

NUCLEAR ADVISORY COUNCIL MEETING
Gressette Building, Room #209
April 14, 2016
1:00 pm - 4:00 pm

Call to Order – Approval of Minutes Karen Patterson, Chair

Attendees: Steve Byrne, Claude Cross, Carolyn Hudson, James Little, Karen Patterson, Vincent Van Brunt, and Tom Young

It was noted that the January minutes will be approved by email after review by the members. Ms. Patterson also mentioned that during the last quarter, she submitted a comment letter to the US Department of Energy (DOE) regarding the removal of MOX fuel from the Savannah River Site (SRS).

Update of SCNAC activities

Ms. Patterson noted that Monday she went to an event for siting disposal and interim storage facilities though at this point there is very little information. Ms. Patterson then introduced the first presenter.

Westinghouse Nuclear Fuels Update David Precht, Vice President, Columbia Fuel Operations
(slides available here <http://admin.sc.gov/node/1543>)

Questions from Council:

Ms. Patterson: What does accident tolerant fuel mean?

Mr. Precht: Cladding won't melt as well. The compounds create a higher density of fuel pellets that can withstand higher temperatures, but it is still in a test phase.

Ms. Hudson: Recent data from well-sampling indicated the presence of some tritium. Do you have a clean-up program?

Mr. Precht: There is a voluntary clean-up contract (VCC) with DHEC but right now the amount of tritium is below regulatory limits so we are only required to monitor the levels. We believe it is legacy tritium and not new generation source.

Dr. Van Brunt: Is there talk of moving away from the ADU process?

Mr. Precht: Not at this time due to the cost.

Dr. Van Brunt: What impact did water issues from the October flood have at the Bluff Road site?

Mr. Precht: We had early warnings and enacted our emergency procedures in time so water never got to the plant level and there were no serious issues. The challenge was determining when to send people home safely as the rain continued. Ultimately, we did have to shut down for four days due to access and loss of city water.

Dr. Van Brunt: Did you make any modifications to your emergency plan as a result?

Mr. Precht: Only minor changes locally, but Westinghouse corporate is creating a new plan at the corporate level.

Ms. Patterson: Is it (the plant) in a flood plain?

Mr. Precht: No. The flood proved it is high enough up.

Dr. Van Brunt: Hasn't the Army Corps of Engineers changed elevation in the last few years?

Mr. Precht: Yes but plant elevation did not change.

Mr. Byrne: Did you recover from fire earlier in the year?

Mr. Precht: The fire was a heater malfunction that caught ductwork on fire and then the scrubber pulled the fire up. An emergency brigade put it out in fifteen minutes but the smoke left soot all over the plant so the plant was down from January 17th for about a week to clear the soot. We are fully recovered now. The NRC evaluated and said all plans were sufficient with the exception of needing a better recovery plan.

Captain Cross: What was the material that was burning?

Mr. Precht: Fiberglass ductwork.

Mr. Byrne: Who is your biggest competition?

Mr. Precht: Areva in the US, then Siemens and Global Nuclear Fuel (GNF).

Mr. Byrne: Do you still provide some components to GNF?

Mr. Precht: Some.

Mr. Byrne: Do you get raw product from China like zinc or sand?

Mr. Precht: We do get some from China into Utah but not here. We get some from South Africa. We are also building a fabrication facility for when we do make fuel in China.

Ms. Patterson: So Westinghouse Fuels is building the plant?

Mr. Precht: No the Chinese are building the plant and using Westinghouse oversight.

Mr. Byrne: You indicated you are competing with Russians in South Ukraine. Can you compare Russian fuel defects with yours?

Mr. Precht: Only that when Ukraine reactors were switching over from Russian fuel, there were some issues.

Mr. Byrne: Are you still providing fuel to the Czech Republic?

Mr. Precht: Yes.

Mr. Byrne: How often are IMPO evaluations?

Mr. Precht: We have IMPO style peer reviews but IMPO does not come in.

Captain Cross: How often?

Mr. Precht: Every four years; the next one will be here in October 2017.

Mr. Byrne: Congratulations on 100,000 assemblies.

Ms. Patterson: How much of the plant is automated?

Mr. Precht: Not enough but we continue to upgrade though it is expensive to change.

Ms. Patterson: Last fall there was steam exposure. What have you done to prevent that from happening again?

Mr. Precht: The hazard for that tank did not anticipate hot water ejection so it was shut down and redesigned with additional safety controls. It was hard to even duplicate the event.

Ms. Patterson: How does the Engineering Center of Excellence work?

Mr. Precht: We have a number of engineers on-site doing development and testing.

Dr. Van Brunt: What about IEC 61508 or IEC 61511 in terms of safety systems analysis?

Mr. Precht: The tank in question was old, and the main analysis on the nuclear side is in disposal and hazard analysis for IEC 61508 and IEC 61511.

SCDHEC Chem Nuclear Annual Update David Scaturo, Director, DHEC Division of Waste Management and Ben Smith, Project Manager, Energy Solutions
(slides available here <http://admin.sc.gov/node/1543>)

Questions from Council:

Ms. Patterson: Have the leaks increased?

Mr. Scaturo: The behavior of tritium concentrations varies in old trenches that went in in the 1970's and its half-life, plus geology dispersion and diffusion, is complex and impacts varying concentrations so may have a few hotspots in large areas of low concentration. There is no public access receptor of drinking water.

Dr. Van Brunt: There have been at least three half-lives since 1979. Could there be any other sources since the concentration numbers are staying consistent?

Mr. Scaturo: It will take many more half-lives and, with the rise and fall of the water table and horizontal transport zone increases, concentrations will continue.

Mr. Little: So water table fluctuations are really important?

Mr. Scaturo: Yes.

Dr. Van Brunt: Who does the modeling?

Mr. Scaturo: We have staff and some contracts for independent review – most recently Tetrattech.

Mr. Byrne: When you split samples, what does the correlation look like?

Mr. Scaturo: Good.

Senator Young: The S upward trends, are they separate plumes?

Mr. Scaturo: No. S wells showed increasing concentrations.

Senator Young: Has there been any substantial change since 2015?

Mr. Scaturo: March 2016 results showed no significant change.

Senator Young: Are there any changes over a 5-year trend that indicate the need to do something differently?

Mr. Scaturo: Based on the trend analysis, it appears stable, but the compliance plan does specify required measures if it were to begin increasing.

Senator Young: How far is it from monitoring well 110 to the mouth of the creek?

Mr. Scaturo: About a half a mile.

Senator Young: Any concern high concentrations could eventually end up at the creek?

Mr. Scaturo: Because the hotspot is dripping out into a large area of contribution it is basically diluted well before the creek.

Senator Young: What about the trust fund?

Mr. Scaturo: Mr. Smith will speak to that now with further slides.

Barnwell LLW Disposal Facility Update David Scaturo, Director, DHEC Division of Waste Management and Ben Smith, Project Manager, Energy Solutions

(slides available here <http://admin.sc.gov/node/1543>)

Questions from Council:

Ms. Hudson: At one point, weren't you going to pre-compact at Bear Creek to minimize waste volume?

Mr. Smith: We wouldn't necessarily send something there; that would be a customer decision.

Ms. Hudson: Any issues with employee safety?

Mr. Smith: We have a great history of safety here though there have been incidents at other locations so we are always aware of and promoting safety.

Senator Young: The Extended Care Maintenance Fund (ECMF) is currently at \$149M. How does that compare to a year ago?

Mr. Smith: I am not sure.

Ms. Patterson: Does the balance fluctuate with the stock market?

Mr. Smith: Not really.

Senator Young: What is the \$5M?

Mr. Smith: The estimated closure cost for the remaining parts of the facility.

Senator Young: Do you report on the status of the trust fund?

Mr. Smith: We submit an annual evaluation to DHEC. The Treasurer's office provides a quarterly balance.

Senator Young: Is it on the DHEC website?

Mr. Smith: No. The SC Energy Office would have it.

Ms. Patterson: We will get the SC Energy Office on the July agenda.

Ms. Ogilvie: Chem Nuclear Solutions has no control over the fund. The Treasurer's office does.

Ms. Patterson: We will contact them too.

Senator Young: How much capacity exists for remaining disposal?

Mr. Smith: 1M CF.

Captain Cross: How long will it take to use up 1M CF?

Mr. Smith: Right now we are averaging about 10,000 CF/year but there could be spikes.

SRS Update and FY17 President's Budget Terry Spears, Deputy Manager, Savannah River Operations Office, DOE

(slides available here <http://admin.sc.gov/node/1543>)

Questions from Council:

Ms. Patterson: It's good that the budget is up \$111M, but how much of that is in operations versus pensions?

Mr. Spears: I don't have the exact pension numbers. We no longer have a defined pension program but we do still have to fund prior ones going forward at a minimum contribution level. I think about \$60M is going to pensions next year.

Ms. Patterson: Do you think the infrastructure funding will be one-time or recurring?

Mr. Spears: I'm not sure but I hope recurring. Also, even though this is infrastructure funding highlighted separately, there is some infrastructure funding embedded in some other categories.

SRNS Update and AGENT Program Carol Johnson, SRNS President and CEO
(no slide presentation)

Ms. Johnson noted that their industrial safety, security, and environmental compliance statistics are solid. They did have an event last year where staff deviated from standard operating procedures. As a result, operations were suspended and they undertook a deliberate process to bring them back online including improvements in training and adopting monthly pause sessions to look at procedure quality. They also have in place a "sustainment plan" to keep such incidents from happening again. It addresses scenario-based training, procedure improvements and validation, contractor assurance, and management and worker engagement. The plan also includes the NPO safety assist recently conducted, on which they did well. Tritium operations are performing well and are 100% on-time. They are in the final throws of H-canyon becoming fully operational and are going through a readiness assessment. The HB line alternate feedstock to production was impacted so they have to complete a production capability study for DOE. In terms of workforce challenges, 50% of staff are eligible for retirement so they have ramped up hiring. There is available workforce so they are now focusing more on retention.

Questions from Council:

Ms. Patterson: How long does it take for a new operator to really understand how the system works?

Ms. Johnson: There is a Nuclear Operator Certificate Program at Aiken Tech that takes two semesters, and then there is 12-18 months of on-site training and another one to two years to really become proficient. Obtaining the required security clearance can also take some time.

Senator Young: Where is plutonium on the site?

Ms. Johnson: K area, H-canyon, and HB line.

Dr. Van Brunt: How much risk-based process safety have you looked at in terms of culture? For example, should the current timeline of three years for hazard reviews be reduced to change culture?

Ms. Johnson: The culture question is an area that we have to continually address, but the NPO safety assist really did not reveal a safety culture issue across the board. We have also put into place a Standard of Excellence to show behaviors expected of employees.

Ms. Johnson then introduced the AGENTS – Jay Johnson, Brittany Williamson, Dan Hanson, and Shawn Carey. Brittany explained that AGENTS stands for Advocacy, Growth, Education and Networking Team. They are a grassroots organization of young professionals who work together for the future of SRS as a whole. Brittany is a safety engineer and her concerns are about national security and energy security and sustainability. Shawn then noted that he is a civil-structural engineer and that he is glad to see the infrastructure request in the DOE budget as SRS facilities are all aging. Dan then indicated he works in nuclear and chemical engineering. He stated that there is a competent and capable workforce to take over and that SRS is safe and a great place to work.

SRR Update Mark Schmitz, Acting SRR President and Project Manager
(slides available here <http://admin.sc.gov/node/1543>)

Questions from Council:

Dr. Van Brunt: As you move from batch seven to eight and nine, what is the available tank volume with only one evaporator?

Mr. Schmitz: They can maintain speed of processing at current levels until SWPF comes online at the end of 2018 but then they must have another evaporator.

Ms. Patterson: What is the liner made of and what would deteriorate it?

Mr. Schmitz: It must be 100% leak free until filled to prevent deterioration. The liner is designed to last 30-50 years.

NNSA-SR Update Doug Dearolph, DOE-SR NNSA Manager
(slides available here <http://admin.sc.gov/node/1543>)

Questions from Council:

Ms. Patterson: Are there internships through USC Aiken?

Mr. Dearolph: Yes, as an extension of the Nuclear Consortium Training which also provides scholarships.

Ms. Patterson: As you empty old facilities, will you decommission?

Mr. Dearolph: No, we will just let them sit and allow them to decontaminate.

Japanese Fuel Presentation Pete Hanlon, Assistant Deputy Administrator, DOE Office of Material Management and Minimization

(no slide presentation)

Mr. Hanlon gave an overview of the Plutonium Removal Program:

1. Purpose of the Program: The reasons for bringing plutonium to the United States are all tied to nuclear non-proliferation. The purpose is to keep nuclear fuel out of the hands of terrorists. The program targets the highest risk plutonium and then only brings it here if there is no safe alternative. There are three steps for terrorists to make nuclear bombs. These are desire, know-how (there are blueprints on the web), and the acquisition of materials. The acquisition of materials is where this program becomes important as the materials do not exist naturally. Terrorists would have to steal them.
2. Why bring it to South Carolina? SRS is the safest place for it due to SRS's unique competencies in handling and processing plutonium. Approximately 900 kg will be coming depending on the EIS. They will remove 6 metric tons including part of that 900 kg after dilution. A large portion is from Japan.

Questions from Council:

Ms. Patterson: Secretary Moniz told Governor Haley that the 6 metric tons will come. How much is still to be resolved?

Mr. Hanlon: They are recommencing downblending and the program in K area is underway so the target is to start at the beginning of the next fiscal year.

Dr. Van Brunt: Is the delay at WIP?

Mr. Hanlon: They are pushing through.

Senator Young: Can we have your notes?

Mr. Hanlon: No.

Senator Young: Last year you said WIP would be open by 2016 with full operations by 2018. Is that still the case?

Mr. Hanlon: That is my understanding.

Senator Young: When will SRS material go to WIP?

Mr. Hanlon: We are currently working on shipment priorities so there is no specific timeline at this point.

Senator Young: Will it stay at SRS indefinitely?

Mr. Hanlon: When the repository at WIP reopens, it will begin moving plutonium out of South Carolina.

Senator Young: Last year it was said that you cannot bring more plutonium into South Carolina.

Mr. Hanlon: That only meant plutonium destined for MOX. The material from Japan is not designated for MOX.

Senator Young: 6 metric tons will be removed, correct?

Mr. Hanlon: Yes. It is tied to the record of decision signed a few years ago and a preferred alternative was found in December.

Senator Young: How much is coming from Japan?

Mr. Hanlon: 331 kg are coming from Japan (part of the 900 kg).

Senator Young: What is GAP plutonium?

Mr. Hanlon: This material, 900 kg from Japan, falls in this category. The EIS says it can come to South Carolina without environmental impact. Also, this 900 kg is part of the 6 metric tons to later be removed.

Senator Young: WIP will not open until the end of 2016, so when will the 6 metric tons leave South Carolina?

Mr. Hanlon: We don't have a definitive schedule at this point.

Ms. Patterson: Is it reasonable to expect that we will have a continuous process of removing this fuel once WIP is back up?

Mr. Hanlon: They don't know if it will be continuous.

Senator Young: How long will it take to downblend the 6 metric tons?

Mr. Hanlon: Not sure. We can look at this and let you know. We envision two additional glove boxes to be in K area to facilitate downblending.

Mr. Little: So you don't really have a schedule yet?

Mr. Hanlon: Correct. We have to get South Carolina into the schedule with other disposers.

Carol Johnson: Not being able to ship to WIP will not stop downblending and storage until WIP is open. We don't have a defined schedule but it is a multi-year program, not months.

Ms. Patterson: Will it have to be funded annually?

Mr. Hanlon: Yes.

Senator Young: How much plutonium is already at the site?

Mr. Hanlon: That is classified.

Senator Young: The environmental assessment said a 7 year period of plutonium transport, correct?

Mr. Hanlon: We don't currently have the 900 kg identified so it could be shorter unless we identify other material. The 7 year estimate provides a buffer.

Senator Young: The 6 metric tons – is 5.1 metric tons already there at the site?

Mr. Hanlon: I cannot speak to this. It is classified.

Ms. Patterson: The first option would be disposition overseas, correct? How often does that happen?

Mr. Hanlon: There is some downblending taking place in Indonesia for example, possibly the UK.

Carol Johnson: We are in a safety documentation phase and preparing to dilute. October 2016 is our target date to start.

Ms. Patterson: Thank you all.

Public Comments

There were no public comments.

The next meeting of the Nuclear Advisory Council will be held on October 13, 2016.

Meeting adjourned.