



SRS Citizens Advisory Board

Environmental Remediation and Waste Management Subcommittee

Meeting Record

December 12, 1996

North Augusta, S.C.

The CAB ER & WM subcommittee met on December 12, 1996. Mr. Lawless opened the meeting with introductions. Other subcommittee members present were Kathryn May and Deborah Simone. Attending from DOE-SR were Bert Crapse, Robert Baker, Joan Baum, Brian Hennessey, Phil Prater, and Tom Treger. Brent Allen attended from the South Carolina Department of Health and Environmental Control (SCDHEC). Attending from WSRC were Mike Griffith, Ron Steve, Coleman Miles, Casey Knapp, Chris Bergren, Bart Marcy, Dave Herman, John Gladden, John Adams, Bill Rajczak, Gayle Bumgarner, Dennis Bickford, Donnie Helton, and Joe D`Amelio. Public attendees included Lee Poe, Wes Smith and Murray Riley. de`Lisa Bratcher attended as the Associate Designated Deputy Federal Official, ADDFO.

Bert Crapse gave an overview of the proposed Soil Consolidation Facility (SCF) which is being studied as a way to streamline and consolidate the remediation of approximately twenty waste units at SRS. The remedial action objectives include minimizing the number of waste units requiring operation and maintenance (O&M), reducing the contaminant source to meet cleanup levels, and the use of generic remedies and an expandable/flexible design while attaining stakeholder established Land Use goals. The proposed Soils Consolidation Facility study developed and evaluated four facility alternatives: an earthen facility, a concrete facility, the K-Reactor facility, and the high level waste tanks. Mr. Crapse explained that of these alternatives the earthen facility design with no liner alternative was chosen for detailed analysis.

Mr. Crapse showed a diagram of a typical soils/debris consolidation facility, such as those used at Hanford and Fernald, and explained that the proposed SRS SCF would be located in E-Area near the center of the site.

Mr. Crapse explained that the high level waste (HLW) tank alternative which had been proposed for consideration in the remediation of the Old F-Area Seepage Basin in CAB Recommendation #22 was discounted for several reasons. The main reason being that the HLW tanks could only accommodate 30% of the soil volume being considered for disposal. Other reasons included schedule impacts to the closure of the HLW tanks, increased costs, and the increased potential for worker exposure. Mr. Lawless stated that he hated to see contaminated soil removed and put in a clean area and clean soils put into a contaminated area; and since the tanks would have to be grouted with a concrete-like material why not use the contaminated soil. It was noted that the highest curie activity, highest risk and highest soil volume site, R-Area, could not be taken care

of by all the HLW tanks and that there was also a handling problem in using a contaminated concrete mix slurry to fill the HLW tanks. Coleman Miles noted that for these reasons the ideal place to put the contaminated soils was in E-Area.

The SCF alternatives for detailed analysis were explained and they included: (1) a $10E-5$ cap with no liner which protects the receptor at the Upper Three Runs Creek for 1,000 years, and (2) a $10E-6$ cap with no liner and pretreatment grouting of some of the waste which protects the groundwater receptor (groundwater at one meter) for 1,000 years. These alternatives will be compared with the baseline alternatives in the study which were developed using an assumption of basis, for purposes of estimating economies of scale, of 20 waste sites with a combined waste volume of approximately 600,000 cubic yards and a defined inventory of radionuclides. These baseline alternatives are: (1) capping the twenty waste units in place and (2) in situ grouting and then capping the twenty waste units in place, (it should be noted that the alternative study to be submitted to EPA/SCDHEC does not determine that 20 waste sites should or should not be sent to the SCF but it is an assumption of basis used for estimating purposes). Groundwater impacts were discussed; a $10E-5$ cap with no liner would impact the groundwater but not the surface water.

The depth of the groundwater is sixty feet below the bottom of the proposed SCF location in the SRS burial ground and the SCF itself would be twenty feet deep. Brent Allen noted that the groundwater divide at SRS runs through/below the E-Area vaults and asked what type of modeling was used to evaluate the groundwater impacts and if other existing sources were factored into the evaluation. Joan Baum explained that Pathway was used and the data included the estimate of 600,000 cubic yards of contaminated soil from the twenty waste units as well as other sources such as the Old Radioactive Waste Burial Ground. Mr. Lawless asked if any of the four alternatives would meet the State's and EPA's criteria for groundwater protection. Brian Hennessey stated that in situ grouting and a cap for each of the twenty waste units would meet the requirements.

Mr. Crapse then covered the path forward for the SCF study which includes determining the viability and cost effectiveness of the four alternatives. The report will be completed in early January 1997. Mr. Lawless asked for a briefing, with the costs of the alternatives detailed, on the SCF final report in January. Mr. Crapse explained that a January briefing would not allow enough time for the regulators to review the report and requested that the briefing be scheduled after receipt of comments from EPA/SCDHEC.

The next presentation was the shutdown of the River Water System (RWS) at SRS and was given by Bart Marcy. Mr. Marcy explained the RWS operational history, the current issues relating to shutdown, and the NEPA process to address the issues. Mr. Marcy said that since there are no reactors operating the RWS is no longer needed for present site missions. DOE proposes to shutdown the system to save operating, maintenance, and repair costs, which will result in a savings of \$1.5M/year.

Mr. Marcy discussed PAR Pond which is a reservoir originally built by SRS to provide cooling water and dissipate heat generated from both P- and R- reactor operations. The pond received about 220 curies of radiocesium (CS-137) during the period the reactors were operating. Mr.

Marcy said that since Par Pond had been refilled after being partially drained to allow for dam repairs, its level had not fluctuated much and was generally around 199 feet. The goal is to maintain the level above 195 feet to shield the radiocesium contamination and to maintain the pond's diverse ecology. The RWS shutdown will also mean that L-Lake (another reservoir built by SRS) will slowly disappear and revert to Steel Creek in about 10 years.

The three alternatives considered in the Environmental Impact Statement (EIS) were (1) No Action (continue to maintain L Lake) (2) Shutdown and deactivate the RWS (L-Lake disappears) and (3) Shutdown and maintain the RWS (L-Lake disappears but the RWS can be restarted in the future if needed). The third alternative (shutdown and maintain) is DOE's preferred alternative.

Questions and discussions included: what is gained by keeping the pumping system operational, how much water is currently being taken from the aquifers, what are the ecological impacts of RWS (including contamination levels in the fish in L Lake), and what are the water rights (i.e., obtaining permission or permits necessary to withdraw water again from the Savannah River) if the alternative to shutdown and deactivate was later followed by a DOE restart of the RWS.

Subsequent to the meeting Mr. Marcy supplied information on the water rights question, he said that to restart and withdraw water from the river again, SRS would have to have an NPDES permit from the State. He said there are no water rights per se. Mr. Marcy also noted that some of the requested information is available from the draft EIS itself and the SRS Annual Environmental Report for 1995. He said the ecological data on fish contamination would be supplied to the subcommittee.

Mr. Marcy said in conclusion that the decision to shutdown and then maintain the RWS in a condition where it could be used again if needed was basically an operational decision and reflected a cost effective approach to operating the site. Mr. Lawless asked if the comment period on the draft RWS EIS could be extended so that a motion could be developed and brought before the Citizens Advisory Board at their January 28, 1997 meeting. Mr. Marcy said he would check with DOE on the possibility of extending the comment period.

Dr. Joel Massmann, University of Washington, joined the meeting via telephone. Robert Baker gave an update on the work done to date in Phase I and II of the F & H Seepage Basin groundwater remediation project. The purpose of Phase I was to design, construct and operate the water treatment units and the purpose of Phase II is to evaluate the performance of those units and look for ways to enhance operations. Mr. Baker explained that Phase I was ongoing with the extraction and injection well system completed and final construction of the water treatment units expected in the Spring of 1997 followed by unit startup in the Summer of 1997.

Mr. Baker explained that the waste minimization pilot test scheduled for Phase II had already been completed with preliminary results showing a 95% reduction in the generation of secondary waste sludge. The pilot test involved comparing the selected water treatment system which used reverse osmosis, followed by a clarifier, and a polishing system to the experimental unit which utilized reverse osmosis and nanofiltration instead of the clarifier and polishing used in the original treatment unit. The data generated from this pilot test will be used to perform a cost benefit analysis to determine which of the treatment designs is more cost effective. Mr. Baker

also mentioned other Phase II elements including progress on life cycle design, the ecological baseline report, and remediation with other facilities.

Mr. Baker noted that hot spot wells had also been added to the Phase I system as was suggested in the F&H Seepage Basin groundwater ISPR conducted in 1995. Joel Massmann asked if adjusting the pH in the aquifer to reduce the mobility of metals suggested in the ISPR report had been considered. Joan Baum explained that Phase II also includes Colloidal Dispersion Experiments in which tritium is used as a tracer. The purpose of these tests is to determine the migration of the metals and the impacts of pH adjustment. These tests would be completed in 1997.

Dr. Massmann also asked if monitoring beneath the water table had been conducted and if the possibility of a perched water system had been investigated. It was noted that Steve Serkiz had investigated and reported on these issues and Dr. Massmann said he would contact Mr. Serkiz directly.

Dr. Massmann said that there had been four general areas of recommendations in the 1995 ISPR report concerning (1) Construction and operation of the treatment plant, (2) water extraction and injection, (3) source characterization and control and (4) institutional/regulatory aspects. He said that the presentation had touched on all the areas except for the institutional/regulatory aspects. Mr. Lawless agreed that this was an important aspect of the project and said he would like to see a consensus on the regulatory approach among the three parties by April of 1997. Joan Baum said the project team had met with the State several times and was keeping them informed. Casey Knapp explained that before an alternate concentration limit/mixing zone (ACL/MZ) could be requested from the State and thus allow SRS to have contaminants above the Ground Water Protection Standards (GWPS), a years worth of data was needed from the water treatment units. Therefore, it would be September of 1998 before the ACL/MZ strategy could be developed. Ms. Knapp also said that by early summer they would have the ecological baseline summary report and the GWPS model completed. Bill Lawless said he was very encouraged by the progress he had seen presented this evening. But he cautioned that Phase II was not automatic and the details for Phase II must be worked out with the State and EPA early on. It was decided to have another meeting on the F&H groundwater remediation project in January and to also present it at the January 28 CAB meeting.

Tom Treger noted that he was working on a joint response with EPA and SCDHEC to the CAB recommendation on the MAP, which also addresses the F&H project. Mr. Lawless indicated that this was a good first step in building consensus within the ER program.

The last presenter was Dave Herman who discussed the Hybrid Plasma Induction Cold-Crucible Melter (PICCM) system for demonstration of waste stabilization, also known as the Russian hybrid melter. The main use of the system would be to treat materials which are too high in activity or gas generation for shipment to the Waste Isolation Pilot Plant (WIPP). The PICCM system was developed by Russia for plutonium (Pu) waste treatment. It is a modular component design, which allows for easy repair or replacement. It is also a small enough unit that it fits into existing facilities and could handle SRS drummed Pu-238 and Pu-mixed transuranic wastes. Mr. Herman explained that there are no concerns about refractory corrosion and there is a complete

separation of metal and glass and the confined casting of the metal phase eliminates the usual fumes and hazards associated with molten metal pouring. The demonstration PICCM was purchased in December 1995, tested in Moscow in February 1996, and installed and tested at Ga Tech in August -October 1996 for a total cost of \$1.1M. The PICCM system is complementary with the SRS TRU Waste Strategy in that it could potentially provide a treatment for high-activity Pu-238 waste and its potential for use in an existing facility.

Mr. Lawless asked about the problems with dust particles. Mr. Bickford explained that the top down melting resulted in less dust and that a three tiered HEPA filter system captured 99.95% of the micron sized particles. Mr. Lawless asked about the path forward and budget for the project. It was explained that at present the funding on the project ended January 1, 1997. Mr. Lawless said he would like to have some additional information and input from others on the system and noted that he would be meeting with the Mixed Waste Focus Area in the next week. He also said he might have a motion concerning the Russian hybrid melter in January. deLisa Bratcher said she wanted to include as an attachment to the meeting summary the views of others in DOE on the project who were unable to attend the meeting. Mr. Lawless said that would be good. Subsequent to the meeting DOE-SR submitted the following statement: Ò Because of its potentially unique process capabilities, we support continued research and development of the Russian Hybrid melter in case thermal treatment of TRU waste should be required.Ó

A draft list of issues for the subcommittee to consider and address in 1997 was given out. Mr. Lawless closed the meeting at 7:30 p.m..

Meeting Handouts

- Letter from Mr. Robert Newman to Mr. Bill Lawless
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Meeting handouts may be obtained by calling 1-800-249-8155.