SRS Citizen's Advisory Board

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Old Radioactive Waste Burial Ground Focus Group

Meeting Summary

August 30, 2000
Hampton Inn
Aiken, SC

The Citizen Advisory Board (CAB) Old Radioactive Waste Burial Ground (ORWBG) Focus Group met on Wednesday, August 30, 2000, 5:00 p.m. at the Hampton Inn, Aiken, SC. The purpose of the meeting was to discuss the hot spot intruder analysis, health effects for intruder scenario, Focus Group consensus on use of ORWBG lands, status of the Correct Measures Study/Feasibility Study (CMS/FS), Independent Scientific Peer Review (ISPR) report review, Focus Group Report – key thoughts, and path forward. Those in attendance at the meeting were:

CAB Members	Stakeholders	DOE/Contractors
Karen Patterson	Lee Poe	Rod Rimando, DOE
William Willoughby	Todd Crawford	George Mishra, DOE
	Bill Lawless	Ed McNamee, BSRI
	Bill McDonell	Don Toddings, BSRI
		Tim Jannik, WSRC
		Elmer Wilhite, WSRC
		Jim Cook, WSRC
		Sonny Goldston, WSRC
		Jim Moore, WSRC

Lee Poe, Technical Lead, welcomed those in attendance and stated that Jimmy Mackey, Administrative Lead, was unable to attend the meeting due to other commitments.

Hot Spot Intruder Analysis:
Mr. Poe gave a background of the work that had been completed by the Focus Group related to intruder analysis over the hot spots on the Old Burial Ground. The latest Savannah River Data (SRS) data indicates that the SRS will remain under federal government ownership in perpetuity. Mr. Poe reviewed the standards applicable to intruder analysis as well as the intruder scenarios evaluated in the Performance Assessment (PA) and the CMS/FS. The conclusions discussed were as follows:

- **Intruder analysis defines a low consequence event (no serious exposure associated with event).**
- **CMS/FS information on HS-12 and HS-16 are questionable and should be verified.**
- **Probability of an event:**
  - **During active institutional control – essentially nil.**
  - **During passive institutional control – Infrequent but possible failure of controls can be expected.**

- **Based on these data, maximum exposure to an individual might be as high as 10 rem which is not life threatening.**

Health Effects for Intruder Scenario:

Tim Jannik, Savannah River Technology Center Environmental Dosimetry, reminded everyone that radiation was equal to energy. An absorbed dose equals energy absorbed per mass and is measured in rads. Mr. Jannik stated there is natural as well as manmade radiation. The average natural dose is 300 mrem/year. Examples are Radon (200 mrem), rocks and soil (28 mrem) and cosmic (27 mrem). Average manmade dose is 60 mrem/year. Some examples are medical (53 mrem) and consumer products (10 mrem).

Annual dose limits for workers is 5,000 mrem maximum by DOE and the Nuclear Regulatory Commission (NRC). DOE administrative control is at 2,000 mrem while DOE recommended facility control is at 500 mrem. The offsite pubic standards are 100 mrem (DOE All-pathways), 10 mrem (DOE/EPA airborne) and 4 mrem (DOE/EPA drinking water).

Mr. Jannik stated that most data and risk factors related to radioactivity are based on the atomic bomb survivors. The dose to risk factor is a linear equation, which means that any dose may result in a human health effect. It was pointed out that the linear equation is controversial among current scientists. There is a theory that small doses of radiation may be good for an individual instead of bad. This would refute the linear equation theory.

Mr. Jannik reviewed the current human health effect risk factors. He stated that the EPA lifetime ranges were as follows:

- **Less than 1.0E-06 – No concern (1 in a million)**
- **1.0E-05 – (Assessment/Monitoring/Warning)**
- **More than 1.0E-04 – Concern with Action.**
- **The USA lifetime fatal cancer rate is:**

  2.0E-01 (20% or 2 out of 10)

- **The USA lifetime motor vehicle death risk is:**

  1.5E-02 (More than 1 out of 100)

Mr. Jannik stated that risk equals dose times the risk factor. Examples of computations of risk based on this equation are as follows:

- **300 mrem x 7.3E-07 risk/mrem = 2.2E-04 risk**
- **10,000 mrem x 7.3E-07 risk/mrem = 7.3E-03 risk**
- **0.05 mrem/year x 30 years x 7.3E-07 risk/mrem = 1.0E-06 risk**
- **0.5 mrem/year x 30 years x 7.3E-07 risk/mrem = 1.0E-05 risk**
- **5 mrem/year x 30 year x 7.3E-07 risk/mrem = 1.0E-04 risk**

Mr. Jannik said that the Health Physics Society position is that you should NOT assign a risk for doses below 10,000 mrem lifetime or 5,000 mrem/year. Hypothetically, these small amounts are not based on observation and qualitatively the actual risk could be zero (0). It was pointed out that the small quantity could also be a positive number.

Focus Group Consensus on use of ORWBG Lands:

Mr. Poe stated that Mr. Jannik's presentation supported the first discussion of the Focus Group on health effects for intruder analysis consequently there was a Focus Group consensus.

Status of CMS/FS and Proposed Plan (PP):

Ed McNamee, BSRI, stated that the Revision 1 of the CMS/FS was due September 18. EPA, DHEC, DOE and WSRC would be discussing the subject on September 6. All must agree on the revision before it is published. Mr. McNamee and Rod Rimando, DOE, discussed potential paths forward. Mr. McNamee said that Revision 0 was scheduled for November 6 with public comments in by March 8, 2001.

ISPR Report Review:

Mr. Poe reviewed the presentation he gave to the CAB Environmental Remediation (ER) Committee on August 22. He stated that the presentation generated much discussion. It was recommended that the Focus Group respond to the comments that were made in the ER Committee meeting. In addition, individuals were assigned to verify that particular comments were incorporated into the ISPR report. Karen Patterson will review the EPA comments and Bill McDonell will review the Focus Group comments. Patricia Lee and Lee Poe would review their own comments.

It was agreed that while the ISPR report was technical, it was well done. An effort would be made to see if ERDA would modify the report after the reviews had been completed. It was discussed that both a cover letter to the report could be developed as well as the final report of the Focus Group could place the subject matter in a more user friendly format.

Focus Group Report – Key Thoughts:

Mr. Poe reviewed some of the key thoughts that the Focus Group might want to consider as it prepares to complete the final report. The Focus Group was asked to modify the thoughts as appropriate and to add any that he may have missed. The following are the key thoughts with the Focus Group modifications and additions:

- **Focus Group expectations on controls of affected land in the future.**
- **No health effects to humans or to the environment from ORWBG releases to groundwater and its transport.**
- **Concentration of tritium in groundwater and surface waters exceeds drinking water standards. Need to address the issue and propose solution, perhaps mixing zone that may extend into the Savannah River. May be desirable to allow changes with time.**
- **Use of the surface of the ORWBG provides no risk to human health.**
- **No action will be taken on Hot Spots.**
- **Active institutional control requirements need to be developed. One requirement should be to prevent intrusion into the waste. With this requirement adequate assurance can be given that intrusion into the waste contained in the ORWBG will not result in health hazard.**
- **Active institutional control will control burrowing animals and prevent them from bringing COI contamination to the surface.**
- **Intruder analysis shows that the impacts of a single breach of these requirements will not be life threatening.**
- **Comparison of closure conditions of DOE and Department of Defense (DoD) facilities with the ORWBG may show that closure of the ORWBG would be equivalent to others in the DOE or DoD complexes that are/have been phased out. (Mr. Rimando will brief the Focus Group on this subject at the 9/13/00 meeting.)**
- **Evaluate technology needed to prevent burrowing animals from bringing contamination to surface during passive institutional control. Actions should not be implemented until near but before the end of active institutional controls. This will be protective, allow condition and need to be evaluated, and allow remedial action, if needed, to include new science.**
- **Risk associated with the solvent tanks is low. Closure of the tanks should include stabilization against collapse by filling and installation of natural soil cover as currently exists over the remainder of the ORWBG. No other remediation is needed.**

Mr. Poe requested everyone to review the key thoughts and make comments or changes so the subject could be discussed at the next meeting.

<u>Path Forward:</u>
Mr. Poe reviewed the path forward for the next meetings as follows:

- **September 13:**
  - **Long-term stewardship perspectives at other DOE sites – Rod Rimando**
  - **ISPR Comments – Lee Poe**
  - **Review of Draft ORWBG Final Report – All**
    - **Section Assignments**

- **October 11:**
  - **ISPR Comments – Lee Poe**
  - **Review of Draft ORWBG Final Report – All**
    - **Section Status**

Mr. Poe stated that Bill McDonell had agreed to write up the draft outline for the final report and have it for review at the next meeting.

With no other comments, the meeting was adjourned.

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