

SOUTH CAROLINA NUCLEAR ADVISORY COUNCIL

MINUTES

(Approved September 7, 2006)

June 8, 2006

Room 209 Gressette Building
Columbia, South Carolina

Members present: Chairman, Mr. Ben Rusche, Dr. Vincent Van Brunt, Mr. Bill Mottel, Dr. David Peterson, Dr. Carolyn Hudson and Mr. Steve Byrne
Absent: The Honorable Greg Ryberg; and The Honorable Robert Perry

Staff present: Ms. D'Juana Wilson

I. Welcome and Opening Comments

The Governor's Nuclear Advisory Council convened on June 8, 2006, at 1:30PM. Mr. Ben Rusche, Chairman of the Council, called the meeting to order and welcomed the speakers and guests.

II. Approval of Minutes, March 2, 2006, meeting

Mr. Bill Mottel made a motion that the minutes from the March 2, 2006, meeting be approved, pending a typographical error to be given to the recorder. Dr. Van Brunt seconded the motion, and the minutes were unanimously approved, pending the correction that will be given to Ms. Wilson.

III. SRNL Programs

Dr. G. Todd Wright, Laboratory Director, Savannah River National Laboratory (SRNL), discussed the progress of the lab since its designation as the newest National Laboratory. Dr. Wright reported on SRNL's leadership in research safety. He reported the lab was named an Environmental Management "Corporate" laboratory. He stated

that SRNL has successfully developed and deployed technologies into complete one-of-a-kind projects. He reported on the research capability and said that the three research emphasis areas are: National Security; Energy Security and Environmental and Chemical Process Technology. Dr. Wright reported that the lab has an outstanding staff and has received national and international recognition for outstanding work.

[Please click here for a complete copy of Dr. Wright's presentation to the Council.](#)

There was a detailed discussion led by questions from Chairman Rusche and Mr. Bill Mottel regarding the national labs working together as a team. Dr. Wright reported that the labs are working as teams, with the leader of the team coming out of the Idaho National Lab. He said that all lab directors understand the importance of the program to the nation and continue to give attention to the teams working toward the common goal.

IV. SR MOX Program

The following persons presented to the Council a briefing on plutonium disposition. The presenters were: Mr. Kenneth Chacey, Assistant Deputy Administrator for Fissile Materials Disposition; Mr. Sterling Franks, Office of Fissile Materials Disposition, SRS; and Mr. David Stinson, President, Duke Cogeman Stone and Webster.

Mr. Sterling Franks led the discussion. He reported on the objectives of national security and nonproliferation. The United States – Russia Plutonium Management and Disposition Agreement commits each country to dispose of 34 MT of weapon-grade plutonium. Plutonium will be disposed of by burning it as fuel in mixed oxide nuclear reactors. Three facilities are to be constructed at the Savannah River site: Pit Disassembly & Conversion Facility; MOX Fuel Fabrication Facility; and Waste Facility.

Some of the recent accomplishments are:

- Received NRC authorization to begin MOX facility construction- March 2005;
- Successfully completed French fabrication of MOX fuel lead assemblies;
- NRC amended Catawba Nuclear Station license to irradiate the four MOX fuel lead assemblies; and
- MOX facility site preparation activities at SRS began in November 2005.

The Council was shown a video showing the planned site prep activities. It was reported that 73 acres have been cleared and grubbed. They have stripped 171,000 cubic yards of top soil and spoil piles. To date, 629,000 yards of 930,000 yards has been excavated for the MOX facility foundation. This is still in progress. The utility work to extend domestic, sanitary, and water utilities is in progress. Installation of primary telecommunications and electric services have been completed. The installation of utilities for the concrete batch plant is in progress. They have also completed the relocation of power lines.

Mr. David Stinson described the MOX facility. He stated that the plant is modeled after the facility in France. The status of construction contracts is:

- Requests for Proposals (RFPs) for \$200 million;
- Concrete Batch plant: RFP issued April 6, 2006; proposals received May 17, 2006;
- Structural construction package: RFP issued April 11, 2006; and proposals received June 6, 2006.
- RFPs for tanks, security doors and process equipment have also been issued.

Approximately 200 Disassembly & Conversion Facility Staff (DCF) staff will move to the SRS and the moves are expected to be complete by the fall of 2006. Peak construction staffing will occur between FY2010 and 2013.

Mr. Kenneth Chacey discussed the Russian Program and reported that following a delay of a little more than 2 years, the Russian Government reportedly is ready to sign a

liability protocol. Until last year, Russia planned to construct a MOX facility that was based on the U.S. facility. He stated that Russia wants to change the current approach to focus on advanced reactors providing full funding (\$2.7 B) is provided from the international community. The State Department has raised \$850 M thus far (\$400 M from the United States) but the international community is not likely to pledge additional funds. He also discussed the linkage between the U.S. and Russian Programs and reported that the 2000 Agreement commits each to dispose of plutonium in parallel to the extent practicable. Although significant progress has been made on the U.S. program, it could take several more years to develop the full 34 MT Russian program. He said that as a result, DOE intends to proceed with construction of the U. S. MOX facility in 2006 despite lack of progress in Russia.

He then discussed the fiscal year 2007 budget request and reported that the President requested \$603.3 M for Fissile Materials Disposition, with \$289.5 for MOX construction. He reported that DOE is working diligently with Congress to address concerns and secure MOX funding and DOE has sufficient funds in FY2006 to begin construction.

The next steps are to establish a performance baseline for the U.S. MOX project. They will begin a long-lead procurement for U. S. MOX facility in June, with construction of the facility this year. The U.S. MOX facility operating license application will be submitted to NRC this year as well. Mr. Chacey said that they plan to develop a technical path forward for disposing of all 34 metric tons of Russian weapon-grade plutonium.

There were questions from the Council and discussion regarding project technology and design and financing. There were also questions and discussion regarding the Russian's approach to funding.

For a copy of this presentation, please contact D'Juana Wilson at the South Carolina Energy Office.

V. SR Salt Waste Treatment

Mr. Terry Spears, DOE, SR, discussed the status of liquid waste activities at the facility. In his opening remarks, he stated that about three months ago there was a discussion about the need to revise the Disposition Pathway at Savannah River. This resulted in a couple of things, one being the extensive amount of time and energy spent on implementing the Section 3116 legislation, that has been resolved. Also, the decision regarding the Salt Waste Processing Facility (SWPF) includes enhancement of the seismic features of that plant. These issues caused them to look at the plan that was put forth to the NRC in a new light. From this an Executive Steering Group was formed on vitrified waste issues and sludge waste issues. He stated that they will continue to remove waste from the tanks to work towards the closure schedule of waste tanks at Savannah River. They are also continuing to receive waste from the canyons, particularly H Canyon as it continues to stabilize materials, another activity of the site; as well as preparing feed for future SWPF facilities.

These objectives have been put together and now there is a framework in place called the Disposition Processing Plan. This Plan allows them to meet the objectives and move forward in completing the waste disposition issues at Savannah River. Having the framework in place, the challenges are to continue to work with the SC DHEC and take

the lead; and to permit the activities that are called for in the Plan. With the permits in hand, they are in a good position to move forward robustly and complete the job. Mr. Spears agreed that timing is an issue and is something that they are not all pleased with, but, are continuing to move forward with the activities. He gave updates on some of the activities that are taking place. Mr. Spears reported that there was a public meeting in Aiken earlier (6/8/06) to discuss the NRC's request for additional information on the waste determination submitted earlier for Tanks 18 and 19. Information was given at this public meeting to support questions and plans regarding the closure of the two tanks. He presented to the Council copies of the waste determination for Tanks 18 and 19, the request for additional information, and the briefings slides from the meeting. Mr. Spears said that the slides will be posted on NRC's web site; and the responses for requests for additional information will be forthcoming. He anticipates that the NRC will move forward with their review of waste determination by the fall. He said they are continuing to prepare feed for the Defense Waste Processing Facility (DWPF). This is an on-going task. This builds up the storage facility and they are undergoing start up for storage building #2, with operation anticipated in the next week. Mr. Spears then introduced Ms. Ginger Dickert, Westinghouse SR Company.

Ms. Dickert reported to the Council that their overall objective is safe disposal of waste at the Savannah River site. She discussed the background of Salt Waste processing. Ms. Dickert said that there were changes during the most recent plan revisions and they went back into the developmental process to come up with an approach to the Plan. She discussed briefly each goal: safe operation; federal facility agreements for tank closures; sustained DWPF operations to process sludge waste; and

substantial legacy material stabilization through H Canyon operation. Ms. Dickert then discussed the key elements of the Revised Plan. She discussed each element:

- minimal use of DDA Treatment;
- longer operation of Actinide Removal Process (ARP)/MCU;
- maintaining viability of evaporator systems for a longer period of time; and
- staging of sludge from old style tanks into another new style tank.

Ms. Dickert reported that the additional key Plan elements are the:

- construction of a Saltstone Feed Lag Storage System;
- conversion of Tank 50 to HLW service;
- treating the Tank 48 organic-bearing waste to return tank to general service; and the
- improved Waste Determination Process.

Ms. Dickert then showed a chart with the SRS Tank Waste Disposition Paths.

The technology needs for the current plan are as follows:

- Tank 48 organic destruction process; and
- Heel removal and annulus cleaning techniques- annulus closure.

She reported that the results of the DPP are to be protective of the public, the workers and the environment.

Ms. Dickert then discussed the status of ARP and MCU facilities. She reported that:

- ARP and MCU is the cornerstone. She reviewed the ARP and reported that they are finished with classroom instruction and will now prepare for testing;
- an integrated contractor testing is in progress;
- construction is scheduled to be complete September 2006;
- water runs begin October 2006;
- stimulant testing to be complete in 2007; and
- construction will be complete in 2007.

Ms. Dickert said that they will continue effort and report on the progress.

Mr. Jeff Allison, Site Manager of DOE was recognized by Chairman Rusche and was asked to give a few comments.

Mr. Allison noted that there is progress made from the ground level. He said that a lot of difficult issues have been discussed. He agreed that the disposition of high level waste is a most important activity at SRS involving major risks. Chairman Rusche responded noting that several meetings have been held in Washington, DC between the State, DHEC and DOE and at the site with the objective of reaching an agreement on the appropriate technical and procedural approaches. Unfortunately, headquarters' technical and legal staff have been unable to reach an agreement on the content and form of a document that the Governor's Council and DHEC can accept. The Chairman noted that this impasse now must be resolved to allow the Salt Waste Treatment Program and related activities to proceed. He said that too much time has been lost on this essential procedural matter, while considerable technical progress has been made. This matter must be resolved soon for the interests of the State and DOE to be met. Mr. Allison agreed to continue to work with headquarters on a solution that works for all. DHEC has made several proposals only to be rejected by DOE. Finding a strategy that will allow salt processing to commence is essential for the DOE and the State. Both Mr. Allison and Chairman Rusche agreed.

Chairman Rusche and other Council members led a detailed discussion regarding issues on the state and federal level and resolving matters collectively and coming to a common understanding. Dr. Van Brunt asked Ms. Dickert to talk about ¹calixarene

A ¹calixarene is a macrocyclic oligimer that is a product of a phenol and an aldehyde. They are known for having a fixed dimension in their ring that enables them to readily participate in the host-guest interactions that characterize efficient extractant-solute chemistry. For the caustic side solvent extraction (CSSX) process that will be used to recover the radioactive cesium from the salts in the waste tanks at SRS, the calixarene used as the extractant is calyx[4]arene-bis-(tert-octylbenzo-crown-6) known as BOBcalixC6. The efficiency of the CSSX process to recover cesium will rely on having a sufficient quantity of the extractant at a sufficient purity. The solvent also has a modifier mixture of 1-(2,2,3,3-tetrafluoropropoxy)-3-(4-secbutylphenoxy)-2-propanol referred to Cs7SB combined with trioctylamine known as TOA. The extractant and modifiers are combined with a paraffin hydrocarbon diluent known as Isopar L to complete the four component CSSX solvent.

production and the quality, uniformity and consistency involving calixarene. He also wanted to know which tank will be the Evaporator receipt tank and Ms. Dickert stated that it would be Tank 25. There was a discussion about the salt space for tanks and Ms. Dickert explained the proposed process to the Council. He asked Ms. Dickert to discuss aluminum dissolution issues and she talked about the effects of the aluminum and the process that is used.

Following the discussion voicing concerns on resolving issues, Mr. Richard H. (Rick) Wilkinson, PE, Vice President and Manager of Procurement and Construction, Parsons, addressed the Council.

Mr. Wilkinson discussed the SWPF schedule, the overall project performance baseline and showed a chart highlighting the enhanced preliminary design. The 3-D plant model was shown. He discussed the technology development tests CSSX pilot test during Phase 1. They evaluated contactor efficiencies and hydraulics at production scale (1.6 Mgal/yr); optimized design configuration; demonstrated design, fabrication, and operation of production-scale CSSX system. He reviewed the testing technologies for: APA test; Cross Flow Filter Full-Scale test; and the CSSX Full-Scale test. The recommended future testing was described and the project design is on track with progress. The four main potential testing areas identified were: CSSX Solvent Flammability Data; Extended CSSX FST Operation; Erosion Testing; and CFF and Material Handling Demonstrations. Future testing is to be reviewed and approved by DOE. They are also considering pre-installation “run-in” of major process equipment

using local Test Facility or at Pasco. For a copy of this presentation, please contact D'Juana Wilson at the SC Energy Office.

Mr. Mottel voiced concern about the apparent design delay because of overlooked earthquake protection problems. He believes earthquake protection could have been provided on the original schedule. The incurred delay jeopardizes the Salt Waste Program and in turn our high-level waste program; this should not happen.

There were no comments from the audience.

The meeting was adjourned at 4:15 PM.