



SRS Citizens Advisory Board

Waste Management Committee Meeting

Aiken Municipal Conference Center, Aiken, SC

May 16, 2006

The Savannah River Site (SRS) Citizens Advisory Board (CAB) Waste Management Committee (WMC) met on Tuesday, May 16, 2006, 5:00 PM, at the Aiken Municipal Conference Center, Aiken, SC. The purpose of this meeting was to review the low-level waste (LLW) update including the Performance Assessment, Composite Analysis process, the status of Disposal Authorization Basis (DAB), a draft recommendation on Holistic Management Approach and to hear public comment. Attendance was as follows:

CAB Members

- Bob Meisenheimer
- Joe Ortaldo
- Karen Patterson
- Manuel Bettencourt
Kuppuswamy Jayaraman
Mary Drye
Wendell Lyon
Jerry Devitt
Leon Chavous
Judith Green-McLeod
Alex Williams

Stakeholders

Bill McDonell
Jack Roberts
Bill Willoughby
Perry Holcomb

*Rick McLeod

Regulators:

Rob Pope, EPA
Jim Barksdale, EPA
Jon Richards, EPA
Chuck Gorman, SCDHEC
Reggie Robinson, SCDHEC
Ted Millings, SCDHEC
Chuck Williams, SCDEHC

DOE/Contractors

Terry Spears, DOE
Howard Pope, DOE
Greg Johnson, DOE
Sonny Goldston, WSRC
Elmer Wilhite, WSRC
Jim Cook, WSRC
Mark Phifer, WSRC
Glen Taylor, WSRC
Ron Campbell, WSRC
Charlie Hansen, Parsons

Jim Moore, WSRC

- *WM committee members* * *CAB technical advisor*

Note: Bill Lawless, a member of the WMC, was not able to attend the meeting.

Welcome and Introduction:

Joe Ortaldo, Vice Chair, thanked everyone for being at the meeting and asked them to introduce themselves. Mr. Ortaldo referenced the meeting ground rules.

Before getting into the agenda items, Mr. Ortaldo reviewed some changes to the recommendation status. He suggested that Recommendation #229 – SRS Transuranic (TRU) Waste Update – be moved from Pending to Open since the Department of Energy (DOE) had responded. Recommendation #220 – National Academy of Science Interim Report – should be closed since the final report had been issued and supersedes the Interim Report. He asked the committee members to review the recommendations and responses and let him know if there are any concerns. The changes would be made at the next meeting.

Mr. Ortaldo explained that the purpose of the presentations for this meeting would be to give a status of the low-level waste program. Normally the committee spends most of its time reviewing the liquid waste projects. The presenters are Howard Pope, DOE, Elmer Wilhite, Savannah River National Laboratory (SRNL), and Sonny Goldston, Washington Savannah River Company (WSRC).

Low-Level Waste Update:

Howard Pope, DOE Waste Disposition Programs Division, explained that before the WMC heard the presentations, they needed to review the definition of LLW. He explained that LLW is any radioactive waste not classified as high-level waste or TRU waste. It does not contain chemically hazardous constituents. It is junk (discarded clothing, equipment, tools and rags) lightly contaminated by radioactive elements but almost no long lived elements like plutonium.

Mr. Pope pointed out that the E-Area Low-Level Waste Facility and the Saltstone are the two Low Level Waste Disposal Facilities on site. He then reviewed the layout of the facilities at the E-Area Low-Level Waste Facility and the current status. Some of the relevant information related to each type facility is as follows:

- Low Activity Waste Vaults:

This operation began in 1994 at a capital cost of \$20 million. These above ground vaults are used for waste packages less than 200 millirem/hour containing radionuclides. The vault is 145 feet wide, 643 feet long and 27 feet high. The capacity is 1.7 million cubic feet or 47.6 thousand cubic meters. Eleven percent of the total waste disposed goes to the Low Activity Waste Vaults. This unit is operational.

- Intermediate Level Vaults:

Operations began in 1994 and contain one silo cell with 142 silos and six bulk cells. The six bulk cell total capacity is 6,720 cubic meters. Two percent of the waste is disposed in the Intermediate Level Vaults. This unit is operational.

- Slit Trenches:

Operations began in 1995. Five individual trenches make up one Slit Trench disposal unit. The Slit Trenches are utilized for waste with a slightly higher contaminated level than the Engineered Trench. Deactivation and Decontamination (D&D) material is placed in these trenches. Fifty

seven percent of the total waste disposed goes to the Slit Trenches. Slit trenches one through three are closed. Slit trenches four through seven are operational. Waste before 1995 was put into trenches such as these.

- Components in Grout

Operations began in 2001. Five individual trenches make up one Components in Grout disposal unit. These units are utilized for contaminated equipment and components. One foot of grout is poured below, above and around the component. Approximately one percent of the total waste disposed of goes to Components in Grout. Of the two Components in Grout trenches, one is two-fifths full and the other is unused.

- Engineered Trench (ET) 1 and 2:

Operations began for ET 1 in 2001 and ET 2 in 2004. These are utilized for very low contaminated LLW. The utilization of the ET has extended the life of the Low Activity Waste Vault by approximately 14 years. Approximately 27 percent of the total waste disposed of goes to the ET. Both ETs are operational but Trench 1 is almost full.

- Naval Reactor Pad

This pad is utilized for the receipt and disposal of Naval Reactor Components from offsite sources, mainly material from the east coast. Approximately one percent of the total waste disposed of goes to the Naval Reactor Pad. This Pad is operational.

In addition to the waste disposed on site, some LLW is sent offsite to the Nevada Test Site and Enviro Care in Utah.

During discussion, questions came up about the level of waste due to the D&D operations. Mr. Pope stated that while the level of waste has increased, the degree of contamination has decreased. The CAB was instrumental in getting low level waste moved from the vaults to the slit trenches resulting in cost benefits. There is a current attempt to get some of the construction waste sent to the landfills instead of the trenches. This would result in additional savings. Mr. Meisenheimer requested a presentation in the future on the change in volume of waste from the slit trenches to the landfills due to the D&D initiatives.

Performance Assessment/Composite Analysis Process:

Elmer Wilhite, WSRC Savannah River National Laboratory, reviewed the status of the Performance Assessment (PA) and the Composite Analysis (CA) process. He explained that PA's and CA's, radiological assessments, are projections of the effect of DOE LLW disposal on public health and the environment. They are required by DOE Order 435.1 to provide a reasonable expectation that DOE requirements for protection of the public and the environment will not be compromised in the long term, (i.e., 1,000 years). The review and approval by DOE-Headquarters (HQ) of the PA and CA along with the continued maintenance provides the basis

for the DOE-HQ issuance of the Disposal Authorization Statement (DAS) to authorize disposal of LLW. Mr. Wilhite reviewed the technical basis for the authorization.

DOE Order 435.1 was issued in 1999. It formalized the DOE regulation on disposal of LLW. The PA and CA's are reviewed by DOE personnel in a Low-Level Waste Disposal Facility Federal Review Group (LFRG). Howard Pope is a member of the group as well as selected contractor personnel. The PA and CA are approved by the Site Manager and the Deputy Assistant Secretary. The DAS is essentially a "license" or "permit" issued by the Deputy Assistant Secretary. The PA and CA require continuous improvement or maintenance. They are revised as necessary and are required to be reviewed annually. At the site, there is a DOE 435.1 Implementation Committee. Sonny Goldston is the site chairman. Howard Pope is the DOE representative. Sonny Goldston is the site manager for the DAS. The principal investigators for the PA and CA development are Jim Cook and Mark Phifer of the SRNL.

The PA is an analysis of a radioactive waste disposal facility conducted to demonstrate there is a reasonable expectation that performance objectives established for the long-term protection of the public and the environment will not be exceeded following closure of the facility. The PA looks solely at that waste disposal facility as if there are no other sources of contamination.

The CA is an analysis that accounts for all sources of radioactive material that may contribute to the long-term dose projected to a hypothetical member of the public from an active or planned low-level waste disposal facility. The analysis is a planning tool intended to provide a reasonable expectation that current low-level waste disposal activities will not result in the need for future corrective or remedial actions to ensure protection of the public and the environment.

The performance measures utilized are as follows:

- For Groundwater Protection (Drinking Water Standards) 4 millirem per year for beta emitters, 15 picocuries/liter for alpha emitters and selected specific values for other elements such as tritium, strontium-90, radium and uranium.
- 25 millirem per year for all pathways
- 10 millirem per year for the air pathways
- 100 millirem per year for intruders
- Radon flux greater than 20 picocuries/square meter per second

Mr. Wilhite reviewed the various pathways for the PA conceptual model. He emphasized that the movement of water for the transport of contaminants was critical and that chemical transports vary depending on the chemical. There is a buffer zone of 100 meters to the monitoring wells. There are three hypothetical inadvertent intruder scenarios considered after 100 years following closure of the waste disposal facility. They are a resident living on top of the waste site but not drilling into the waste site. A Drilling scenario in which an individual drills into the waste site and a post-drilling scenario in which an individual resides on top of the waste site and eats from

the garden and eats the cattle that have been eating the grass. Occurrences such as explosions and seismic occurrences are considered in the safety analysis, not the PA or CA.

The CA includes about 114 sources of radioactive material including Saltstone and the HLW tanks. This includes a composite of all the possible sources of contamination around the Waste Disposal Facility. The contribution of dose to maximally-exposed individuals from E-Area Low-Level Waste Facility and Saltstone is less than .001 percent.

Mr. Wilhite explained that the PA and CA process are iterative processes. Changes in any of the areas of the process can result in reviews to make sure the performance measures are met. An Unreviewed Disposal Question (UDQ) procedure is used to evaluate actions that are not clearly bounded by the PA and CA. If the UDQ evaluation concludes that the action is not bounded by the PA or CA, then a Special Analysis is done. Periodically the PA and CA are revised to include a consolidated number of UDQ evaluations and Special Analysis. The Saltstone PA was first completed in 1992 and is being revised with the expected completion date of Fiscal Year (FY) 2007. The E-Area LLW Facility PA was first completed in 1994, the first revision completed in 2000 and the second revision anticipated in FY07. The CA was first completed in 1997 with a first revision anticipated in FY08.

The PA ensures LLW disposal is protective of public health and the environment. DOE-HQ, via the LFRG, adds credibility to the process with independent oversight. This generated discussion as to whether the LFRG could be independent since they were under DOE.

The E-Area LLW Facility PA has supported more cost-effective disposal methods, with cost avoidance of \$63 million by disposing of more LLW in trenches instead of vaults.

Status of Disposal Authorization Basis:

Sonny Goldston, WSRC, reiterated the schedule for the revision of the PA and CA. He explained that the Waste Acceptance Criteria (WAC) contains the PA assumptions, radionuclide limits, Safety Analysis Report limits, waste form and packaging requirements that generators must meet. The Waste Information Tracking System (WITS) is reviewed every day to manage the radionuclide inventory limits. The WITS compares package contents with WAC container limits, calculates cell inventory and total disposal unit inventory to ensure compliance with PA derived limits using the sum-of-fractions technique. The sum-of-fractions technique is based on the sum of the fractions for each disposal unit being less than 1.0. 1.0 would be the level at which all 100 percent of the radionuclide limit would be in the vault.

To assure the performance objectives are met, a performance assessment monitoring system is in place. The vault sump monitoring monitors leaks to the sumps and assures no PA groundwater pathway assumptions have been compromised. The vadose zone monitoring verifies releases from the trenches meet the PA performance assumptions. The released contaminants must be less than the drinking water standard maximum contamination level's at the point of compliance.

The CA annual summary indicated that the LLW disposal activities did not impact the CA. All contaminants of concern remained less than the limits.

In conclusion, the LLW is disposed at SRS in E-Area and Saltstone in accordance with DOE-HQ, the LFRG, and the DAS. The DAS is based in large part on the review and approval of the PA and CA for the disposal site. The WAC is derived from the PA for the Site. The PA demonstrates protection of the public and environment through showing reasonable assurance that performance objectives from DOE Order 435.1 are met.

Related to a question on TRU Waste, Mr. Goldston stated that a second round of New Mexico public meetings should be in September. In the meantime, SRS is installing x-ray equipment to inspect the TRU Waste drums. SRS is currently shipping three trucks per week but should go to four trucks per week next month. Mr. Spears mentioned that the site had been told that if we can build up the supply of shippable drums, that the shipments per month might be able to be increased in the near future. Mr. Meisenheimer requested an update on TRU Waste in a month to two.

Draft Recommendation Holistic Management Approach:

Joe Ortaldo reviewed the draft recommendation explaining that there have been several excellent presentations such as the last presentation by Parsons on the Salt Waste Processing Facility (SWPF). There are several stages in the salt process; the interim process with Deliquification, Dissolution, and Adjustment (DDA) in June, then the Modular Caustic Side Solvent Extraction Unit (MCU) in 2007 and then SWPF in 2011. There have been several meetings on the delays to SWPF and the hazard analysis completed for new facilities. This recommendation requests that DOE look at the big picture when completing hazard analysis for a new facility. There was some discussion on the title suggesting that the word holistic be changed to make the title clearer. Bob Meisenheimer said that Mr. Ortaldo and he would look at the title and change the name.

Public Comment:

Jack Roberts expressed concern about a comment from a regulator. The regulator had stated that when the burial ground closes, the regulators would have regulatory control over the burial ground. Mr. Roberts was concerned that the regulators could come in at closure and come to a different conclusion than DOE and thus cause a lot of cost to the tax payers. Chuck Gorman, South Carolina Department of Health and Environmental Control (DHEC), explained that he wasn't sure if the burial grounds would be under regulatory control or not. Some people in SCDHEC believe that the burial ground closure would come under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). He stated that some people in DOE don't agree. Meanwhile, the Environmental Protection Agency (EPA) and the SCDHEC are reviewing the PA and CA for just that reason. To make sure that when it comes time to close the burial ground the regulators don't find something of concern. Bob Meisenheimer requested that DHEC and EPA give presentations in the future on comments/concerns/ issues that they are finding when they review the PA and CA for E-Area Low-Level Waste Facilities and Saltstone.

Adjourn:

Mr. Meisenheimer adjourned the meeting.

Follow-Up Actions:

The following are the actions items:

- Bob Meisenheimer requested a presentation sometime in the future on initiatives to release D&D waste previously managed as LLW and disposed in the E-Area LLW Trenches. If the waste could be measured to meet release criteria (proving the waste is not radioactive waste), it could be disposed as sanitary waste in the C and D or Three Rivers Landfill. – Howard Pope/Sonny Goldston/Jim Moore
- Bob Meisenheimer requested that DHEC and EPA give a presentation in the future on comments/concerns/issues that they are finding when they review the PA's for E-Area Low-Level Waste Facilities and Saltstone. The concern is that while EPA/DHEC does not have current regulatory authority during the operation of these areas, they may be subject to review under CERCLA when they are closed and thus be under EPA/DHEC authority. The WMC doesn't want major issues at closure that would cost tax payers. They want to make sure the regulators are addressing the issue at this time before closure. – Rob Pope/Chuck Gorman/Howard Pope/Sonny Goldston/Jim Moore
- Bob Meisenheimer requested a presentation on the status of the TRU waste in a month or two. – Bert Crapse/Sonny Goldston/Jim Moore