SRS Citizen's Advisory Board

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Facility Disposition and Site Remediation Committee

North Augusta Community Center, North Augusta, SC
8/17/04

The SRS Citizens Advisory Board (CAB) Facility Disposition and Site Remediation Committee (FD&SR) met on Tuesday, August 17, 5:00 PM, at the North Augusta Community Center, North Augusta, SC. The purpose of the meeting was to discuss and receive updates on the SRS Environmental Monitoring Report and Monitored Natural Attenuation and Enhanced Attenuation for Chlorinated Solvents Technology Alternative Project Update.

Attendance was as follows:

CAB Members
- Perry Holcomb
- Leon Chavous
- Mary Drye
- Murray Riley
- Bob Meisenheimer
- Danielle Mackie

Stakeholders
Tammy Mondy, Perma-fix

DOE/Contractors
Karen Adams, DOE
De'Lisa Bratcher, DOE
Paul Sauerborn, WSRC
Teresa Haas, WSRC
Gail Whitney, DOE
Paul Huber, BSRI
Karen Vangelas, WSRC
Pete Fledderman, WSRC
Ron Malanowski, WSRC
Jim Heffner, WSRC
Brian Looney, WSRC
T.F. England, WSRC
John Dickenson, WSRC

Regulators
Jim Barksdale - EPA

*CAB Technical Advisor
-FD&SR committee members
+Facilitator
^Press

Perry Holcomb, Chair, opened the meeting at 5:00 p.m. and welcomed those in attendance. In addition, he asked to go around the room for introductions by all.

FD&SR Committee meeting schedule review:
Paul Sauerborn presented the schedule, which listed focus areas that the ER committee will be reviewing for 2004. Mr. Sauerborn stated that should anyone in the public have an item relevant to the ER committee scope to please notify him in order that he have those items reviewed and

approved by the chairman of the FD&SR committee for future presentations. Mr. Holcomb stated that there would be a draft recommendation coming out on Building 235-F Deactivation, and will be presented at the September 27-28 CAB meeting in Beaufort, SC.

An Overview of the SRS 2003 Site Environmental Monitoring Report:
Mr. Fledderman stated the purpose of this presentation is to respond to CAB request for a presentation and discussion of the 2003 Site Environmental Report. Mr. Fledderman noted that the SRS has a long history dating back to 1951 of environmental monitoring, and its comprehensive depth of knowledge of releases (types and quantities) and clear understanding of dose impacts to the public. The purpose of environmental monitoring is

- Characterize and quantify contaminants
- Demonstrate compliance with applicable standards
- Calculate radiation exposures to the public
- Assess the effects, if any, on the local environment

The Program requirements are State and federal regulations, DOE Orders, and best management practices. The Program consists of both effluent monitoring and environmental surveillance.

- Effluent monitoring - is the collection of samples or data from the point at which a facility discharges liquid or gaseous releases to the environment
- Environmental Surveillance – is the collection of samples of air, water, soil, foodstuffs, biota, and other media, or of data from the ambient environment.

The Program design looks at both analyte selection and sample location selection.

- Analyte selection requires a process knowledge, movement through the environment and health impacts
- Sample location selection deals exclusively with exposure pathways

The types of surveillance samples are:

- Ambient air
- Rainwater
- Surface water
- Drinking water
- Food products
- Deer and hogs
- Fish and shellfish
- Sediments
- Vegetation
- Groundwater

The monitoring results summary identifies the following:

- Dose Summary

- Radiological air - releases, doses, and highlights
- Radiological liquid – releases, doses, and highlights
- Nonradiological monitoring results and highlights

The monitoring results summary looked at over 10,000 samples and 30,000 analyses performed. The Savannah River Site's 2003 airborne and liquid releases, as well as all potential radiation doses from the site were well below applicable regulatory standards. Potential doses are calculated fro the pathway (both air and liquid) to the Maximally Exposed Individual scenario. Mr. Fledderman stated that of all air pathways, tritium was the only nuclide regularly detected in air beyond the site boundary, and as expected the concentrations followed the "bulls-eye" pattern. Liquid pathways showed that tritium was the only manmade nuclide regularly detected in the Savannah River. Both tritium and Cesium-137 were the manmade radionuclides regularly detected in the Savannah River fish. Other interesting highlights for 2003 were:

- Clean Air Act compliance rate of 99.7 percent
- Clean Water Act compliance rate of 99.7 percent

Mr. Fledderman stated that from a nonradiological liquid surveillance:

- WSRC surveillance results showed average concentration at all river and stream sites are less than EPA's drinking water standards
- Academy of Natural Sciences (ANSP) of Philadelphia results concluded that long-term trends indicate that overall stream and river water quality below the SRS is higher than above the plant
- Both the WSRC and ANSP monitoring have shown that the site operations have not had any adverse impact on the water quality of SRS streams and the Savannah River

Program results indicate that SRS has a comprehensive environmental monitoring program. The site's airborne and liquid releases to the environment continue to decline, and for 2003, the radiation dose to the public living near the SRS is well below DOE's 100 millirem per year standard and that the downriver water consumer is well below EPA's 4 millirem per year standard. Mr. Fledderman shared the 2003 SRS Dose Summary (all values in millirem) as follows:

- DOE All-pathways - Standard Dose = 100 SRS Dose = 0.19
- EPA Clean Air Act – Standard Dose = 10 SRS Dose = 0.07
- EPA Drinking Water – Standard Dose = 4 SRS Dose = 0.04
- Annual Background – Standard = 360

In conclusion, air and water releases meet standards, site streams are characterized, the Savannah River is healthy, radiation dose is small and the public is safe. Leon Chavous asked if the tritium releases from the site are harmful to the public. Mr. Fledderman responded that the amounts were well below any health standard. Murray Riley asked if releases of tritium from the 235-F building are monitored and what effect would moisture in the air have on the dispersion into the atmosphere. Mr. Fledderman stated that the releases are monitored and the amounts regardless of weather conditions would not impact any individual either on or off the site property. Mr.

Holcomb stated that the low country perception regarding mercury in fish is coming from SRS is something that demonstrates the people are misinformed. Mr. Holcomb believes this would be something worthy of presenting in the low country to set the record straight and perhaps improve the relations between the low country public perception and the SRS.

Monitored Natural Attenuation and Enhanced Attenuation for Chlorinated Solvents Technology Alternative Project:

Karen Adams stated that the reason for this presentation was in response to CAB Recommendation #175 which called for periodic updates of the project. This presentation is an update of the status and significant progress of the work. The MNA/EA project goal is to facilitate closure of contaminated sites using passive cleanup technologies and cost-effective monitoring strategies. Monitored Natural Attenuation is defined as managing all or part of a contaminated plume in soil and groundwater by utilizing the existing decontamination and attenuation mechanisms of the natural system and documenting the resulting attenuation capacity. EPA states "no human intervention." Enhanced Attenuation is defined as managing all or part of a contaminant plume in soil and groundwater by initiating and/or augmenting natural and sustainable decontamination and attenuation mechanisms and by resulting attenuation capacity. In order to proceed, Ms. Adam's stated the working definition of enhancement. A sustainable enhancement is an intervention that continues to operate until such time that the enhancement is no longer required to reduce contaminant concentrations of fluxes. Ms. Adam stated the project background was as follows:

- A technical working group (TWG) with broad national representation was formed to strategically guide the project
- A collaboration with the ITRC was initiated for regulatory input, participation, and to assist with dissemination of results and training
- Project focuses on needs at the DOE Savannah River, Oak Ridge and Hanford reservations
- Field sites at the Savannah River will be used for targeted research
- Research provided by industry, other Federal agencies, and universities
- Project has actively engaged scientific community through conferences and publications

The TWG consists of (DOE, ITRC, CABs, regulators and stakeholders, Universities, Industry, Federal Agencies, and End-Users). The project is looking for three major targets for improvements:

- Mass Balance / Quantifying natural attenuation capacity
- Enhanced Attenuation concepts
    - Increase Natural Attenuation Capacity
    - Decrease loading
- Strategies for characterization and monitoring

Ms. Adams stated that for the project team to be effective subteams were established, the first of which is the Mass Balance subteam considering:

- Mass balance considerations (in some form) are central to the viability of MNA/EA

- Mass balance has been an implicit factor in many past protocols
- Encouraging a more explicit consideration of mass balance and long term monitoring
- Specific work is underway to document
    - The mass balance paradigm is applicable to contaminants and daughter products (traditional) and also applicable in broader geochemical context
    - The interrelated mass balance philosophies both field and model based

The Enhancements subteam performs the following:

- Through the use of case studies, this subteam has documented options for, and performance of, potential enhancements
- Enhancements are being evaluated for use near the source, in the plume and near the discharge zone

The Characterization and Monitoring subteam performs the following:

- Four phased approach (includes screening and long-term monitoring) provides improved framework
- Explicit use of mass balance to guide characterization/monitoring
- Emphasize direct measures up front (e.g. bioassay)
- Expand to include other attenuation mechanisms such as abiotic
- Promote non-traditional long-term monitoring approaches

Ms. Adams pointed out that several field research studies have been conducted through a Federal Request for Information, 15 packages were identified that supports the project's technical targets (December 2003) and 14 were funded (3 universities, 4 national laboratories, 2 US Geological Survey, 5 small business). There are several research studies supporting the mass balance subteam. In addition, there are research studies supporting enhancements such as:

- electron shuttles to biologically enhance abiotic dechlorination
- incorporating enhanced attenuation modules into RT3D code
- bioaugmentation with aerobic for cis-DCE

Research studies supporting characterization/monitoring:

- advances of nucleic acid based tools
- scenario based framework
- microsparger for wellhead measurements
- strategy and system for long-term monitoring
- innovative oxygen sensor
- passive flux meter
- push-pull tests to determine in situ attenuation capacity

SRS support of research studies encompass:

- Field activities will be coordinated with the operating organization

- Collection of historical data and information
- Permitting
    - Onsite
    - Regulator (program plans, underground injection control permit)
- Sample collection and shipping

The ITRC collaboration is evidenced by:

- team name – Enhanced Attenuation: Chlorinated Organics
- general goals
    - Achieve better environmental protection through innovative technologies
    - Reduce the technical/regulatory barriers to the use of new environmental technologies
- first major deliverable is a detailed survey of regulators regarding natural attenuation (governing policies and protocols, successes, and openness to the ideas being explored in DOE project). Survey has been developed and is under review by the team.

Ms. Adams stated that the summary of joint DOE and ITRC end product and strategy is improved technical and regulatory support for implementing natural attenuation and related strategies. Bob Meisenheimer asked if the regulators were on board with this project. Jim Barksdale representing the EPA at this meeting stated that the EPA were on board with the research and has their own researchers involved in these projects. Mr. Meisenheimer asked about the distribution of the funding for this project and who would fund it after fiscal year 2006. Brian Looney of SRNL stated that through fiscal year 2005 funding comes from the government 75% of which goes to Universities, National Labs, Small Business, technical business and 25% to SRNL for the balance. Mr. Looney stated that it is hoped that in fiscal year 2006 the funding would be picked up by the ITRC in order to foster the use of this science.

Public Comments:
There being none.

Mr. Holcomb thanked all in attendance that participated in the meeting.

Mr. Holcomb adjourned the meeting at 6:30 p.m.

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