exacting tolerances. Once they are on site we have to fab them into big rings so you can pour concrete between the panels. So, right now, the shield building is the critical path.

Mr. Van Brunt: What is the delivery date for the head replacement on Reactor 1? Any kind of delivery date on that?

Mr. Byrne: We will receive it in mid-2016, and replace it in mid-2017.

Mr. Van Brunt: Have you actually looked at the multiple uses of equipment required by FLEX, such as pumping from the lake? Any look at that?

Mr. Byrne: Yes, we have purchased all of the hoses that we need. They are also stored in one of two FLEX buildings. We have the ability to go to the lake through large pumps into the buildings. We have also had to do modifications to make sure we can use diesel generators and plug them in directly.

Ms. Patterson: Are there "seawalls" between the site and the lake?

Mr. Byrne: Not walls, but berms, the intent of which is to make it harder to access the site, but they also provide protection from flooding. We don't look at flooding coming from the lake. It is actually not higher than the site and is a pump-storage lake; we pump it up at night.

Ms. Patterson: Is your spent fuel storage site sized for 1, 2 or 3 units?

Mr. Byrne: The current area is sized for just Unit 1 out to 2062. We will have on-site wet storage with each of the new units. We will develop areas within the protected area boundary for units 2 & 3.

Ms. Patterson: Are people thinking we need more than one regional center on east coast?

Mr. Byrne: There has been some discussion, but there are no active plans that I am aware of for a second east coast center.

Ms. Patterson: You finally got the modules for Unit 2 to work so are you sending the modules that you haven't gotten constructed for Unit 3 out? Is it just the big modules leaving Lake Charles or is everything leaving?

Mr. Byrne: Not everything will leave. We have other smaller mechanical modules. There are some additional pieces being fabricated in Lake Charles, but also at a number of different places for the smaller submodules. The fabrication is done in a number of different places around the southeast. Our intent is to de-scope Lake Charles because they are getting so backed up. That was causing some delays so we're moving production to other places. We have received the first of the modules from Toshiba IHI

and the quality there looks really good. The first module from Oregon Ironworks shipped last week and is due the 14th of this month.

Ms. Patterson: Assuming we continue this nuclear renaissance, is the lesson here that we should continue to train the workforce on nuclear quality requirements or are there enough places that understand how to do the work?

Mr. Byrne: No, there are not enough companies that understand what having an Appendix B quality program is, and that is the biggest hurdle. Even companies that had previously been in the nuclear game were rusty. We have probably initiated stop-work orders at a majority of suppliers. Some respond quickly and well, others do not respond well at all.

Ms. Patterson: How much of the cost overruns are due to the inability to meet quality requirements?

Mr. Byrne: We could determine that, but we haven't yet.

Ms. Patterson: How is your cybersecurity planning going?

Mr. Byrne: Still evolving. We have done it in phases. The first phase of cybersecurity is finished, it's in the design. The second phase is finishing its design. Nuclear facilities, unlike some other facilities, are not connected to the web. And in fact are not even connected to our control centers.

SCDHEC Shelly Wilson, SRS Federal Facilities Liaison, SC Department of Health & Environmental Control (*slides and audio available here <http://energy.sc.gov/gnac/meetings>*)

Ms. Wilson noted that between FY 13 and FY 14, there was a huge drop in funding for SRS liquid waste (over \$100M dollars). The budget will stay in the same range moving forward—we're looking at a future of flat funding. This is affecting the site's ability to meet risk reduction milestones, and the reason this is so important is both the quantity of the waste, and the form—liquid waste. This is the last great cold war legacy waste stream—it is high volume, with a low budget.

Other waste tanks beyond tanks 16 and 12 are also endangered by budget issues. DHEC had hoped DOE would mitigate the slowdown on SWPF by “amping up treatment” at the site, but just the opposite has happened. Treatment is slowing down because “the budget chokes that process.”

Questions from Council:

Mr. Byrne: How many public comments for tank closures do you usually get?

Ms. Wilson: It varies according to the facility. In the past we have gotten around 3 different commenters about 20 pages each.

Ms. Patterson: What do you mean by “asking DOE to max out treatment” – when you say that what do you mean by that?

Ms. Wilson: We are asking DOE as a whole and a lot of that has been through the dispute resolution process. We are asked them to maximize that treatment. They have the DWPF which can do 40 canisters per month, but they're not doing anything close to that, we are running along at 125-150 per year but

could do 400 so we want to see them ramping up. This is not pie in the sky ask, these are things that are potentially available, but tied to money.

Ms. Patterson: In past we have asked if more money would help, and DOE said no. How persuasive is the total life cycle cost issue?

Dr. Moody, DOE: To answer your first question, we are running the overall system at about 1/3 capacity. If the federal budget were to support our running at full capacity, yes we would generate stabilized glass canisters faster and therefore we would finish overall faster.

Ms. Patterson: Where is the stumbling block? Headquarters, Congress, the President, OMB?

Dr. Moody: It started with sequestration, under the current overall funding challenges of the nation; there is a trickle down from the overall budget to DOE budget to environmental management. I would not suggest that any one entity is responsible for the funding level. It is as much the overall fiscal situation in the country as anything else.

Ms. Patterson: How much of this money that it is going to take to get WIPP up is going to affect us?

Dr. Moody: We are level funded in environmental management at \$5.8 billion with demands that far exceed that. Any time one area increases, others will decrease. We recognize we have to put a priority on liquid waste program. In terms of environmental management, we are increasing high level waste funding, but it may not be at the level DHEC and others want to see. The tendency toward level funding, other priorities like WIPP, other funding needs, all affect the SRNL budget.

Ms. Wilson: We are fighting hard for our seat at the priority table. For FY14, Hanford got 20% increase, while SRS had a very significant decrease. There are priority decisions within that cap and we want our place at the priority table.

SWPF Project Status and Path Forward Pam Marks, DOE, Federal Project Director, SWPF
Tom Burns, Parsons VP and SWPF Deputy Project Manager
(slides and audio available here <http://energy.sc.gov/gnac/meetings>)

Questions from Council:

Capt. Cross: What is the best expectation for when plant will be operational?

Mr. Burns: Likely, 2018 to 2021 (the latter date would include all risks beyond baseline)

Capt. Cross: Does that include the one year hot start?

Mr. Burns: No. One year of our operation starts when we do cold start up testing and operational readiness review.

Vince: What is a reasonable cold run state?

Tom: Our total commissioning time with the new IBR is about 30 months. Then you have approximately 20 months of discrete testing, and then you have 12-15 months of integrated water run testing then integrated salt simulated chemical testing.

Dr. Van Brunt: At the pilot plant facility, filters could be cleaned in both directions, but that capability is not in SWPF design?

Mr. Burns: Correct. When we clean the filters, the solution goes to a second tank so that we can manage the solution.

Dr. Van Brunt: You should look at being able to clean in both directions, as it has worked well. Considering that there have been plugging issues, you should look at that. The other thing is that you mentioned you can get to 100% performance now...why couldn't you do so before?

Mr. Burns: It was a matter of finding the sweet spot, which we were able to do over time. The third testing campaign gave us the time to find the sweet spot and make it stable and enduring.

Dr. Peterson: What are plans for operation after the first year of Parsons operation?

Mr. Burns: I can't comment. The department has got to determine what their long-term acquisition strategy is and the operations of the SWPF and the site. We are certainly interested in being part of that but it's the department's decision.

Ms. Patterson: Once SWPF is up and running it would take 10 – 15 years to process everything in the tanks....so have the schedules for completing the waste been trued up? Or is tank closure lagging behind?

Ms. Marks: Our processing of the waste is not the only thing to get to tank closure. We are working hard to integrate all our schedules; at present we are only working on the low throughputs.

Mr. Macvean: We're not trying to take into consideration the much higher throughput. There is a lot of back end work to flush the plants out, which also affects schedules.

Ms. Patterson: So it is not a matter of truing up the various schedules, but a matter of which assumptions you use to project dates?

Dr. Van Brunt: Do the projections include any approval periods by DOE or the state, or is that integrated?

Ms. Marks: I don't have any approvals that I need for the state. Stuart (Macvean) has some that he needs from the state.

Status of SRR Preparations for SWPF Start Stuart Macvean, President, Savannah River Remediation
(slides and audio available here <http://energy.sc.gov/gnac/meetings>)

Questions from Council:

Dr. Van Brunt: Does the next generation solvent still include some of the original solvent?

Mr. Macvean: When we converted I believe we emptied out the system. About 10% percent of the original will be left, but as we top up solvent over time, original is diluted. The longer things run without stopping, the cleaner things get.

Dr. Van Brunt: But you had an increase in DF. As you've replaced it has the DF gone up?

Mr. Macvean: There are several variables at work. Yes, we have been slowly diluting it over time. The longer you have a continuous run, the cleaner the system gets. When we start back up the DF will drop back off again. It's really the two variables working together.

Dr. Van Brunt: How is tank 48 these days?

Mr. Macvean: Nice and tidy sitting there idle. We don't expect any activity for a number of years. Currently we are several years away, with significant investment (\$125M) so expected around 2022.

Dr. Van Brunt: What prompted the question is the need for connected tanks; what could you do if you had tank 48 available, what kind of throughputs would you have?

Mr. Macvean: We could replace one of the tanks with tank 48 right now if it was available. We are doing what we can to increase production at the current budget level.

Ms. Patterson: You said you had the funding you needed for next year, but need an additional \$20M for FY17? Disposal vaults are the most critical item—what is the long-haul intent regarding constructing the salt waste vaults?

Mr. Macvean: The plant modifications for DWPF are fairly small scale. That's about \$100 million to build a salt-waste disposal facility. If you want to run the facilities at their full capacity, you have to have one empty tank to receive waste at any one time. Bottom line is that you always have to have an STU up and running as a line item because you're going to fill one every two years so budget constraints are important.

Ms. Patterson: You're thinking budget constraints. How about technical constraints?

Mr. Macvean: Just physical modification with well understood consequences.

SRNL Update Dr. Terry Michalske, Laboratory Director, Savannah River National Laboratory
(slides and audio available here <http://energy.sc.gov/gnac/meetings>)

The comments below were not captured on the slides.

The overarching message is that the facility has moved from a technical center to a truly national laboratory research facility. Without this laboratory, the nation doesn't have a nuclear deterrent. SRNL is assisting Hanford, because if they can't get on track, they will get all the available funds. SRNL is considering establishing a research office in Hanford. Dr. Michalske noted that SRNL efforts have accounted for \$2B in savings for DOE.

Questions from Council:

Ms. Patterson: I'm sorry that SRNL is a national security lab, since it is hard to tout how important your work is.

Dr. Michalske: It is very gratifying that our outcomes are important in the national debate.

Ms. Patterson: The nuclear workforce is “aging out”are you having that problem?

Dr. Michalske: We worry about the academic potential to maintain our efforts. It is important to get students, interns, post-docs, engaged early on so they want to keep working with SRNL. Intern and post-doc programs are very important recruiting tools. We recruit from across the country, and do well. But again, I’m more concerned about the pipeline.

Public Comments:

Tom Clements, SRS Watch

Mr. Clement’s document on plutonium disposition and MOX can be found on our website here:

<http://energy.sc.gov/gnac/meetings>