



SRS Citizens Advisory Board

ITP (Salt Disposition) Focus Group

Meeting Record

August 6, 1998

Holley House, Aiken, SC

The ITP Focus Group met on August 6, 1998 at the Holley House, Aiken, S. C. The purpose of the meeting was to develop criteria to evaluate the four alternatives. ITP Focus Group members in attendance were Lee Poe, Karen Patterson, Bill McDonnell and Mike French. Bill Spader and Julie Petersen attended as members of the Department of Energy Savannah River Operations (DOE-SR). Members of Westinghouse Savannah River Company (WSRC) were Steve Piccolo, Kelly Way and Jim Moore.

Lee Poe, Chairman, welcomed all those in attendance and stated the evenings agenda. Mr. Poe stated that he would try to summarize what was learned to date, Mr. Piccolo would give his unfinished presentation, and then they would develop review plans for the August 13 meeting at the site.

Summary of Past Meeting Understanding:

Mr. Poe stated that in looking for an ITP replacement they started with 130 to 150 alternatives, narrowed it down to 18 in the May time frame and then further reduced the number to four in mid-July. Plans are to complete the selection process by October. There was a clarification of the statement. Mr. Spader explained that they were not attempting to find a replacement for ITP, but look at alternatives or variations to make ITP successful. Mr. Poe continued stating that via the risk assessment process, the team developed a list of 18 alternatives. They reviewed experiments, technical reports, and operative experiments to the alternatives to see the risks were real. They did in-field reviews to establish risk reality, completed risk assessment charts and did the weighted evaluation criteria process. In the weighted evaluation criteria process, they established criteria and sub-criteria and weights, assessed sub-criteria for alternatives, weighted and totaled the evaluation score, and ranked the scores. Mr. Poe stated that after some review of the process with other members of the group, there were some questions that still remained. He had asked Mr. Piccolo if he would spend some time explaining the three questions. The questions were, how do risks fit into overall alternative selection, how does flowsheet analysis fit into alternative selection, and how does the alternative selection use integration of the three boxes (weighted evaluation criteria process, risk assessment process and flowsheet analysis)?

Mr. McDonnell asked if they had discussed the Technical Focus line in the process flow diagram. Mr. Piccolo said that yes that had been explained in the principles of the Flowsheet Analysis. This included looking at equipment size, material and chemical balance and initial tests vs. scientific results.

Presentation by Mr. Piccolo:

Mr. Piccolo discussed the relationship of the technical focus, management focus and business focus. He started with the technical focus. Mr. Piccolo stated that he was most proud of the flowsheet used in the technical focus. The flowsheet uses both a system and model basis. The purpose was to make sure the operations were modeled. It was important the models met all of the Site Treatment Plan (STP) and the Federal Facilities Agreement (FFA). The flowsheet reviewed the infrastructure necessary to handle the specific alternative. As an example, to process 6M salt solution/year, it would be necessary to remove 10m gallons per year from the tanks. That would require a large infrastructure which would make the facility a limiting factor. The flowsheet looked at material balance, schedule time, feed stock, etc. The flowsheets were scientifically reviewed to see comparative issues and independent checks were completed. They were reviewed from a chemical and physical stand point.

Mr. McDonell asked if the alternatives were numerically rated? Mr. Piccolo said no but the flowsheet feeds the value process. Mr. Poe stated that it sounded like a go/no go process. Mr. Piccolo stated that yes, for instance the fractional crystallization alternative was close to a no go because the number of sections of fractional crystallization needed to run the counter current flow to get the correct quality of product, overloaded the computer model used as part of the evaluation. The flowsheet was reviewed to see if the alternative would work or not. The flowsheet in Phase II was used to find out if the technology was available to bring the salt to a final solution, from an engineering stand point would it function and from an R&D stand point, did we know the chemistry.

Mr. McDonell asked if in the risk assessment process did they rank the alternatives? Mr. Piccolo stated that they could have, but they didn't. They felt if they would have done that, they would have prejudiced the other options. The team wanted to run all three parts of the process separately and then make a decision. If they would have ranked the alternatives at any one of the sections, it could have stopped the focus.

Mr. McDonell asked if any of the alternatives were high risk? Mr. Piccolo stated that yes, the potassium removal option was high risk. Mr. Piccolo stated that while the option was brilliant, it couldn't work. He stated that the flowsheet pointed out that it couldn't work. To many cans were required to get the potassium out.

Mr. Piccolo stated that once the flowsheets were complete, subject matter experts and operations people reviewed them to make sure from their general knowledge that risks had been identified and the product quality was satisfactory. Each flowsheet was reviewed with the environment, the worker and licensing in mind. The technology science and engineering maturity was reviewed to make sure the operation was a simple design based on first principles. Example, on the fractional crystallization, if after 32 crystals the operation had to stop and be shut down, then that alternative wasn't functional.

Mr. Piccolo stated that with the flowsheets complete, the risk assessments were reviewed. The high risks on the probability tables drove the decisions. Risks were reviewed to see if the risk could be mitigated. It was determined that any risk ranked above a 0.3 would require mitigation strategy verses the 0.5 textbook recommendation. The 0.3 was used to be conservative. If a

mitigation was used, they went back to the flowsheet to incorporate the change. They had an inventory of risks and a model flowsheet.

Mr. Piccolo stated that in the business focus, the weighted evaluation criteria was used to force consistency. The ranges were based on the scientific maturity. If a gleam in a persons eye, it was rated a 0. If you could go look at the process running in a nuclear facility, then it was rated a 100. Mr. McDonnell asked what were the parts of the weighting values? Mr. Piccolo stated that there were six parts: technology, current missions, future mission, safety, engineering and cost/schedule. Mr. Piccolo stated that during Phase II, it was important that the technology was available and that the alternative could work in the field. He stated that during this phase, technology, safety and engineering were most important. These areas were weighted 23%, 23% and 20%, respectively. In this phase, mission and cost/schedule were low. However, in Phase III, mission and cost/schedule would be weighted high.

Mr. Piccolo stated that the flowsheet and the risk sheets confirmed experience compared to the rank. The purpose of applying numbers was obtain a level playing field. The team was not looking for minor breaks in the ranking of the alternatives, but clear gaps. The Ion Exchange options resulted in a clear break with the top four. A raw sensitivity analysis was completed to see what kind of variation would have changed the selections. The team used an increase in 10% in all the options except they used plus and minus 20% in the utility function. The top four remained the top four.

Mr. McDonnell stated the weighted evaluation was not done in Phase I, but in Phase II. Mr. Piccolo answered yes.

Mr. Poe stated that he hasn't seen documented evidence that the process was used to move from the 18 to the 4 alternatives. Mr. Piccolo stated that was correct. He stated that when the focus group selects their criteria, they should be able to walk through the process and come up with the same alternatives. He stated that he didn't want to unduly influence the focus group's analysis.

Mr. Poe summarized his understanding that in Phase II, Mr. Piccolo has explained how risk fits in and the weight criteria. The flowsheet was explained that if it didn't make sense as in the equipment size, then it was a go or no go. The three boxes were used such that if it was a good flow sheet and the risks could be mitigated with the weighted evaluation, then it made the final four alternatives. Mr. McDonnell stated that it was important to note that the risk and flowsheet input to the weight evaluations was not done independently. Mr. Piccolo stated that yes, all the sponsors to the flowsheet were in the room while going through the weighted evaluation. Mr. Poe stated that the work may have been done by different groups, but all parts were pulled together to do the evaluation.

Mr. French asked Mr. Piccolo to explain the number at the end of the weighted evaluation score sheet. Why did it get a 3 and not a 4? Mr. Piccolo stated that they considered Zeolite a non-elutable ion exchange. This grouped resins together. The ion exchange was ranked to heavily which gave zeolite a high score. When they reviewed the process, they found that val reduction and Ph were not so good. However, the flexibility was really a problem. The balance of the salt and sludge had to be just right. If one was missing, the recovery nears the lack of knowledge.

The crystalline silicotitanate (CST) alternative is more selective. If the salt or sludge is not balanced, you can still make glass, so it works.

Mr. McDonnell asked if risk would be different in Phase III. Mr. Piccolo stated that yes, there were some serious discussions as to how to apply risk in Phase III.

Mr. Poe stated that the focus group had four alternatives to be reviewed, but they only had the paperwork for one. Mr. Poe had requested that Mr. Piccolo give the other 3 alternatives to the group along with a longer written explanation that tells about the flowsheet. Mr. Poe recommended that each member of the group become familiar with one of the alternatives.

Discussion of August 13 Meeting:

Mr. Poe reviewed a strawman possibility of how the meeting might go on August 13. He stated that Mr. Gnann would give a 10 minute introduction giving DOE's view of ITP after October. Then they would allow two hours to review each alternative. The two hour segments would be subdivided as follows:

- 20 minutes – Briefing by Focus Group Alternative Reviewer
- 20 minutes – Focus Group review and development of questions
- 40 minutes – Interview with WSRC experts on alternative
- 40 minutes – Focus Group brainstorming and conclusions lead by FG Alternative Reviewer

Mr. Poe stated that they needed to have a final product. He stated that Karen Patterson had a strawman outline. There needs to be consideration of the areas for which the focus group may contribute to the analysis, assignment of alternative reviewers and a look at how the group proceeds after August 13.

Ms. Patterson reviewed a proposal of the final product. She stated that the report should go to the Citizens Advisory Board (CAB), DOE and WSRC. She stated that the sections would be an introduction, a review of the methods, the evaluation criteria used and then the conclusions. The conclusions included:

- strengths/weaknesses of each of the "Final Four", based on our evaluation criteria, and why
- Criteria we consider most important when making the final selection and why.

It was recommended another be added. It was:

- Does the focus group agree with the process that WSRC used to reduce the 130 alternatives to the final four?

Mr. McDonnell stated that it was important that they had a good understanding of the process to be used to make the selection. He stated that the focus group needed to look at the criteria to see if they agreed and if they tried to apply it, would they come up with a slightly different point of view. Mr. Piccolo stated that there was value in both. When the focus group looks at the risk sheets/weighting criteria/flowsheets, would the focus group find other risks or holes in the process.

Mr. Poe led discussions on the process to be used on August 13. The conclusion was that the four alternatives should be reviewed consistently with the same criteria. Each Focus Group Alternative Reviewer would as a minimum, and in this priority, look at integrated safety (regulatory/environmental), cost and schedule, and current/future mission interface. If possible, they could review the technology and engineering criteria. It was warned that time would be of the essence and that the experts on the ITP team would have to be used in a time expeditious manner. Mr. Piccolo suggested that the reviewers look at the alternatives and ask themselves: Did the team use the right process? Is it a fairly reasonable schedule? Is anything missing? Do the conclusions of the process make sense up to that point? Evaluate the process and application of the process. Draw a conclusion on the process. Are there any fatal flaws?

The alternatives were assigned as follows:

- # 18 – Karen Patterson - Direct Disposal as Grout
- # 13 – Mike French – Small Tank TPB Precipitation
- # 6 – Bill McDonell – Non-Elutable Ion Exchange
- # 14 – Lee Poe – Caustic Side Solvent Extraction – DWPF Vitrification

It was recommended that Todd Crawford and Wade Waters read as much background information as possible. Mr. Poe requested that Mr. Crawford and Mr. Waters be Fed Exed all the material on August 7.

It was decided that next week they would decide on how to finish up the focus group. Mr. Piccolo requested that the report be furnished to him by October 1 so the input could be used in his evaluations of the final four. It was recommended that Mr. Piccolo draw up an evaluation sheet for the focus group to fill out before they disband.

Mr. Poe handed out the information the alternative reviewers needed to complete their work. It consisted of:

- Life cycle cost reports
- Sensitivity analysis
- Mr. Spaders report – Summary level
- Descriptions - Advantages and disadvantages

Mr. Poe asked Mr. Spader what was the conclusion of his report. Mr. Spader stated that it said the four alternatives were reasonable.

It was decided that Mr. Piccolo would furnish a van so the focus group could meet at the badge office and leave at 8:00 p.m. on August 13. Those individuals who do not have badges need to be at the badge office at 7:30 p.m. so they can be ready to leave the parking lot at 8:00 p.m.

Mr. Poe adjourned the meeting.

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