

GOVERNOR'S NUCLEAR ADVISORY COUNCIL MEETING
Gressette Building, Room #207
January 8, 2014
1:00 pm - 4:00 pm

Present: Steve Byrne, Claude Cross, Carolyn Hudson, James Little, Karen Patterson, David Peterson, Vincent VanBrunt, Senator Tom Young

Welcome: Chair Karen Patterson welcomed members and guests and entertained a motion to approve the minutes of the October 2014 meeting. Captain Cross moved minutes of last meeting be accepted. James Little seconded, and minutes were approved.

Update of GNAC Activities – Ms. Patterson

The Nuclear Waste Technical Review Board reviewed the SRS waste management programs in October. The L-Basin and H-Canyon presentations on the agenda today were presented at that meeting.

EPA Update on SRS Site Remediation & Clean-up (slides and audio available here
<http://energy.sc.gov/gnac/meetings>)

Rob Pope, USEPA Region 4, Senior Remedial Project Manager

Questions from the Council:

There were no questions for Mr. Pope from Council

Barnwell LLW Disposal Facility Annual Update (slides and audio available here
<http://energy.sc.gov/gnac/meetings>)

Susan Jenkins/David Scaturo, SC Department of Health & Environmental Control, Infectious Waste & Radioactive Materials

Questions from the Council:

Captain Cross: At the rate Barnwell is getting low level waste do you expect it to run out of space before the 2038 closure date?

Ms. Jenkins: No, we do not expect it to run out of space which is based on the projected volumes of waste coming in from the three compact states. The date of closure was based on those volumes. There is not much space left, but there is not much volume left to come.

Captain Cross: What happens after 2038?

Ms. Jenkins: If the site does indeed close at that time then we would begin the phase 2 closure operations and would cap those remaining trenches. Of course trenches are capped as they are closed so it would just be capping the very last few. Then DHEC would review the performance objectives in the

license and ensure that all Phase 1 and Phase 2 performance objectives had been met. That is expected to take about 8 months.

Captain Cross: I mean what is the plan for low-level waste generated after 2038?

Ms. Jenkins: There are other disposal facilities. There is one in Clive, Utah that accepts waste from all states. However, they only accept certain classes of waste. There is also a site in Texas that opened a few years ago. Although they are in a compact with Vermont, they are moving to accept waste from other states so that would be an option as well.

Mr. Byrne: Does DHEC have a resident inspector at the site?

Ms. Jenkins: Yes.

Mr. Byrne: Just one?

Ms. Jenkins: Yes.

Mr. Byrne: Presumably that person is there the entire time the facility is open?

Ms. Jenkins: Yes.

Mr. Byrne: The monitoring for drinking water at wells around the site, are those showing anything?

Ms. Jenkins: No they are all background.

Mr. Byrne: You said that from a trend perspective, the one that is closest to the trenches that has the highest activity has shown no trend?

Ms. Jenkins: So in the most recent five years it is showing no trend. Last year, I don't recall for that particular well, but last year we had a few more with an upward trend than we do this time. Again, it is a trend and we are looking at it annually for a five year period so that it changes a little bit. We also have them do a three year trend. I did not speak about it for brevity, but it is also being done.

Mr. Scaturo: And those reports are on our website

(<http://www.scdhec.gov/HomeAndEnvironment/Pollution/DHECPollutionMonitoringServices/Chem-NuclearSiteData/>)

Mr. Byrne: At some point you would expect if that is the source, based on how long it has been there, that you would start to see a decline in the concentration at that location on the map. You expect that to start coming down.

Ms. Jenkins: Yes.

Mr. Byrne: I think the last time you presented to us that trend was actually increasing. I think it is heartening to see that it is more stable.

Ms. Jenkins: Yes but we don't know what next year will bring. But like I said we are continuing to monitor it and will continue to look at those things.

Mr. Byrne: Is the license a five year license?

Ms. Jenkins: Yes it is, it is a 5 year license.

Mr. Byrne: Since the license has been on hold for the last 11 years, what do we do at those five year points when the license should be applied for? Is ChemNuclear still going through the process of applying for a license?

Ms. Jenkins: They are. Essentially, they are sending us updates to all procedures at that time. A license renewal, just speaking in general for any radioactive material license, the purpose of the renewal is for licensees to provide us with updates to their procedures or any information that has changed since the last renewal. With ChemNuclear, since they have a lot of procedures, more than most facilities do, they always give us new procedures as they come out so we already have them. They do send us an application and a letter, but we don't act on it since the license is still under appeal in the court system we don't want to issue a new amendment to the license until that is resolved. They are meeting all of the requirements for the license that was appealed (and that is in place). The things that they do are in the procedures and they are updated but they are not part of the license but are tied to it.

Mr. Byrne: The split samples that you take, are those processed at a DHEC lab or are they contracted out?

Ms. Jenkins: Both.

Mr. Byrne: Do you do a comparison to what ChemNuclear's results are and they're always close?

Ms. Jenkins: Yes.

Mr. Byrne: What happens when ChemNuclear decides they don't want to do this anymore and they walk? Who owns the site?

Ms. Jenkins: The State of South Carolina owns the land.

Mr. Byrne: Which agency within the state will take ownership of the land? It used to be the Budget and Control Board, is that correct?

Ms. Jenkins: Yes, the Budget and Control Board, as I understand it, is the entity of the state that controls the disposal facility. Even after the facility closes, that license is still going to be in effect, but South Carolina, not ChemNuclear, will be the licensee. The license won't read the way it does now. It will just be for possession because there won't be any operations other than institutional controls. The license will administratively identify that radioactive materials exist at that location and are in the custody of the state.

Mr. Byrne: So the state can own a facility that can be licensed by the state?

Ms. Jenkins: Apparently so.

Ms. Patterson: When you talked about the sample locations with trends. What is the spatial relationship to those? Can you see a plume moving downstream or is it random, some are up some down?

Ms. Jenkins: We have looked at those before in the center of the plume based on special location, sometimes when you look at it, it appears to be more concentrated in the middle rather than along the edges. I think that is related to the oldest trenches being in the center of the site, well they're in the lower part of the site, but they are in the center as far as east-west.

Ms. Patterson: So knowing this does not help establish where the tritium is coming from or where it's headed?

Ms. Jenkins: We know it's headed toward the creek.

Ms. Patterson: I know but it is in a valley?

Ms. Jenkins: It is pretty much headed south/southwest. It comes out at the headwaters of the creek so it's following the flow of groundwater. We are using the monitoring wells to determine the flow of groundwater because tritium is just radioactive water so it is the groundwater essentially. The outer edges of the plume, the overall shape has not changed. We have not seen a lot of change there.

Ms. Patterson: When you talk about the estimated closure date being 2038, I assume you have a set volume limit or set curie limit that after that you will not accept any more waste. What is the compact agreement with the states related to reactor D & D? Is this just operating reactor waste you are expecting or are you expecting some D & D? After they shut down those reactors in CT & NJ.

Ms. Jenkins: I'm not sure when those are scheduled. The 2038 date is based on projected volumes. I'm not sure if they are figured in to that amount or not. I'm not sure how many will be decommissioned at that time but I assume it will. I can get you more information about that.

Senator Young: I just have a couple of questions about the fund that the state has. The state holds the money in escrow for the long-term maintenance of the site. Are you familiar with that fund?

Mr. Scaturro: Yes, the Extended Care Fund.

Senator Young: How much money is in that fund?

Ms. Jenkins: Do you mind if George (Kokolis, South Carolina Energy Office) answers that for us?

Mr. Kokolis: Approximately \$153 million.

Senator Young: OK, and how much is going out every year and how much is coming in each year?

Mr. Kokolis: No money is coming out. Money coming into the fund is based on cubic feet being disposed of. There is a percentage that goes toward that fund and that goes into the decommissioning trust fund, which has been growing since the site opened.

Senator Young: And that money is intended to take care of the 200-plus acres in perpetuity? What is the intent of that money long-term?

Mr. Kokolis: The intent is to provide a minimum of 100 years of institutional maintenance, observation, and testing at the site after everything is decommissioned, 100 years after that.

Senator Young: So beginning in 2039 currently?

Ms. Jenkins: Yes

Senator Young: If it is supposed to be for 100 years, has anyone figured out how much it is supposed to cost for that 100 year period? To do what you are saying it's intended to do? Are we sure that's enough money?

Ms. Jenkins: Yes. That's in the closure plan and there are estimates about how much the maintenance activities would cost at the site, mowing the grass, security, those types of activities. And so it's all in there.

Senator Young: So is there a projection about how much money will be in the fund in 2038? And would that projection be enough for that 100 year period.

Ms. Jenkins: Yes, of course the adequacy of the fund, there has been some analysis of it in the past that shows it's more dependent on interest rates and those types of things as to how much money would be in there, but we feel like with the projections that it would be enough.

Senator Young: Is there an estimate as to how much will be in there in 2038?

Ms. Jenkins: I don't have that information but I can try to find out for you, unless George (Kokolis) knows.

Mr. Kokolis: We do not keep a real-time estimate since the amount of waste that comes in changes every year. And when you project it to 2038 there are so many things that make up that number we can't project anything close to that number.

Senator Young: If we determine 5 years from now that there is groundwater contamination, who cleans that up?

Ms. Jenkins: We've already determined there is contamination.

Senator Young: If we determine it's a danger to the public, who cleans that up? It's my understanding from reading some of the news reports, what is there now is not a danger to the public, but what if we are told something different? Does the money come out of that fund to clean it up? Does the state have to pay for it? Will a private contractor pay for it? Does ChemNuclear have a responsibility to do it?

Ms. Jenkins: I believe the company would have the responsibility to pay for it. Based on the modeling that has been done I don't think it will become an issue. Tritium has a fairly short half-life so we do not expect it to exceed any limits or to become a danger to the public.

Mr. Scaturo: Based on the modeling we don't expect the dose to get near the concentration where it would be a threat to the public but ChemNuclear would be responsible for any remediation.

Senator Young: So that money would not come out of the escrow account that the state has?

Kokolis: I don't believe so. That is for extended care and maintenance as far as I understand it.

Ms. Patterson: Can you send me the sections of the regulations that the Sierra Club is basing their suit on so I can better understand their concerns?

Ms. Jenkins: Yes. One thing I failed to mention, the ChemNuclear annual update newsletter that we put together for residents and the public is now available and I have some copies here as well.

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

Shelly Wilson, Federal Facilities Liaison, SC Department of Health & Environmental Control

Questions from the Council:

Mr. Little: Regarding the missed FFA milestones and the dispute resolution process, what leverage does SC have to make DOE meet these milestones. We're in the kindness phase and the less kindness phase and someday we might get angry, and it's costing the US taxpayer more money to wait and run a facility at half-capacity. So without some kind of leverage or pain how are you ever going to achieve these milestones?

Ms. Wilson: Apart from the dispute resolution process, we do have other mechanisms that have milestones with stipulated penalties. The thing is that, for example, we have a saltstone permit that requires the tanks be closed by certain dates and the wastewater closure plan that requires the site to close the tanks by a certain date. The saltstone permit actually has a stipulated penalty in it of \$35,000 per day. But we have not reached the closure date yet. The closure date for the tanks is September 30, 2015 so we're not there yet but once we reach that date we do have the ability to leverage those stipulated penalties. It's not like we want that federal money because that is taxpayer dollars, but if we have to go that route then we will.

Mr. Little: You mentioned you had a couple of meetings with DOE. What has been the outcome of those meetings? What progress has been made?

Ms. Wilson: They have shared information with us. We have a better understanding about their issues. It was not enough to make us change our decision and so we are still where we were. We don't think the extension is warranted. So we will follow out the rest of the dispute resolution process. We are having other discussions with DOE at the same time. I am encouraged by recent discussions and hope we can craft a solution; we don't necessarily feel we are bound to the dispute resolution process, but we are committed to continuing.

Mr. Little: Who is invoking the dispute resolution process, DOE or South Carolina? You have the agreement and milestones. You don't have to do dispute resolution, they do. Are they invoking the dispute resolution?

Ms. Wilson: DOE invoked the dispute resolution process. Our Federal Facility Agreement stipulates the milestone dates that all parties agreed to so we are committed to working through that process. At the same time we have the other mechanisms available to us and can use them if we need to.

Mr. Little: What is the outcome of this? What is the trigger date for the event?

Ms. Wilson: Obviously we are hoping to be done by September 30 of this year.

Captain Cross: Shelly, how much money are we talking about?

Ms. Wilson: You mean how much is needed? That is a better question for the Department of Energy.

Captain Cross: I mean just a ballpark.

Ms. Wilson: Sure, it is a lot of money and I think for FY15 last I heard they were getting \$547 million; one of DOE's plans had \$687 million as their need per year to get more on track so that is quite a big difference.

SRS FY15 Budget Update

Doug Hintze, DOE-Savannah River Site, AMMS/CFO

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

Questions from the Council:

Ms. Patterson: You were thinking about doing 100 canisters or so a year. That is what you requested so what does that mean?

Mr. Hintze: In FY14 we did 126 canisters. In FY15 based on those numbers we are looking at doing 135-150. And so we will still produce that even though I was saying it was slightly less than what Congress appropriated, the pension savings will allow us to do the same scope of work. Scope-wise there will be no reduction.

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

Allen Gunter, DOE-SR Assistant Manager, Nuclear Material Stabilization

Questions from the Council:

Ms. Patterson: So H Canyon is sending 150,000-300,000 gallons of waste per year to the tank farm. I know it's not gallon-in gallon-out. Is the tank farm actually gaining space? Are you putting in more than they are getting out?

Mr. Gunter: Our input into the tank farm is a minor contributor to the inventory of liquid waste. They recycle much more coming back from DWPF than what we put in.

Ms. Patterson: You're not stressing available space?

Mr. Spears: We are basically holding our own or gaining space in the tank farm. Not significantly until SWPF comes online but we are holding our own. So we're not really adding but we are keeping stable.

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

Maxine Maxted, DOE-SR, SNF Program Manager

Questions from the Council:

Senator Young: On page 4 it says there are 18,400 assemblies. Are those aluminum or non-aluminum?

Ms. Maxted: Ninety-percent of those would be aluminum. Usually we have a 90/10 split between aluminum and non-aluminum. We no longer receive non-aluminum fuel. The non-aluminum we have is from past operations.

Senator Young: I'm looking at a DOE 2011 publication that says at the time there were 21,000 fuel assemblies in L-basin so it looks like it's gone down since 2011.

Ms. Maxted: Well we have processed a total of 187 bundles now. The fuel we did for SRE and the campaign for the a-rod. Each bundle can hold between three and five assemblies.

Senator Young: We have had a discussion before about the storage of these materials in L-basin beyond 2019. You have indicated that they are considered to be safe for another 50 years. What is the basis for that statement?

Ms. Maxted: That was the report that SRNL did in 2011. They went in and looked at the structural concrete of the facility, the fuel itself, and the water quality. Based on all of those, with corrosion and everything else, they felt the facility would last another 50 years. We have work that we have to do to maintain the facility. We check the water quality- pH, radionuclides, and conductivity. We also do a structural check for integrity. They will examine whatever exterior walls are available and then we also did a core sample from the C-reactor fuel basin to see if the concrete is meeting the requirements and it is actually stronger than what is required in the report.

Senator Young: At the current rate of use of H-canyon for processing these materials how long would it take to eliminate the 18,400 assemblies?

Ms. Maxted: When they did the report in 2011 I think they said it was going to take ten years to complete all of it.

Senator Young: Ten years from now or ten years from when it started?

Ms. Maxted: Ten years from when it started; at that time it was a ten-year timeframe. That is when they did the evaluation, but it would still be about ten years.

Mr. Gunter: It would be ten years because right now we are going at a fairly slow pace, we haven't even gotten the cycle up and running so once we get those, if you were running full speed, it would be about a ten year program.

Senator Young: So if we continue at the current pace now it might all be gone by 2025?

Ms. Maxted: We'd have to accelerate a little more but yes sir.

Senator Young: Are we bringing in any more waste?

Ms. Maxted: Yes sir, we do get waste from DRR & FRR I think we are expecting around 80 bundles next year. 80-90.

Senator Young: We had two earthquakes in 2014 and I remember when they happened I actually contacted people at the site and was told everything was fine. When that happens, what is done to ensure the integrity of L-Basin?

Ms. Maxted: We have procedures for when abnormal conditions occur and we actually had to pull out those procedures on the earthquakes. The safety analysis has assumptions on natural hazards. We have procedures in place to check facility integrity after an event like an earthquake, and the contractor did those checks and had the results by the time I got to work the next morning. They go through and do the structural integrity tests that we talk about. They re-check everything for cracks, to make sure they have power; they check the level of the water. Instead of doing regular rounds that becomes the priority for the day.

Ms. Patterson: Because the original record of decision was to do process the fuel using a melt-dilute methodology, do you have to get an amended record of decision (ROD) so you can process that fuel other than by melt-dilute?

Ms. Maxted: That is correct, other than the vulnerable fuel that we process. We did not have to get a change for that.

Ms. Patterson: So in FY23 & FY24 there is a lot of fuel going out. Is that going out by re-processing through H-canyon?

Ms. Maxted: Yes. The only way we can send it out right now is through H-canyon.

Ms. Patterson: There is no issue about getting amended RODs?

Ms. Maxted: No, that I think shows the 1000 bundles. I don't think that is looking at trying to de-inventory the whole basin. The HIFR fuel is what throws off that 10-year timeframe.

Ms. Patterson: So these have already been approved. To process these has already been approved?

Ms. Maxted: The 1000 bundles yes.

Ms. Patterson: I'm looking at where it says that the majority of the non-aluminum type fuel is either pitted or corroded. Could that be put in dry storage? Are we considering splitting the fuel and putting some of it in dry storage?

Ms. Maxted: That is what we would do. If we had a processing decision then the stainless and the zircalloy fuel would go into dry storage. That is why the proposed Idaho swap made sense; they have the dry storage capability.

Public Comment

Tom Clements, Savannah River Site Watch (public comment is available online here:
<http://energy.sc.gov/gnac/meetings>)

Meeting adjourned