



SRS Citizens Advisory Board

Salt Processing Focus Group

Meeting Summary

October 24, 2000
Aiken Federal Building
Aiken, SC

The Salt Processing Focus Group met on Tuesday, October 24, 2000, at 5:00 p.m. at the Aiken Federal Building in Aiken, SC. Attendance was as follows:

Bill McDonell
Lee Poe
Mike French
Ernie Chaput

Eloy Saldivar
John Reynolds, DOE
Paul d'Entremont
Kelly Dean, WSRC

Lee Poe welcomed everyone and started the meeting. He mentioned the upcoming 11/1/00 Waste Management committee meeting in which Mr. French is to brief the committee on the FG status. Mr. Poe is to brief this same committee at their 11/13/00 meeting.

Annulus Cleaning

Eloy Saldivar, Waste Removal Design Authority Manager, discussed annulus and secondary containment cleaning. Mr. Saldivar gave a description of the annulus and the circular dehumidification duct that surrounds the tank. The secondary containment of a waste tank provides a location for collection of any leakage from the primary tank shell. The tanks with waste in the annulus are Tanks 1, 9, 10, 11, 12, 13, 14, 15, and 16.

Mr. Saldivar continued with a description and graphics of the 4 Tank Types. He then described various cleaning options that were evaluated by the Tanks Focus Area (TFA) (EM-50) based on applications at other DOE sites. One such cleaning mechanism is the long reach arm. This arm can reach the top and bottom of the entire annulus space, but a disadvantage is multiple deployments in 20 " risers. Another technology is the magnetic crawler vehicle. This crawler can move around the entire annulus space in a single riser deployment but has a limited payload, and any obstruction causes the vehicle to fall. The concept is reasonable for this option. Another option would be the walking machine. This machine can move around the entire annulus space in a single riser deployment, but has a limited payload for delivering tools and obstructions cause the vehicle to fall. The last technology that Mr. Saldivar discussed was the waste retrieval tooling, made up of mixing and transfer pumps. This option is an effective technology, but the ductwork and supports in the annulus complicate the waste removal with this tooling approach.

The trick to cleaning the annulus is getting the waste out into an acceptable container and an acceptable disposition path. Mr. d'Entremont added that SRS believes the waste in the annulus is salt. If SRS could get water there to solubilize the waste, then we could better deal with it. The trick is getting the water in and out. Tank 16 is different in that it was sandblasted several years ago and the sand has mixed with the salt, forming an insoluble mixture. Mr. Saldivar mentioned that a vacuuming system would probably work in this situation.

When questioned about the types of interferences in the annulus, Mr. Saldivar answered that the opening, the 40' depth, the 2 ½ feet width of the annulus, the duct, and the area underneath some of the tanks all pose challenges to annulus cleaning. Mr. Chaput questioned the position of transfer and coolant lines. These are all above the tanks and not located in the annulus. Mr. Poe clarified that there are no cooling coils in the annulus and that air is circulated in the annulus space.

Mr. Newman recounted the tank closure history and schedule. SRS has closed two tanks of the first 4-pack, and plans to close Tank 19 in 2003 and Tank 18 in 2004. Then SRS is not required to close another tank until late 2010. Tanks 1-8 located in F-Area are scheduled to be closed in 2022. These tanks are non-compliant. Mr. Newman made two points, one being that the next series of tanks (9-12) scheduled to be closed in 2011 are Type II tanks with salt in the annuli, and the second point being that DOE is not interested in delaying this process until 2011.

When questioned about the process used to clean the Tank 16 annulus, Mr. d'Entremont answered that 70% of the waste was removed from the annulus with water and bi-directional jets. When asked about the amount of waste that can be left behind, Mr. Newman responded that there is no minimum or maximum number of curies. The requirements are to clean up the waste as much as is economically and effectively practical. SRS has developed a baseline to work from. It is obvious that SRS can't leave the same amount of waste in each of the tanks. In the practical world, SRS has to predict if the tanks can be closed. SRS has developed a working level at which tanks can be closed. In some of the tanks 100 gallons of waste may have to be left, not necessarily to meet the Performance Objectives, but to meet the Class C Waste Classification Objectives.

Mr. Chaput asked if it is known what is in the annulus under the tanks. Mr. d'Entremont answered that SRS won't know until we get to the bottom of the tank, then robots can be sent to the floor of the tank to measure what is underneath the tank. If there is a lot of salt there, SRS has ways to measure the cesium content. Mr. Chaput asked if the regulators (DHEC and EPA) have bought off on this closure concept. Mr. d'Entremont responded that they have and reminded the group that most of the leakers have sealed themselves off. There are only 4 tanks to deal with that have inches of waste in the annulus.

Action: Mr. French committed to get Mr. Saldivar the necessary information for the Three Mile Island vacuuming process.

Mr. Saldivar committed to pursue technology planning for the division with the TFA.

Environmental Contamination from SRS HLW Tanks

Mr. d'Entremont explained why waste in the tank annuli doesn't leak to the environment. The annuli are ventilated with warm air to maintain waste as a dry, immobile salt. Inspections verify the condition of secondaries and the waste. For the most part, waste has not moved in the annuli.

Mr. Newman added some information about the monitoring wells. Monitoring wells show that contamination isn't reaching groundwater. There are 60-70 monitoring wells around the tanks and within a few feet of them. SRS is now able to purge these wells to better test the water. Tanks 9-12 were intentionally built 60-70 feet below grade in the water table. In some cases, the entire tank is in the water. The monitoring test results are posted in the annual *Environmental Monitoring Report*.

Mr. d'Entremont explained that the only known leak of more than 100 gallons of HLW that was not cleaned up was in 1961. In this case, Tank 8 was overfilled, and the overflow went to the catch tank. It was believed at the time that the contamination had been contained in the catch tank. However, in 1974, some cesium was found in the soil around the tank. A series of dry wells was dug at the time to assess the extent of the leak. Based on the data from the dry wells, it is estimated that about 5,000 curies of Cesium-137 leaked into the soil. Other spills include a surface spill from Tank 13 of about 100 gallons that was cleaned up, and another surface spill from Tank 9 that was also cleaned up.

Mr. Poe questioned the investigation of the Tank 16 leak that stopped itself. Mr. d'Entremont explained that the Tank 16 leak is difficult to get to because it is so far down. He continued by stating that as SRS continues to monitor for waste, it hasn't moved to a large extent and hasn't made it to the water table. Right now the state is worried about the large amount of waste in the tanks. DHEC wants to close the tanks, then concentrate on the material around the tanks. They haven't made a decision on what to do with the waste around the tanks. The material is stable at this time.

Mr. Newman reiterated that much testing has been done. Work has improved and there is new information available. There are new wells that go several hundred feet around the tank farms. Contamination (tritium) has been found, but the source is not a leaking tank. There is a Record Of Decision (ROD) on the H-area Operable unit, and biggest result is probably going to be the presence of organic contamination in the ground water. But other than tritium there is no radiological contamination.

When asked if leaks are likely to occur, Mr. d'Entremont answered that a program is in place to monitor structural integrity of the waste tanks. There is occasional groundwater in leakage into the secondary containment. In the spring, SRS knows the annuli will have water in them. But they dry out, and for the most part, stay dry and the waste is immobile. SRS inspects as much of the annulus as can be seen.

Mr. d'Entremont handed out several pages from the *Savannah River Site Plan for Performing Maintenance in Federal Facility Agreement Areas (O&M Plan)*. This plan identifies the RCRA/CERCLA Units and Site Evaluation Areas within the F- and H- Area Tank Farms and surrounding areas.

Mr. Poe asked for further discussion. There being none, he dismissed the meeting at 7:45 p.m.

Meeting handouts may be obtained by calling 1-800-249-8155.