SRS Citizen's Advisory Board

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Salt Processing Focus Group

Meeting Summary

October 5, 2000
Aiken Federal Building
Aiken, SC

The Salt Processing Focus Group met on Thursday, October 5, 2000, at 5:00 P.M. at the Federal Building in Aiken, SC. Attendance was as follows:

Bill McDonell	Jerome P. Morin, WSRC
Bill Lawless	Joe T. Carter, WSRC
Lee Poe	John Reynolds, DOE
Mike French	Steve Piccolo, WSRC
Ernie Chaput	Kelly Dean, WSRC

Mike French welcomed everyone and started the meeting.

Acronyms

AST-Alpha Sorption Tank	IIT-Illinois Institute of Technology
CBD-Commerce Business Daily	MST-Monosodium Titanate
CIF-Consolidate Incineration Facility	Na-Sodium
CST-Crystalline Silicotitanate	ORNL-Oak Ridge National Lab
CSTR-Continuous Stir Tank Reactor	PD-Palladium
CSSX-Solvent Extraction	PU-Plutonium
DWPF-Defense Waste Processing Facility	QA-Quality Assurance
EIS-Environmental Impact Statement	SRS-Savannah River Site
FG-Focus Group	SRTC-Savannah River Technology Center
Gpm-Gallons per minute	SWPF-Salt Waste Processing Facility
HFIR-High Flux Isotope Reactor	UOP-United Oil Products
HLW-High Level Waste	
IE911-Ion Exchanger	

Trade Studies

Relocation of the Salt Cell from DWPF to SWPF

Mr. Carter made this presentation. The purpose for the salt processing cell is to reduce aromatic carbon sent to DWPF by 90%. The general process description is as follows: the washed precipitate is hydrolyzed in the reactor, the benzene is distilled and sent to CIF, and the precipitate hydrolysis aqueous

is sent to DWPF for vitrification. The change in this process is that the aqueous is sent to DWPF instead of the precipitate. This process also removes the benzene handling from DWPF.

He then outlined the salt processing cell flow diagram. The process is the same as in the present salt cell. The equipment itself will not be relocated because it doesn't have the capacity that was needed. This cell flow diagram applies only to the small tank alternative. The primary drivers for relocation are that the safety hazard will be maintained in a single facility, the environmental impact is reduced, and cell space is freed up at DWPF for space management alternatives for recycle.

The primary drivers for relocation are the increase in waste processing and the reduction in life cycle costs. SRS will get out of the tanks faster with bigger salt cell reactors and processing time will be reduced by 28 months. Total number of glass canisters is driven by weight loading. Rev. 11 of the System Plan plans around 200 cans/year. Also, Life cycle cost reduction will be realized also because the precipitate hydrolysis aqueous is concentrated. The overheads are recycled to reduce wash water, to reduce Saltstone, and to reduce recycle to tank farm.

Mr. Carter continued his discussion. Building size would have to be increased by ~10,000 square feet. The building would still be smaller that DWPF, ~ 75% of the DWPF area.

Alpha Removal Process Configurations

The purpose for the alpha sorption process alternative is to reduce risk associated with a large cross-flow filter area and high capacity pumps. The general process involves transferring fresh waste to the AST and diluting it to 5.6 Molars sodium. Then MST is added and reacted for 24 hours in the AST. It is then analyzed for decontamination. The resulting clarified salt solution is filtered with the filtrate going on to CSSX or Ion Exchange for Cs decontamination. This process requires an 8500 gpm feed pump.

A Systems Engineering Approach was utilized to evaluate the alternatives. The criteria and weighting factors were as follows: process complexity, technical maturity & risk, process flexibility, relative cost compared to baseline case, and relative impact on process equipment.

Several alpha removal process configurations were investigated.

- The baseline case involved all the operations performed in an 119,000 gallon AST with a 3,000 square feet cross-flow filter area and a 5600-8500 gpm filter feed pump.
- With the "AST with a filter feed tank added" case, analytical hold and filtration were performed in a filter feed tank. The tanks are smaller in this case, but there are more of them.
- With the "analytical hold in AST with filter feed tank added" the analytical hold and filtration pack would be separated and moved to a new vessel. This case involves two equal sized tanks--about 60,000 gallons each.
- Two Parallel AST's with filter feed tank is similar to AST with filter feed tank option, but results in a 1000 square foot cross-flow filter area.
- Three parallel AST's with filter feed tank is similar to the two parallel AST's option and also results in a 1,000-sq. ft. cross-flow filter area.

Salt Schedule, Commerce Business Daily Article and Concept Paper

Mr. Reynolds stated the schedule hasn't changed since he last updated the FG. The draft EIS is being reviewed at HQ. DOE-SR continues to communicate and answer questions that arise. There have been some questions from the reviewers concerning consistency in data used in the Tank Closure EIS and the Salt Processing EIS since these are being reviewed at HQ simultaneously. The draft should be out in late November with the Record of Decision coming in October '01. There is not a preferred alternative named in the draft EIS. The preferred technology will be named in July 2001 in the final EIS.

A RFP has gone out to gauge interest in the business sector now. There is a meeting next Thursday (10/12/00) and another planned in November with potential bidders to answer questions. WSRC is tasked to continue conceptual design on common systems. The down select decision will be made in June 2001. WSRC will continue with the conceptual design for the selected technology. The plan is to complete conceptual design and the conceptual design report. Then WSRC will "hand off" to the new contractor to start the preliminary design. January 2002 the contract will be awarded, with the conceptual design and pilot plant done in parallel with the award.

The contract is divided into four phases, and only the first is authorized. DOE can authorize the next phase to the acting contractor without a rebid. If a different contractor is needed, then the contract is rebid.

National Academy of Sciences Report

DOE is finalizing its analysis of the reports, the one from a year ago and the final report. The report was critical, but they do believe SRS has chosen the correct technologies to study. The NAS stated the down select process identified viable options. The majority of the feedback and recommendations have been reviewed and incorporated in the R&D Plan. Based on the NAS conclusions, Solvent extraction has been added back and the alpha removal process is being studied. SRS has responded to recommendations and is working through the questions in Chapter 8. The NAS report indicates SRS could direct grout some of the tanks. The report challenged blending. SRS concluded that there are no tanks that could be processed and still remain within Saltstone WAC. The EIS will reference the reports and DOE's conclusions.

Mr. Reynolds continued with other questions the NAS voiced in their report. They questioned the sequence of the alpha removal step. They thought they if the sequence were reordered, then shielding would not be required. They questioned sludge, the mismanagement of this process, and the filtration issues. SRS has responded to and studied each of these questions.

The focus group decided that, before the EIS is issued, the group needs to be informed about expected environmental releases from the four technologies, the cost analysis for each, and the DOE update on procurement status and schedule. After the DEIS is issued and before commenting on the EIS, the group needs to be briefed on environmental consequences and other key EIS issues for the four alternatives, R&D status, and an update on the NAS activities. For October the group wants a presentation on the tank annulus, tank closure, tank leakage, and an update on the DNFSB Report. The group would like to have an update on Technology development programs and the Tank Closure EIS for the November meeting.

The next meeting was scheduled for Tuesday, October 24, 5:00 p.m., Aiken Federal Building.

There being no other discussion, Mr. French adjourned the meeting.

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