



Board Beat



Fall 1999

Cleanup of Old Radioactive Waste Burial Ground Monitored

Nearly a year ago, a public Focus Group was established by the Savannah River Site (SRS) Citizens Advisory Board (CAB) to evaluate and recommend remediation alternatives for closure of the 76-acre Old Radioactive Waste Burial Ground (ORWBG) at SRS. Approximately 24 individuals participated in the Focus Group. SRS CAB member, Karen Patterson, was administrative lead for the group with technical leadership provided by Lee Poe, an interested SRS stakeholder. From the beginning, it was recognized that the Burial Ground could not be discussed in isolation without considering the past and future impacts on groundwater. As a result, the public Focus Group also included discussions regarding cleanup of contaminated groundwater plumes surrounding the Burial Ground.

The ORWBG is an inactive landfill disposal area for solid low-level radioactive waste and hazardous wastes in E-Area near the center of SRS. Contaminated groundwater from the ORWBG flows toward and is outcropping into a ditch which feeds Four-mile Creek. The ORWBG was used from 1952 until 1974 and contains waste from SRS, other Department of Energy sites and from Department of Defense operations. Most low-level waste was placed in earthen trenches 20 feet wide, 20 feet deep and up to 700 feet long. Generally, four feet of dirt was placed on top of the waste. The ORWBG contains about 7,125,000 cubic feet of waste. Approximately 90 percent of this waste is job control waste, such as paper, coveralls, protective clothing, and cardboard boxes. Irradiated metal scrap makes up about seven percent and the remaining three percent includes a wide variety of natural and man-made radioactive materials, contaminated equipment and absorbed solvents and oils.



Aerial view of Old Radioactive Waste Burial Ground

In February 1998, interim cleanup measures for the ORWBG were undertaken in accordance with the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). A low permeability soil cover was installed to reduce contaminant migration to groundwater, potential soil erosion, worker risk, and spread of contaminants, and to stabilize the surface of the ORWBG. This cover is from two to eight feet deep and is sloped to promote stormwater runoff. It was completed at a cost of about \$8 million.

The Focus Group and Task Teams wanted to learn about the risk associated with cleanup of the ORWBG. What is the risk to human health from the ORWBG; what are the sources of risk; who is at risk; and what actions should be taken to minimize risk. The Focus Group decided to review risk to people assuming that no further cleanup actions

continued on page 2...

In This Issue:

2000 Membership Campaign	2
Essay Winners	2
Recent Recommendations Highlighted	3
Focus on DOE Waste: Storage, Treatment and Disposal	4
Fernald Citizens Advisory Board Hosts Transportation Workshop	5
Membership Spotlight	6
SRS CAB Addresses Stabilization of Excess Nuclear Materials	6
Welcome to New Members	7
Thanks for Job Well Done	7

2000 MEMBERSHIP CAMPAIGN

We are seeking new members! Our Board provides advice to the Department of Energy and its regulators reflective of public values and concerns in areas of environmental restoration, waste management and related issues.

A 60-day membership solicitation period began August 27 and runs through October 29. New applicants are being sought to fill positions held by citizens currently serving two-year terms. Stakeholder categories to be filled include the general public, environmentalists, public officials and representatives of academia, labor, business and minorities. The Administrative Subcommittee of the Board will choose three candidates per

position in December 1999 and new members will be elected by the full Board in March 2000 following a 60-day review period.

No technical expertise is required. Only an interest in SRS environmental issues and the time and willingness to attend meetings and learn about these various issues is necessary. Some travel will be required. Board members receive travel compensation only. They are not paid for their time.

To obtain a membership packet or to learn more, please give us a call at 1-800-249-8155 or visit the Board's website at www.srs.gov.

Cleanup of ORWBG Monitored

... continued from page 1

would be taken at the ORWBG and if significant risk was found, determine how it would be mitigated. They also decided to look at risk in three time periods – 100 years, 100-500 years and beyond 500 years.

During the initial evaluation the Focus Group was subdivided into four task teams to study the following subject areas. One task team developed assumptions to be used for timing and land use when calculating ORWBG consequences on future populations. A second task team evaluated limits for each of the constituents of interest—primarily nitrates, sodium, mercury and tritium. The purpose of the third task team was to determine the inventories for ORWBG along with any assumptions or uncertainties. The fourth task team was to develop the methodology the Focus Group should use to determine how contaminants would be transported through unsaturated and saturated zones onto the creek and river users. These first four topics were brought back to the full Focus Group for consensus. These topics are vital in determining the risk to people from the ORWBG and this determination of risk to people is continuing.

In addition, the Focus Group reviewed and provided comments on two connected reports, one from DOE Westinghouse Savannah River Site (WSRC) and one from the South Carolina Department of Health and Environmental Control (SCDHEC). The Corrective Measures Study/

Feasibility Study (CMS/FS) for the waste unit was reviewed and comments provided to DOE. Comments were also provided on the SCDHEC proposed permit modification under the SC Hazardous Waste Management Regulations and Resource Conservation and Recovery Act (RCRA).

continued on page 7...

Essay Winners



Allison Johnson



James Makin



Lauren Alexander

"We need to remind each other and make sure that we follow all the laws that help to prevent us from polluting the air, the water, and the soil."

Allison Johnson of Schofield Middle School was the March Essay Contest Winner. Fifty-four essays were submitted regarding why the environment is important and the students' roles in protecting the environment. **James Makin** won second place and **Lauren Alexander** placed third. All three were honored during the March SRS CAB meeting.

Recent Recommendations Highlighted

Since the last publication of this newsletter, the following recommendations have been initiated by the SRS Citizens Advisory Board:

Interim Corrective Measures Southwest Plume From Old Radioactive Waste Burial Ground

A recommendation that supports limited corrective measures and is accompanied by a minority report submitted by seven Board members in support of full interim measures.

Waste Isolation Pilot Plant RCRA Part B Permit

The Board provided comments on a Hazardous Waste Permit for the Waste Isolation Pilot Plant (WIPP) that would ensure SRS meets waste acceptance criteria for WIPP but not impose more regulations on SRS by the New Mexico Environmental Department.

High Level Waste (HLW) Tank Closure Environmental Impact Statement (EIS)

A recommendation that DOE cancel plans for a High Level Waste Tank Closure EIS unless significant worker safety, public health or environmental protection issues are identified. If DOE continues with the EIS, the Board requests it devote the minimum amount of funds and time to complete the EIS and issue a Record of Decision by December 1999.

Fiscal Year (FY) 2000 Budget for SRS

The Board is concerned that the FY2000 budget for SRS is insufficient to meet SRS needs and provided two specific recommendation items to DOE-HQ related to increasing the budget to support In-Tank Precipitation (ITP) alternative selection and DWPF canister production. It also encouraged DOE to work with state regulators and ensure that waste management goals are met in accordance with state expectations.

HLW Salt Disposition Alternatives to ITP Supplemental EIS

The Board is concerned that the choice of alternatives are based only on funding and not on technical feasibility, worker safety, public health and the environment. The Board provided four specific recommendation items related to the Supplemental EIS.

Risk Summaries

A recommendation that the Center for Risk Excellence work with DOE-SR to revise the risk summaries to reflect risk rather than hazard and include graphs that can be used to compare hazards for various operations and situations at SRS. The Board also recommended that DOE-SR carefully review the quantities used in the summaries for accuracy.

Old Radioactive Waste Burial Ground Corrective Measures Study/Feasibility Study

The Board supported the study as a good basis for decision making and recommended the following: perform a detailed editorial/technical review; evaluate the benefits of remedial alternates; include qualitative discussions regarding concentrations and uncertainties; eliminate groundwater modeling calculations for quantitative comparisons; continue to develop a time-phased strategy for implementing the remedial action; and provide the CAB Focus Group the opportunity to review the report in conjunction with regulators.

Defense Nuclear Facilities Safety Board Report

The Board endorsed the conclusions of the Defense Nuclear Facilities Safety Board (DNFSB) report regarding interim maximization of canyon usage for spent fuel stabilization and requested a presentation from DOE on uncertainties with the melt and dilute option for spent fuel management.

Solid Waste Division System Plan Low-Level Radioactive Waste Disposal

The Board concurred with the Solid Waste System Plan recommendations to use trenches for disposal of low-level waste that meet the trench waste acceptance criteria, rather than utilizing expensive vault space unnecessarily.

Contractor Replacement High Level Waste In-Tank Precipitation Process Replacement

The Board relayed its concerns about contractor replacement of the High Level Waste In-Tank Precipitation Process and requested information regarding the reasons DOE decided to change contractors and the expected incremental cost increase and schedule delays associated with this action. The CAB requested that DOE consider retaining the current contractor and that efforts be devoted to improvement in project management. ■

Focus on DOE Waste Management

This Issue: Storage, Treatment and Disposal

In managing the tremendous amount of radioactive waste across the country, the Department of Energy (DOE) focuses on three major functions: storage, treatment and disposal.

Waste **storage** is an interim measure. Waste is generally stored pending shipment, treatment, or disposal. Many DOE sites and installations store radioactive waste temporarily prior to treatment or until disposal sites can accept the waste. Storage methods, which include containment in tanks, metal drums, and aboveground concrete vaults, are determined by waste



type. In some cases, wastes may be stored twice, once after being generated and again after being treated. All of DOE's storage facilities are engineered and monitored to protect the environment and personnel from contamination. DOE and its federal and state regulators continually monitor storage facilities to evaluate compliance with all regulatory requirements. Examples of storage facilities at the Savannah River Site (SRS) include the high-level waste tank farms, and the various low-level waste storage areas.

In many cases, waste requires **treatment** to prepare it for disposal. Treatment methods may reduce a waste's

toxicity or volume, change its physical form, or make it safer to dispose in compliance with environmental regulations. Selection of treatment methods depends on the quantity and form of the waste material. Some waste, after being treated, can be disposed as non-hazardous waste. Other wastes require more elaborate treatment methods. Liquid and semi-liquid radioactive wastes can be solidified by techniques such as vitrification and calcining. For example, the vitrification process converts high-level liquid waste into an insoluble form by mixing the waste with molten glass particles. At SRS, vitrification of high level waste is accomplished at the Defense Waste Processing Facility (DWPF). Other wastes, such as hazardous and mixed wastes can be reduced in volume through compaction, or reduced in volume and toxicity through incineration. SRS utilizes the Consolidated Incineration Facility (CIF) as a treatment option for both mixed and low-level wastes. Mixed wastes pose a significant challenge because sufficient treatment technologies and capacity do not exist for some of these wastes.

The final step in the waste management process is waste **disposal**, the safe and secure isolation of waste. DOE plans to dispose of high-level wastes in a deep geologic repository located thousands of feet below ground. The Yucca Mountain site is the planned site for final disposal of DOE and commercial high-level waste; however this is not yet approved. Transuranic (TRU) wastes are currently being disposed of at the Waste Isolation Pilot Project (WIPP) in Carlsbad, NM. SRS should begin shipping its TRU wastes to WIPP by early next year. After being appropriately and safely stabilized and packaged, low-level

continued on page 5...

Site	HLW Volume (m3)	Estimated Total Number of Canisters to Be Generated
Hanford	213,000	15,000
INEL	10,400	1,700
SRS	152,000	4,600
WVDP	2,200	340
Total	378,000	21,600



Fernald Citizens Advisory Board Hosts Transportation Workshop

The Fernald Citizens Advisory Board hosted a Transportation Workshop in Cincinnati, Ohio in May 1999. Forty-eight Site Specific Advisory Board (SSAB) members representing 10 sites from across the country and 77 other participants including representatives from the Department of Energy (DOE), numerous state agencies and other organizations attended the workshop. Brendolyn Jenkins, Karen Patterson and P.K. Smith attended from the SRS CAB. Ann Clark from the South Carolina Department of Health and Environmental Control (SCDHEC) participated as an ex-officio member of the SRS CAB. Mike Schoener attended as a workshop facilitator and Brent Dougherty (BNFL) and Bert Crapse (DOE-SR) provided technical support. The workshop started on Thursday evening, May 20, and finished the following Sunday at noon.

The purpose of the seminar was to improve stakeholder understanding of transportation issues, foster dialogue among SSABs about national transportation issues and identify joint issues and concerns related to transportation.

Storage, Treatment and Disposal

... continued from page 4

waste is disposed through shallow land burial or in above ground concrete vaults. SRS is currently disposing of low-level waste in both trenches and vaults. The disposal method used for mixed waste depends on the treatment applied and the resulting waste characteristics. DOE uses licensed commercial facilities to treat and dispose of its hazardous wastes. Non-hazardous wastes are generally disposed in sanitary landfills at or near the DOE sites.

The DOE has not made final decisions on where to locate additional treatment, storage and disposal capacity for the different types of wastes across the country. These locations will not be decided until the completion of a sitewide or project-specific National Environmental Policy Act (NEPA) study. The Waste Management Programmatic Environmental Impact Statement (WM PEIS) was developed by the Department of Energy to assist in this decision making process. ■



Trucking will be one main method for transport

The workshop included a tour of the Fernald Environmental Management Site and demonstrations and displays related to transportation, including a tractor-trailer with two waste shipping containers.

A majority of the workshop was spent in breakout groups and plenary sessions discussing issues in the following four core topic areas related to the transportation of radioactive waste:

- Routing, Mode and Cost
- Packaging, Safety and Risk Assessment
- Stakeholder Involvement, Risk Communication and Education
- Notification and Emergency Response

The workshop concluded on Sunday with final development of eight statements related to the four core topic areas. At the completion of the workshop, the SSAB participants were given the opportunity to sign each of the statements indicating their individual support and concurrence with the statements as products of the workshop. Nearly all of the participants signed the statements indicating their individual endorsement as workshop participants. The eight statements and signature sheets were forwarded to the acting Assistant Secretary for Environmental Management and other DOE officials responsible for transportation issues. Subsequent to the workshop, the SRS CAB voted unanimously to support the eight statements resulting from the workshop and sent a memo to the Assistant Secretary for Environmental Management indicating approval in principle of the statements.

The Oak Ridge Site Specific Advisory Board will be hosting a similar workshop on Stewardship in October 1999. ■

Facing a new era

SRS CAB Addresses Stabilization of Excess Nuclear Materials

The need to safely and cost effectively manage excess spent nuclear fuel, plutonium, uranium and other nuclear materials added a complicated dimension to the Department of Energy (DOE) about four years ago. It was then that a Presidential oversight committee, the Defense Nuclear Facilities Safety Board (DNFSB), said it was concerned over the storage conditions of nuclear materials, many of which remained in mid-stream when defense-related process operations ceased. This was DOE's first indicator that the end of the Cold War had just introduced a new era—the business of stabilizing, storing and disposing excess nuclear materials.

DOE and DNFSB were not the only organizations concerned, however. The Savannah River Site Citizens Advisory Board (SRS CAB) said as neighbors of SRS and as taxpayers, its members were keenly interested in how DOE planned to stabilize these legacies from the Cold War. Since the DNFSB provided its Recommendation 94-1 to the Secretary of Energy in 1994, the SRS CAB, lead by the Nuclear Materials Management (NMM) subcommittee, has researched, reviewed, and commented on DOE's plans for stabilization.

Recommendations

The CAB NMM subcommittee rarely makes specific comments on technical issues for full CAB endorsement. According to Tom Costikyan, subcommittee chair, the members do not pretend to have the technical knowledge to give DOE advice. However, the members are citizens of South Carolina and taxpayers and, as a result, are entitled to see that stabilization activities are safe and effective and that taxpayer dollars are spent wisely. Although the full CAB supports SRS helping DOE meet its stabilization challenges, the members want to be assured that the stabilized nuclear materials be moved to a federal geologic repository.

A majority of past CAB recommendations with nuclear material focus has stressed that DOE retain and maximize the use of the SRS canyons until new disposition technologies are proven. A proposed melt and dilute technology to stabilize foreign and domestic research reactor fuel is one such issue that has repeatedly attracted the NMM subcommittee's attention. Just recently, a DNFSB report raised several questions about potential technical and cost uncertainties dealing with melt and dilute technology. The

continued on page 7...

Member Spotlight



Ann Loadholt

Ms. Loadholt holds a B.A. in business education and is the former Chair of the Barnwell County Council. Ann is very active in her community, having served as chairman of the county vocational school and the county nursing home. Ann has chaired the SRS CAB for the past four years. She resides in Barnwell, SC.



Melvyn Galin

Mr. Galin serves as President and C.E.O of the Institute for Educational Services. He holds a B.S. and M.B.A. from Georgia Institute of Technology, and a Doctor of Business Administration from Indiana University. Mel lives in Savannah, Ga.



Georgia Leverett

Ms. Leverett is employed by the Richmond County Board of Education Department of School Social Work Services. She attended Kentucky State University in Frankfort, Kentucky. Georgia resides in Augusta, Ga.



Barbara Murphy

Ms. Murphy is a Civil Domestic Mediator and Real Estate Broker in Augusta, Ga. She is actively involved in the RM&FU Working Group. Barbara recently relocated to Augusta from Hilton Head, SC.



Wade Waters

Mr. Waters, now retired, has been an elementary school principal, director of adult and continuing education programs and educational facilities inspector employed by the State of Georgia. He has served on local, national and international organizations for the education of retarded or mentally-challenged students. Wade resides in Pooler, Ga.



Earnest Marshall

Mr. Marshall is an Environmental Social Scientist and has served as Ombudsman to the Agency for Toxic Substance and Disease Registry and the Community Collaborative, Inc. on environmental issues. Earnest resides in Decatur, Ga.

New Members



Pictured from left to right: Top row: Mel Galin, Bill Vogeles, Murray Riley. Bottom row: Earnest Marshall and Georgia Leverett. Charlene Townsend is not pictured.

Cleanup

... continued from page 2

The Focus Group, recognizing that the total task associated with the ORWBG is larger than the Focus Group alone can handle, recommended hiring an Independent Scientific Peer Review (ISPR) to study the ORWBG. The CAB agreed and implementation of this action is underway. The ISPR will review the work performed and documented in the CMS/FS and the follow on Proposed Plan and Record of Decision for CERCLA remediation of the ORWBG. The review will also include the proposed RCRA permit modification. These activities will include human health consequences of the ORWBG.

The Focus Group will continue to review the human health potential resulting from the ORWBG and what must be done to mitigate risks. In summary, Lee Poe, Focus Group Technical Lead, said, "The combination of the Focus Group work with the independent study should show the risk to people from the Burial Ground and the need, if any, to continue cleanup efforts." Poe also said, "We expect to continue our work until mid-2000 when the Focus Group will provide comments and recommendations to the SRS Citizens Advisory Board".

Further information is available by calling 1-800-249-8155 or via our website at www.srs.gov. ■

Don't forget to check out our website at www.srs.gov for the latest news regarding the SRS Citizens Advisory Board!

Excess Nuclear Materials

... continued from page 6

CAB subcommittee requested a presentation from the DNFSB on the report, then the subcommittee asked DOE how it planned to approach the DNFSB statements.

In an effort to provide public understanding and participation, DOE committed to giving the CAB insight on the melt and dilute technology and to be among the first organizations to hear DOE's draft response to the DNFSB. DOE stressed in the follow up subcommittee meeting that it believes the melt and dilute technology is viable (siting supportive statements from the National Academy of Sciences, the Nuclear Regulatory Commission, and the DNFSB) and that development must continue.

So in hearing DOE's response, why does the CAB subcommittee continue to focus strongly on retaining operations of the canyons?

"We believe that there is every reason for confidence that the melt and dilute technology will do the job, but it is likely that costs will go up and the timetable to bring the melt and dilute technology online will slide. In several recommendations, we have expressed our concern that the canyons might be decommissioned before the alternative technology is fully established," said Costikyan. "The bottom line is that we do not want the Spent Nuclear Fuel (SNF) at SRS, or scheduled to come to SRS, to be stranded here without a disposition path out." ■

Thanks for a job well done!



Outstanding Service Award presented to Monica Finney by Ann Loadholt, Chair, SRS Citizens Advisory Board

The SRS CAB bids farewell to Monica Finney in May following expiration of the administrative support contract with Life Cycle Inc. The Board welcomes Judy Burch, WSRC, in her new assignment with the Board.



Upcoming 2000 Board Meetings

January	24-25	Hilton Head Island, SC
March	27-28	Aiken, SC
May	22-23	Savannah, GA
July	24-25	Augusta, GA
September	25-26	Beaufort, SC
November	13-14	North Augusta, SC
Meeting facilities are yet to be determined		



Key criteria for Board membership includes a time commitment, and the desire and ability to work towards better and informed recommendations. To apply for membership to the Citizens Advisory Board, please call 1-800-249-8155

"Board Beat" is published semi-annually by the Savannah River Site Citizens Advisory Board. Content is provided by Board members and support staff. Please send your comments and suggestions to:

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