Meeting Minutes
Savannah River Site Citizens Advisory Board (CAB) – Combined Committees Meeting
New Ellenton, South Carolina
January 26, 2015

Monday, January 26, 2015 Attendance:

CAB
Thomas Barnes
Louie Chavis
Robert Doerr
Murlene Ennis
Dr. Rose Hayes
Dr. Eleanor Hopson
Dr. Virginia Jones
Cleveland Latimore
Clint Nangle
Dr. Marolyn Parson
Larry Powell
Dr. William Rhoten
Earl Sheppard – ***Absent***
Harold Simon
George Snyder
Nina Spinelli
James Streeter
Ed Sturcken
Christopher Timmers
Louis Walters – ***Absent***

DOE
Dr. David Moody, DOE-SR
Terry Spears, DOE-SR
Doug Hintze, DOE-SR
Gail Whitney, DOE-SR
Angelia Adams, DOE-SR
Bill Clark, DOE-SR
Avery Hammett, DOE-SR
Jim Giusti, DOE-SR
de'Lisa Carrico, DOE-SR
Pat McGuire, DOE-SR
Jim Folk, DOE-SR
Maxcine Maxted, DOE-SR
Soni Blanco, DOE-SR

Agency Liaisons/Regulators
Trey Reed, SCDHEC
Gregory O'Quinn, SCDHEC
Kim Brinkley, SCDHEC
Heather Cathcart, SCDHEC
Susan Fulmer. SCDHEC

Stakeholders
Tom Clements
Art Domby
Joe Ortaldo
Peter LaBerge
Karen Patterson
Dawn Gillas
Liz Goodson

Contractors
Kristin Huber, SRNS
Jay Johnson, SRNS
Kim Cauthen, SRNS
Mtesa Wright, SRNS
Mike Dunsmuir, SRNL
Dorian Newton, NNS
Melissa Johnson, Times Solutions
Jesslyn Anderson, Times Solutions
James Tanner, Times Solutions
Tina Watson, Times Solutions

CAB Facilitator, Tina Watson, Time Solutions, welcomed everyone to the meeting. She reviewed the day's agenda and Meeting Rules of Conduct. She stated a public comment period was scheduled for the end of the meeting and reminded everyone how to access electronic copies of meeting materials through the CABNET feature. She welcomed CAB Chair Marolyn Parson to open the meeting.

CAB Chair Parson welcomed everyone to New Ellenton, South Carolina (SC). She thanked the CAB Support Team for the meeting arrangements, and opened the meeting.

PRESENTATION: Recommendation & Work Plan Update – Jesslyn Anderson, Times Solutions

Ms. Jesslyn Anderson, Time Solutions, provided an update on the recommendation status report and Work Plan progress. She stated the CAB had adopted nine recommendations since January 2014. She provided an update of the CAB Work Plan and highlighted how each committee completed its Work Plan for 2014.

Waste Management (WM) Committee Overview – Cleveland Latimore, Chair

CAB member Cleveland Latimore listed the WM Committee members and reviewed the committee's purpose. He provided a recommendation status update, stating recommendation 321 was open. He said a joint draft recommendation between the WM and Nuclear Materials (NM) Committees would be discussed later in the meeting. He welcomed Ms. Soni Blanco, DOE-SR, to begin her presentation. He also asked CAB members to hold questions until the end of the presentation.

PRESENTATION: Topics of Consideration – Soni Blanco, DOE-SR

Ms. Blanco stated the purpose of her presentation was to provide potential topics the WM Committee could use to develop its 2015 Work Plan. She first referred back to the 2014 Work Plan topics before listing the proposed 2015 topics, which included:

Solid Waste
- Solid Waste Program Update
- Waste Isolation Pilot Plant (WIPP) Status/Update

Liquid Waste

- Liquid Waste System Overview (Recommendation 321)
- Liquid Waste System Plan Revision 20
    - Key inputs and assumptions (Recommendation 269)
    - Revision 20 Overview (Recommendation 321)
- Defense Waste Processing Facility (DWPF) Performance Status (Recommendation 269)
- Glass Waste Storage Status
    - Canister Double Stacking Effort
- Tank Closure Status (Recommendation 269)
    - Closure progress on High Level Waste tanks 12 and 16
- Salt Waste Processing Status
    - Actinide Removal Process / Modular Caustic Side Solvent Extraction Unit (ARP/MCU) – Operating Performance (Recommendation 269)
    - Saltstone Disposal Unit 6 Construction progress (Recommendation 269)
    - Salt Waste Processing Facility (SWPF) Status (Recommendation 269)

Administrative & Outreach (A&O) Committee Overview – Nina Spinelli, Chair

CAB member Nina Spinelli reminded everyone CAB Committee Chair elections were scheduled for the next day. She encouraged everyone to visit the CAB Facebook page and website at cab.srs.gov. She reminded CAB members to contact the CAB Support Team if they had future newsletter ideas before beginning the A&O Topics for Consideration presentation.

PRESENTATION: Topics of Consideration – Nina Spinelli, A&O Committee Chair

CAB member Spinelli listed proposed Work Plan topics for 2015, which included:

- Oversee elections of the CAB chairpersons
- Track and report on member attendance
- Coordinate input to revision of Internal Processes
- Review Membership Package prepared by DOE
- Coordinate Speakers Bureau Presentation
    - Train Speakers
    - Arrange for CAB members to be able to present
    - Coordinate Speakers Bureau Digital Video Disc (DVD)
- Coordinate Social Media for the CAB
- Solicit/Coordinate topics for the CAB's Newsletter
- Pursue other outreach ideas
- Research and coordinate a student intern program
- Attend Environmental Justice meetings when able to do so
- Full Board Feedback form (Recommendation 315)
- Annual review of dropdown tab on SRS.gov (Recommendation 294)

Facilities Disposition & Site Remediation (FD&SR) Committee Overview – Tom Barnes, Chair

CAB member Tom Barnes listed the FD&SR Committee members and stated the committee's purpose. He provided a recommendation status update, stating recommendations 315 and 317 were open. He said three draft recommendations would be discussed later in the meeting. He welcomed Ms. Avery Hammett, DOE-SR, to begin her presentation.

PRESENTATION: Topics of Consideration – Avery Hammett, DOE-SR

Ms. Hammett said she planned to provide potential topics for the FD&SR Committee to use in developing its 2015 Work Plan. She reviewed the 2014 FD&SR Work Plan topics before listing the 2015 topics, which included:

- Annual Integrator Operable Units Program Update
- Federal Facility Agreement (FFA) Appendix E Projected and Proposed Changes (Recommendation 279)
- Savannah River Ecology Laboratory Update

- Federal/State Regulatory Oversight of Cleanup Activities
- Savannah River Site Annual Site Environmental Report
- D-Area Ash Project
- Innovative Environmental Remediation Technologies

Draft Comment Letter Discussion

Comments on "Early Action Statement of Basis / Proposed Plan for the C-Area Operable Unit"

CAB Chair Parson introduced a draft comment letter, which she said could be forwarded to DOE if the CAB wanted. She said the comment letter was prepared in response to the "Early Action Statement of Basis / Proposed Plan for the C-Area Operable Unit." She said the validation and discussion for how the human health risks were developed by DOE, Environmental Protection Agency (EPA), and South Carolina Department of Health and Environmental Control (SCDHEC), were beyond the scope of the draft comment letter. CAB Chair Parson also stated the draft comment letter was not debating the validity of the risks that were associated with these subunits. CAB Chair Parson read the draft comment letter, including the following sections: background information, remedial action goals, remedial alternatives, evaluation of alternatives, summary of analysis, preferred alternative, post record of decision schedule, conclusions, and closing. She reminded everyone that DOE scheduled a public meeting that evening from 6:30 – 8:30 at the DOE Meeting Center in Aiken, SC. She said she hoped many of the CAB members and public would attend the meeting to provide input about the "Early Action Statement of Basis / Proposed Plan for the C-Area Operable Unit." CAB Chair Parson said the public comment period involving the "Early Action Statement of Basis / Proposed Plan for the C-Area Operable Unit" closed on January 31, 2015. She then asked if there was any discussion about the draft comment letter.

Ms. Karen Patterson, public, stated she had no problem with conclusions of the draft comment letter. She said she felt the most important part of the draft letter was that cleanup of subunits should not take funds away from the High Level Waste tank cleanup program. Ms. Patterson said she felt that government regulators and agencies, including DOE, tend to focus more on protecting future generations rather than protecting current citizens. Ms. Patterson said when topics such as this draft comment letter were considered during times of increasingly limited funding, a decision should be made to either protect future generations or our children and grandchildren who could live for the next 75 years.

CAB member Virginia Jones thanked CAB Chair Parson for writing the draft comment letter. CAB member Jones said she was worried about blowing cesium, since the land use control suggested within the "Early Action Statement of Basis / Proposed Plan for the C-Area Operable Unit" was fencing.

CAB member Spinelli asked how the risks identified in the "Early Action Statement of Basis / Proposed Plan for the C-Area Operable Unit" applied to animals since fencing would not always keep animals away from contaminated areas. She expressed her concern that animals would come in contact with contamination and potentially impact human health. CAB Chair Parson told CAB member Spinelli she should share her concerns at the public meeting that night.

Mr. Art Domby, public, said in the future land use controls would most likely be used in certain areas of SRS. Mr. Domby said he was unsure whether the information within the draft comment letter allowed the CAB to assume a cost benefit analysis. CAB Chair Parson said she did not make the cost benefit analysis of what it would cost to cleanup. She said she did not know that cost; however, she explained that in terms of the other land use controls that were in use at SRS, the CAB was only commenting on the "Early Action Statement of Basis / Proposed Plan for the C-Area Operable Unit" since it was available for public comment.

Draft Recommendation Discussion

Follow-up on Savannah River Ecology Laboratory's Report "Technical Assessment of DOE Savannah River Site-Sponsored Radionuclide Monitoring Efforts in the Central Savannah River Area"

CAB member Barnes reviewed each item number of the draft recommendation before asking if there was any discussion. There were no changes suggested for the draft recommendation; however, Ms. Patterson said she felt there was a need for better "risk education." Ms. Patterson said she felt members of the public were concerned because of how difficult it was to understand risk and various radiological health risks. Ms. Patterson encouraged the CAB to support funding that would promote risk education programs.

"Limiting the Use of Acronyms in Presentations Provided to the Public"

CAB member Larry Powell read the draft recommendation and reviewed each recommendation item number. He asked if there was any discussion. Mr. Jim Giusti, DOE-SR, asked the CAB to clarify within the recommendation who DOE should work with to develop the list of acceptable acronyms. CAB Chair Parson suggested the Executive Committee work with DOE to develop the list of acceptable acronyms. CAB member Barnes said to add "Executive Committee" to the item one subpart a of the draft recommendation.

"Providing Opportunity for the Public to Provide Written Comments on Savannah River Site Cleanup Decisions"

CAB member Barnes reviewed each item number of the draft recommendation before asking if there was any discussion. There were no further comments and CAB member Barnes asked that the draft public comment letter and the three draft recommendations be voted on the following day.

Nuclear Materials (NM) Committee Overview – Rose Hayes, Chair

CAB member Rose Hayes listed the NM Committee members and reviewed the committee's purpose. She provided a recommendation status update, stating recommendations 307, 319, 320, 324, and 325 were open. CAB member Hayes reviewed each open recommendation before she mentioned that a draft recommendation would be discussed after the scheduled presentation. She explained that next NM Committee meeting would be announced after the Work Plan meeting in February. CAB member Hayes then welcomed Ms. Maxcine Maxted, DOE-SR, to begin her presentation.

PRESENTATION: Topics of Consideration – Maxcine Maxted, DOE-SR

Ms. Maxted stated the purpose of her presentation was to provide potential topics the NM Committee could use to develop its 2015 Work Plan. She first referred back to the 2014 Work Plan topics before listing the proposed 2015 topics, which included:

- Nuclear Material Receipt and Storage
  - L-Basin Capacity Update including Projected Foreign Research Reactor (FRR) /Domestic Research Reactor (DRR) receipts for the next year
  - K-Area Status Update
- Nuclear Material Reuse and Disposition
  - Update on H-Canyon Missions
  - Processing Status and update
- Strategic Initiatives and Policy Discussions
  - Nuclear Materials System Plan
  - 235-F Status Update

Draft Recommendation Discussion

"Double Staking Recommendation"

CAB member Spinelli introduced the draft recommendation. She explained the issue of double stacking had been discussed recently at both the committee and Full Board level. She then read the three item numbers of the draft recommendation. While reading item number three, CAB member Spinelli removed the word "to." CAB member Spinelli asked if there was any discussion about the draft recommendation. Since there was no further discussion, CAB member Hayes said she would like the draft recommendation to be voted on the following day.

Strategic & Legacy Management (S&LM) Committee Overview – Clint Nangle, Chair

CAB member Clint Nangle listed the S&LM Committee members and reviewed the committee's focus. He provided a recommendation status update, stating there were no open recommendations. CAB member Nangle reminded everyone the next S&LM Committee meeting would be finalized in February and he encouraged everyone to look out for the 2015 Committee meeting schedule. He then welcomed Mr. Bill Clark, DOE-SR to begin his presentation.

PRESENTATION: Topics of Consideration – Bill Clark, DOE-SR

Mr. Clark stated his presentation would provide potential topics for the S&LM Committee to use in developing its 2015 Work Plan. He listed the 2014 Work Plan topics before listing the proposed 2015 Work Plan topics, which included:

- Planning and Execution Updates
    - Environmental Management Integrated Lifecycle Plan for Cleanup Program (Recommendation 285)
    - Environmental Management Performance Metrics Fiscal Year (FY) 2015 Targets (Recommendation 265)
    - Enterprise SRS Status (Recommendation 262)
- Budget Request and Congressional Funding
    - Appropriations Status
    - CAB participation with Fiscal Year 2016 Integrated Priority List (IPL) (Recommendation 261)
- Update on SRS Natural Resources Management – United States Forest Service
- Historical Preservation
- Next Generation working in the Nuclear Industry
- Savannah River National Laboratory Annual Update (Recommendation 316)
- Land Use and Infrastructure Planning at SRS
- DOE/Military Partnership at SRS
- Response to CAB Recommendation 323 (Safety Procedures & Emergency Preparedness)

Ms. Liz Goodson, public, stated SRS was designated a National Environmental Research Park back in 1972 and she asked what environmental research had been taking place at SRS. Dr. Moody said DOE-SR continued to partner with the Savannah River Ecology Laboratory, which was operated by the University of Georgia. Dr. Moody said DOE-SR continued to fund SREL annually so the research that began 60 years ago continued today.

Ms. Bernice Johnson Howard, Shell Bluff area resident and Georgia Women's Action for New Directions (GAWAND) affiliate, asked what training occurred with military at SRS. She asked if any military training occurred in high risk areas. Mr. Clark replied, "Absolutely not. What DOE-SR had a Memorandum of Agreement Interagency Agreement with the Department of the Army to provide training access to shutdown facilities, specifically the old D-Area Powerhouse, which he said was on the east side of Highway 125 that ran through SRS. Mr. Clark said that location was significantly isolated from the rest of SRS so the military could conduct training exercises there. Mr. Clark said the exercises did not involve live fire or explosives.

PRESENTATION: <u>Budget Update</u>– Doug Hintze, DOE-SR

Mr. Hintze said the purpose of his presentation was to discuss the Federal Budgeting Process and status of SRS Fiscal Year (FY) 2015 funding. He provided a diagram of the Federal Budgeting Process and explained how the chart showed at any point during the year, DOE-SR might be dealing with three different budget cycles. Mr. Hintze pointed out at the beginning of the FY in October the President signed the appropriation. He said the last time there was an appropriation at the beginning of the FY in October was 1997. He explained there was a continuing resolution (CR) and DOE-SR did not receive its appropriation until December. Mr. Hintze said based on the funding that was received, DOE-SR had to change baselines to reflect scope that would be completed in FY 2015. He referred back to the diagram and said the President was about to release the budget request for FY 2016, which was scheduled to be released on February 2, 2015. He also explained DOE-SR was starting to develop the FY 2017 budget for SRS. He discussed budget challenges stating the CR through December 11, 2014, actually had to be extended a few days until December 13, 2014, which was when the final omnibus appropriations was approved. He then briefly discussed the major SRS cleanup program areas, which were called performance baseline summaries (PBS).

Mr. Hintze discussed the EM budget with a chart titled, "FY 2015 SRS EM Budget." He noted the top four rows in blue were combined into "SRS Risk Management Operations." He explained the last column labeled "FY 2015 Omnibus" did not contain any numbers for the "SRS Risk Management Operations" because once DOE-SR received the appropriation they worked with the Office of Management and Budget (OMB) to divide the money into the four "SRS Risk Management Operations" PBS's. Mr. Hintze reminded everyone back in August the House of Representatives marked up the appropriations bills and said since the National Nuclear Security Administration (NNSA) performed work that supported EM, NNSA should pay for those activities. He said due to Congresses statement, Congress reduced the "SRS Risk Management Operations" amount by 18 million dollars, since NNSA was supposed to pay EM for those activities; however, Mr. Hintze commented once the appropriations came out, there was no mention of NNSA giving EM 18 million dollars. He explained how the "Highway and Transportation Act," reduced DOE-SR pension contributions and ultimately covered the 18 million dollar reduction EM would not receive from NNSA. Mr. Hintze described PBS 14C Liquid Waste stating DOE-SR requested 588 million dollars for "PBS 14C Radioactive Liquid Waste" and "PBS 14C Saltstone Disposal Unit 6." He said 588 million dollars would have been an increase from the FY 2014 enacted amount of 566 million dollars; however, DOE-SR only received 577 million dollars, which was an 11 million dollar decrease from the requested amount. Mr. Hintze stated Congress simply decided not to give DOE-SR the requested amount. He said the Department was often criticized for not asking for enough funding; however, in this situation, even the money DOE asked for was not appropriated. He referenced "PBS 14C Salt Waste Processing Facility (SWPF)" stating DOE-SR received 135 million dollars, which matched the amount DOE-SR requested. He said "PBS 100

Community and Regulatory Support" received the requested amount of 11 million dollars, while "PBS 20 Safegaurds and Security," received 138 million dollars, which was more than requested. Mr. Hintze provided a second chart titled, "FY 2015 SRS NNSA Budget" and showed the budget breakdown for "Defense Programs," "Safeguards and Security," "Mixed Oxide Fuel Fabrication Facility (MOX)," "Waste Solidification Building," "Defense Nuclear Nonproliferation," and "Nuclear Nonproliferation Other." He said the onsite NNSA total number for FY 2015 was 642,764 million dollars.

CAB member Hayes asked what the Glass Waste Storage Project entailed. Mr. Hintze explained two Glass Waste Storage Buildings (GWSB) were already constructed and DOE-SR was not planning to construct another GWSB, but was looking for alternatives relating to cask storage. Mr. Hintze said the alternative of the double stacking method would increase storage to approximately FY 2023 or 2024. CAB member Hayes asked if the terms double stacking and GWSP were the same. Mr. Hintze said, "Not at all. Double stacking was an operational activity where DOE-SR would put a second canister into the existing facility. GWSP was a separate line item project separately funded that would develop that capability to store the canisters in a different manner." CAB member Hayes asked when would DOE know if double stacking was a feasible method. She also asked when double stacking would be implemented if the method was determined to be feasible. Mr. Jim Folk, DOE-SR, said DOE was continuing studies of double stacking; however, the preliminary look was very good so DOE expected double stacking to work. Mr. Folk stated calculations such as ceiling measurements, heat load, and seismic analysis were being done. Mr. Folk said he anticipated that by the end of FY 2015 DOE would be able to fully authorize the activity.

Ms. Patterson asked how much the pension reduction would be applied to the Liquid Waste program. Mr. Hintze said the pension reduction in Liquid Waste was roughly 32 million dollars.

CAB Chair Parson asked Mr. Hintze if he felt the new Congress would do better at providing future appropriations to DOE-SR on time. Mr. Hintze said he was unsure but the fact that the request was being released on time in February was a good sign.

PRESENTATION: <u>Environmental Management Cleanup Program Fiscal Year 2014 Integrated Lifecycle Estimate Update</u>– Doug Hintze, DOE-SR

Mr. Hintze said the purpose of his next presentation was to fulfill a 2014 S&LM Committee Work Plan topic by providing an annual assessment and update on the EM Integrated Lifecycle Cost Estimate (ILCE) for SRS. He explained that he wanted to discuss the difference in the ILCE from last year and this year. He sated the ILCE was an integrated plan that described the remaining cleanup programs at SRS. He said the four functional program areas of the ILCE were Nuclear Materials, Waste Disposition, Area Completion, and Site Support. Mr. Hintze stated the four main components were scope, cost, schedule, and risk. He explained that primary drivers and assumptions considered in developing the ILCE included: no direct plutonium shipments to WIPP, no Idaho SNF exchange, no SNF processing except what was identified in the Amended Record of Decision (AROD). He said another assumption considered in developing the ILCE was that SNF and High Level Waste shipments to a national offsite repository were planned to begin in 2055, while offsite disposition would be completed by 2060. He listed other assumptions, which included: funding constrained at current levels, interim storage of HLW canisters and dry stored SNF would be required until a national repository was assumed to be available in 2048, new technology opportunities would assist in reducing operational risk, HLW System Plan Revision 19 reflected the basis for the Liquid Waste Program, SWPF construction, NM Processing and Liquid Waste completion drive Soil and Groundwater Remediation and Facility deactivation and decommissioning activities. He listed primary sources of cost and schedule increases for each program before he discussed two charts for the overall lifecycle cost by Program Baseline Summaries for FY 2013 and FY 2014. He said the red line on each graph represented an assumed funding rate of 1.315 billion dollars a year for the EM program. Mr. Hintze said the color represented all the PBS activities at SRS for each year. He explained that if the work was pushed down below the red line, then work last longer into the future. Mr. Hintze said since the ILCE was a "point-in-time" parametric estimate it meant once DOE-SR used the assumptions, the graphs showed a snap shot of what the year looked like at a single point in time. He stated impacts of the FY 2014 ILCE extended the EM completion schedule 23 years from FY 2042 to FY 2065, with a cost increase of approximately 25.2 billion dollars. Mr. Hintze said the DOE-SR assumed funding would increase by approximately 1.7 percent a year and the cost of all the scope increases to 2.7 or 2.8 percent since that was the normal rate it would cost for people to get pay raises and the cost of materials. He said the costs increase faster than funding so that meant every year DOE-SR lost buying power. Mr. Hintze provided a chart of the SRS EM Lifecycle Roadmap and explained the schedule showed how the milestones were all driven because of the assumed funding. He stated the FY 2014 Lifecycle Estimate reflected an updated point-in-time strategy and fully described the remaining SRS scope to the best of DOE-SR's ability.

CAB Chair Parson commented that DOE-SR was still above the red line on the "FY 2014 Lifecycle Total Cost by PBS" chart. Mr. Hintze explained throughout the year, efficiencies occurred which allowed more work to be completed with the amount of funding than originally anticipated. He said DOE-SR believed through efficiencies and new technologies the small amount of work at the beginning of the year would be completed and moved below the red line.

Mr. Rob Pope, EPA, asked if based on the baseline assumption that EM would control the entire site to year 2065. Mr. Hintze said, "Yes. It assumes strictly EM ownership all the way to 2065."

Ms. Patterson asked if the ILCE was a complex wide activity and if DOE-SR compared its ILCE to other sites. Mr. Hintze said SRS was the only site, as far as he knew, that spent money to identify all the scope. Mr. Hintze commented that he felt DOE-SR had the best handle on what scope occurred since other sites in the DOE complex had not updated the amount of scope being done like SRS. Mr. Hintze said he felt SRS was way ahead of other sites.

Mr. Joe Ortaldo, public, asked how DOE-SR communicated the ILCE to DOE-HQ. Mr. Hintze said during February when the FY 2016 budget was released, DOE-SR took the five-year baseline that was developed for FY 2016 and DOE-SR input the new numbers that were released. Mr. Hintze said DOE-SR assumed what was received in the request was what DOE-SR would get. He said the contractor and DOE-SR work to determine what scope can be done for FY 2016. He explained that DOE-SR then revised the five-year baseline; however, he explained that revising the baseline meant that scope could possibly be pushed from the five-year point into the lifecycle. Mr. Hintze said the ILCE was submitted to DOE-HQ, reviewed by a Configuration Control Board for approval. Mr. Ortaldo stated the flat funding from Congress seemed not to be based on the ILCE. Mr. Hintze explained several sites throughout the DOE complex created regulatory commitments back in the middle 2000's that assumed funding was going to increase. Mr. Hintze explained that other sites felt funding would be given based on the regulatory commitments that were created. Mr. Hintze said the EM budget for FY 2015 was somewhere around 5.8 billion dollars total. Mr. Hintze explained in order to fund all the regulatory commitments for the next few years, Congress would have to give the Office of Environmental Management approximately 7 to 8 billion dollars. Mr. Hintze explained that the Office of Environmental Management was trying to align funding to commitments, which was why several regulators were upset because the funding Congress gives DOE did not match the regulatory commitments. Mr. Ortaldo asked if the ILCE presentation was given to the local delegation of Georgia and South Carolina. Dr. David Moody, SRS Manager, explained the presentation had not been given; however, he mentioned that he possibly could put the presentation on the agenda for the next quarterly staffers meeting with the Georgia and South Carolina delegation.

Mr. Tom Clements, SRS Watch, commented that removal of the waste from the tanks at SRS would be a priority, but what would happen to the tanks and the Soil and Groundwater Remediation if the red line collapsed. He said then we would be left with tanks in less than a state of closure and who knows what would happen with the Soil and Groundwater Remediation. Mr. Hintze stated the Office of Environmental Management's three priorities were the Liquid Waste Program in Hanford, WIPP recovery, and the Liquid Waste Program at SRS. Mr. Hintze said the ILCE depended on assumptions and the assumptions used were valid with the entire EM program.

Public Comments

Mr. Tom Clements, SRS Watch, encouraged the CAB to pay attention to the upcoming DOE budget release. Mr. Clements referenced the MOX project and said according to his calculations, the MOX project needed approximately 800 million dollars a year. Mr. Clements mentioned he was unsure of what the determination in the alternatives analysis, due in the middle of April, would conclude. Mr. Clements said several projects had been proposed at SRS over the last 30 years. He commented he compiled a list of various projects, which he called "Public Interest Successes." He said from an environmental perspective, the list of projects helped the current condition of SRS. Mr. Clements said a report released by the Union of Concerned Scientists discussed alternatives to the MOX Program. Mr. Clements said he would provide the URL the following day. He said the following day, Greenpeace in Germany, planned to release a public legal opinion translated in English, which explained why it was illegal to export the SNF under consideration for transport to SRS. Mr. Clements said it would be interesting to see how the issue played out in Germany. Mr. Clements said there was a draft Environmental Impact Statement due at the end of March, followed by a public meeting, and a 45-day comment period. Mr. Clements said the plan was being presented as disposition to the Germans, but he said he felt the plan was basically a dumping program. He also said he felt the public legal opinion, which was received by DOE-HQ that day, would have an impact on the decisions concerning the program.

CAB Chair Parson mentioned CAB recommendation 315, which the CAB adopted in 2013, remained "open." Mr. Giusti explained that in response to recommendation 315, DOE-SR held an Information POD in conjunction with the CAB September 2014 Full Board meeting in Beaufort, SC. Mr. Giusti said there was a lack of coordination; however, he said DOE planned to work with the A&O Committee in 2015 to figure out a future approach. Mr. Giusti said DOE planned to hold an Information POD downstream in conjunction with the 2015 CAB Full Board meeting. Mr. Giusti announced the next Information POD was scheduled for Wednesday, January 28, 2015, at 6:00 PM, with registration at 5:00 PM, at the Georgia Regents University Jaguars Student Center. He said the scheduled sessions included: Nuclear Materials, Environmental Monitoring, Restoration, Savannah River National Laboratory, and Waste Management.

~Meeting adjourned

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DOE
Dr. David Moody, DOE-SR
Terry Spears, DOE-SR
Mark Senderling, DOE-HQ EM-30
Avery Hammett, DOE-SR
Pat McGuire, DOE-SR
Rich Olsen, DOE-SR
Jim Folk, DOE-SR
Bert Crapse, DOE-SR
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Gail Whitney, DOE-SR
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Soni Blanco, DOE-SR
Michael Mikolanis, DOE-SR
Sandra Waisley, DOE-SR
Maatsi Ndingwan, DOE-SR

Agency Liaisons/Regulators
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Susan Fulmer, SCDHEC
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Shelly Wilson, SCDHEC
Heather Cathcart, SCDHEC
Rob Pope, EPA

Contractors
Mtesa Wright, SRNS
Kristin Huber, SRNS
Kim Cauthen, SRNS
John Gilmour, SRNS
Mark Schmitz, SRR
Melissa Johnson, Time Solutions
Jesslyn Anderson, Time Solutions
James Tanner, Time Solutions
Tina Watson, Time Solutions

Stakeholders
Joe Ortaldo
Tom Clements
Clint Wolfe
Art Domby
Dawn Gillas
Karen Patterson
Steve Parson
Amanda Hill-Attkisson
Becky Rafter
Cee Cee Anderson
Nancy Bobbit
Annie Laura Stephens
Suzanne Rhodes
Bernice Howard

CAB Facilitator, Tina Watson, Time Solutions, led everyone in the Pledge of Allegiance. Ms. Watson reviewed the agenda and Meeting Rules of Conduct. She reminded everyone that discussion was limited to those seated around the table; however, she said public comment periods were scheduled throughout the day. Ms. Watson explained how to access electronic copies of meeting materials through the CABNET feature before she introduced CAB Chair Marolyn Parson to open the meeting and begin her update.

CAB Chair Opening and Update - Marolyn Parson, CAB

CAB Chair Parson welcomed everyone to the meeting and called for discussion of the November Full Board meeting minutes. There were no suggestions or comments regarding the minutes. She opened the floor for a vote; the CAB, with no opposition and no abstentions, approved the meeting minutes with 12 votes.

CAB Chair Marolyn Parson continued her update stating she and CAB Vice Chair Harold Simon participated in the national Environmental Management Site Specific Advisory Board (EMSSAB) and the SRS CAB was one of the eight Environmental Management (EM) boards chartered under the Federal Advisory Committee Act (FACA). CAB Chair Parson listed the other advisory boards before she discussed the upcoming Chairs' Meeting that was scheduled to be held during April in Augusta, Georgia. She said the Chairs' meeting would be open to the public and she encouraged everyone to attend. CAB Chair Parson stated this was her last meeting as a CAB member and she briefly reflected on her six years of CAB membership. She stated she served on each CAB Committee, while also serving as Vice Chair of the Strategic & Legacy Management (S&LM) and Administrative and Outreach (A&O) Committees, Chair of the Facilities Disposition and Site Remediation (FD&SR) Committee, and CAB Chair. CAB Chair Parson shared that throughout her six years on the CAB she had driven over 18,000 miles for meetings, spent more than 250 hours in Full Board meetings, and spent over 325 hours in Committee meetings. CAB Chair Parson said during her tenure 66 recommendations were considered and approved, while she helped write 11 recommendations and 2 formal comment letters. From DOE she thanked Mr. Doug Hintze, Mr. Rich Olsen, Ms. Avery

Hammett, Ms. Angelia Adams, Mr. Brian Hennessey, and Ms. Gail Whitney. She thanked Mr. Rob Pope, Environmental Protection Agency (EPA) and Ms. Shelly Wilson and Ms. Kim Brinkley from South Carolina Department of Health and Environmental Control (SCDHEC). CAB Chair Parson said she hoped the CAB would continue helping DOE write in plain language so the public could better understand topics being discussed. She explained that the Federal Plain Language Action and Information Network (PLAIN) Language Guidelines could be used by DOE to serve as a tool for ensuring better communication to the public. CAB Chair Parson then provided the CAB Support Team with 5 hard copies of the PLAIN Language Guidelines if needed for the future. CAB Chair Parson also recognized Ms. Jesslyn Anderson and Mr. James Tanner with the CAB Support Team for constantly providing excellent support while she served as CAB Chair. She said she would miss speaking with Ms. Anderson and Mr. Tanner during the week, but she said she planned to occasionally call to check in with the CAB Support Team.

Position Statement Renewal

"Citizens Advisory Board View of SRS Cleanup"

CAB Chair Parson reviewed the Position Paper up for renewal, which was renewed a year prior at the January 2014 Full Board meeting. CAB member Rose Hayes recommended incorporating information from Mr. Hintze's Integrated Lifecycle Cost Estimate (ILCE) presentation from the day before to the bullet points in the Overview section. The second bullet of the Position Statement was changed to "Is assumed that it could last until 2065, and." The third bullet point was changed to "Is assumed that it could cost on the order of $75 - $80 B to complete." CAB Chair Parson called for a motion and the CAB renewed the position paper with 14 votes of approval, no oppositions, and no abstentions. A copy of the position paper has been attached to this document.

Greeting by Ms. Carol Johnson, President & CEO of Savannah River Nuclear Solutions (SRNS)

Ms. Johnson said she did not have the privilege of meeting CAB Chair Parson prior to that day, but she thanked CAB Chair Parson for serving on the CAB for six years. Ms. Johnson said she joined SRNS in May 2014; however, she said she was not new to the area or SRS. Ms. Johnson then provided a brief overview of her vocational background. Ms. Johnson said she took her job, as well as the safety and mission of SRS, very seriously. She commented it was her job to ensure all the necessary resources, requirements, and employees were place to for SRNS to be successful. Ms. Johnson thanked the CAB for allowing her to speak and stated she looked forward to attending future CAB meetings.

Agency Updates

Dr. David Moody, SRS Manager, Department of Energy – Savannah River (DOE-SR)

Dr. Moody began his update with safety awareness message stating DOE was notified at 3:00 AM that morning of a train accident in Martin, SC, which he said was approximately 35 miles south of SRS. Dr. Moody stated the SRS Hazardous Materials Management Team was dispatched to assist with the cleanup. Dr. Moody explained that Highway 125 was closed and stated DOE would continue to monitor the situation and provide updates as necessary.

Dr. Moody welcomed everyone to the New Ellenton Community Center stating it was the first time the facility was being used for a CAB Full Board meeting. Dr. Moody said DOE looked forward to effectively partnering with New Ellenton by continuing to use the Community Center for future meetings. Dr. Moody explained the Community Center represented a considerable cost-savings, provided a central location for CAB members, and enabled better convenience with SRS staff and presenters. Dr. Moody expressed his appreciation of the members who were leaving the CAB. He said at the end of the day CAB Chair Parson, CAB member Rose Hayes, and CAB member Cleveland Latimore would be recognized for their dedication to the CAB. He reminded everyone the President would release his budget on Monday, February 2, 2015, before discussing the Liquid Waste Program. He stated last year 126 canisters were poured in the Defense Waste Processing Facility (DWPF), more than 551,000 gallons of salt solution was processed in the Actinide Removal Process/Modular Caustic Side Solvent Extraction Unit (ARP/MCU) salt disposition process, more than 1.1 million gallons of low-level waste was processed, and the next generation solvent (NGS) was successfully deployed. He explained construction of Saltstone Disposal Unit (SDU) 6 continued. Dr. Moody said progress continued in closure of High Level Waste (HLW) tanks 12 and 16. He noted DOE-SR was in dispute resolution with SCDHEC and he indicated SCDHEC recently elevated the dispute process to a dispute resolution committee. Dr. Moody said DOE-SR planned to close tank 16 on time while tank 12 would be slightly delayed. He explained DOE-SR asked for an extension for closure of tanks 16 and 12, which was currently being negotiated with SCDHEC. Dr. Moody stated that over 15 million pounds of glass had been poured in the DWPF and the 4,000th canister would be poured later in the year. Dr. Moody addressed environmental stewardship stating DOE had begun cleanup of the D-Area Ash Basin. He discussed the Nuclear Materials Program stating DOE continued dissolving bundles of Spent Nuclear Fuel (SNF). He said shipments of

Foreign Research Reactor (FRR) and Domestic Research Reactor (DRR) fuel receipts were expected for L-Basin. He explained plutonium oxide was being produced for Mixed Oxide Fuel Fabrication Facility (MOX), which would continue throughout 2015. Dr. Moody said SRS continued community partnerships with military training and Savannah River National Laboratory (SRNL). He then announced Mr. Michael Mikolanis, DOE-SR, was the new Assistant Manager for Infrastructure and Environmental Stewardship and would be serving alongside Ms. Sandra Waisley, DOE-SR, as one of the CAB Co-Deputy Designated Federal Official (DDFO). Dr. Moody also shared his plans to retire in the summer.

CAB Chair Parson asked about a safety drill that was documented in the Defense Nuclear Facilities Safety Board (DNFSB) December 12, 2014 Report. She stated the report felt the safety drill "lacked proficiency and rigor." CAB Chair Parson asked Dr. Moody to provide insight into how serious the "lacked of proficiency" within the drill. Dr. Moody said numerous drills were conducted throughout the year across SRS. Dr. Moody said the particular safety drill occurred in E-Area. Dr. Moody said we were not as crisp, but DOE learned from the safety drill and he explained that for every safety drills, corrective actions were implemented. Dr. Moody said sometimes there were flawless safety drills; however, in almost every safety drill there was something that could be improved upon. Mr. John Gilmour, SRNS, Director of operations over E-Area, added that safety drills were done for several reasons. Mr. Gilmour said the first reason was training. He explained that the safety drill CAB Chair Parson was referencing was a "coached training drill" and not an "evaluated drill." Mr. Gilmour explained the safety drill was intentionally designed to locate weaknesses. Mr. Gilmour stated the safety drill was purposely planned so the "A-Team" of employees was not able to respond. Mr. Gilmour said the safety drill did exactly what was intended which was find weaknesses so corrective actions could be determined and implemented.

Mr. Rob Pope, Environmental Protection Agency (EPA)

Mr. Pope said the public meeting that was held the night before relating to the "" resulted in great questions and back and forth information from EPA, DOE, and SCDHEC. He stated the public comment period for the "" was ongoing and he encouraged anyone interested to send comments to DOE. Mr. Pope said DOE sent EPA and SCDHEC the Appendix E schedule for the next two years including the planning schedule to year 2065. He said EPA and SCDHEC made comments on the schedule; however, he said the Appendix E schedule for this year proposed no changes to the tank schedule, which was a topic that would eventually need to be discussed. Mr. Pope said EPA was also dealing with the dispute resolution for tanks 12 and 16 that was recently elevated from "informal" to "formal." Mr. Pope said the first formal dispute resolution meeting would occur sometime during that week in Columbia, SC. He stated EPA would keep the CAB informed as the formal dispute process moved forward. Mr. Pope explained how the formal dispute resolution stage must be resolved within 28 days of being elevated, which meant 28 days from January 13, 2015. He said if the formal dispute resolution stage was not resolved the dispute would be pushed to the next level. Mr. Pope commented that DOE shared good technical information during the informal dispute resolution phase that helped EPA understand the delay of what was actually being experienced with tank 12. Mr. Pope discussed the upcoming budget stating Superfund could experience a decrease in contractors who provided technical support to review documents. Mr. Pope said he was unsure how much Environmental Justice support EPA would be able to participate in with DOE during the upcoming year and he explained EPA would also have to determine the best way to fund EJ outreach. Mr. Pope said since travel was impacted, he would only be able to attend the second day of future CAB Full Board meetings; however, he said he still planned to participate online for CAB Committee meetings.

Ms. Susan Fulmer, South Carolina Department of Health and Environmental Control (SCDHEC)

Ms. Fulmer stated she was the Federal Facility Agreement (FFA) manager for SCDHEC. She mentioned SCDHEC was working hard to review the closure module for tanks 12 and 16 and currently reviewing the draft closure module for tank 16. She said as part of the public comment period, SCDHEC scheduled a public meeting in Aiken, SC on March 25, 2015, for the tank 16 closure module. Ms. Fulmer said SCDHEC was participating in the dispute resolution process related to the closure dates for tanks 12 and 16. She stated the closure date milestone was September 30, 2015 and DOE requested an extension of the original date for both tanks 12 and 16; however, SCDHEC did not grant the extension and DOE subsequently began dispute resolution under the FFA. Ms. Fulmer said SCDHEC, EPA, and DOE participated in meetings at the informal dispute resolution stage; however, since a fix for how to solve the central budget and treatment issues did not occur, SCDHEC elevated the dispute to the next level. Ms. Fulmer said budget and treatment were vital for SRS to meet its tank risk reduction milestones and adequate treatment must be fueled by an adequate budget. She announced the first formal dispute resolution meeting would be held during the upcoming week. She mentioned SCDHEC's Dispute Resolution Committee representative would be Ms. Daphne Neal, Bureau Chief. Ms. Fulmer said the current FY 2015 budget appeared to fund HLW at approximately the same level as FY 2014, which was insufficient to meet the milestones. Ms. Fulmer said SCDHEC provided comments on Appendix E and were disappointed with the lack of work proposed since a significant portion of the work remained pushed out until later years. She said SCDHEC looked forward to future discussions with DOE and EPA to resolve the Appendix E comments.

Public Comments

Ms. Amanda Hill-Attkisson, Georgia Women's Action for New Directions (GAWAND), expressed concern about the expanded military operations that were projected for SRS. Ms. Hill-Attkisson said she would like to understand how the CAB looked at safety precautions for training of military personnel. Ms. Hill-Attkisson said it was her understanding from a Department of Defense release for public comment that some of the designated or considered training areas were contaminated. She said she would like to better understand safety procedures for how members of the military were protected in various areas at SRS during training exercises.

PRESENTATION: Waste Isolation Pilot Plant Recovery Update– Mark Senderling, EM-HQ

Mr. Senderling said he planned to provide an overview of WIPP recover efforts. He summarized the incidents at WIPP stating on February 5, 2015, an underground fire occurred. Mr. Senderling showed a picture of the salt haul truck that caught on fire before stating that all operations at the repository ceased following the salt haul truck fire in the WIPP underground. He explained a formal Accident Investigation Board (AIB) was deployed to determine the cause of the fire and on March 13, 2014, their findings were released, which included several weaknesses. Mr. Senderling then explained on February 14, 2014, a continuous air monitor detected airborne radiation in the underground and WIPP's ventilation system automatically switched to high-efficiency particulate air (HEPA) filtration mode. He showed a picture of the lifted drum that resulted in the radiological release and said the underground and WIPP mine currently remained in filtration mode. He stated extensive sampling and monitoring efforts were being conducted continuously to confirm concentrations continued to be below public and environmental hazards. He provided a diagram of the underground layout and pointed out locations where the salt haul truck fire occurred and where the continuous air monitor sounded in Panel 7. He provided a drawing that showed the "guilty waste stack" in Panel 7. He discussed the Reach Project, which was planned and implemented so aerial video and photography could provide additional analysis. Mr. Senderling showed pictures of the 90 foot boom that was currently assembled in Panel 7 and being used to collect video and photograph analysis. He said key recovery steps for WIPP to resume operations included: continuing Nuclear Safety Document revisions, Safety Management Program Revitalization, restoring WIPP underground, closure of Panel 6 Panel 7 Room 7, interim ventilation, supplemental ventilation modifications, readiness activities, and limited operations. He described mine stability and underground habitability stating that bolting, which resumed the week of November 10, 2014, was one of the highest priorities. He listed various areas were bolting activities were completed before showing a picture of the waste hoist, which as of January 2015, was fully operational and certified for transporting emergency personnel and equipment. He discussed soot cleaning, which involved cleaning underground electrical panels. He described radiological mitigation plans stating two applications were tested to make contaminated areas useable. Mr. Senderling said both methods were effective in fixing contamination and work packages were being developed to begin decontamination activities in Panel 7. Mr. Senderling discussed closure plans for Panel 6 Panel 7 Room 7. He stated Panel 6 closure was scheduled to be completed by the end of the second quarter in FY 2015. He said closure plans included chain-link fencing, brattice cloth, run-of-mine salt and bulkheads. He discussed ventilation, which was currently in filtration mode, producing 60,000 cubic feet per minute of filtered air. He said the recovery actions involved a three phase process. Mr. Senderling said phase one involved using a HEPA skid and fan unit to increase ventilation to 114,000 cubic feet per minute of airflow. He stated phase two involved reconfiguring airlock and bulkheads and adding additional fans to increase ventilation to 180,000 cubic feet per minute of airflow. He explained phase three included design and construction of a new permanent ventilation system that would be capable of providing 420,000 cubic feet per minute of airflow. He mentioned phase one and two were required for initial resumption of operations; however, phase three was required for full operations. He stated the WIPP Recovery Plan was released September 30, 2014 and available online. He commented WIPP was making progress on recovery and the current workforce was being maintained, retrained, and utilized. Mr. Senderling said WIPP continued to communicate often and transparently by scheduling briefings for regulators and stakeholders, holding regular town hall meetings, and providing weekly WIPP updates. Mr. Senderling said additional WIPP information was located at: http://www.wipp.energy.gov , 1-800-336-9477, or on Twitter by following @WIPPNEWS.

CAB member Bob Doerr asked why the drum resulted in a radiological release. Mr. Senderling said from the research that had been conducted up until that point, the radiological release was due to a violation of the WIPP waste acceptance criteria. Mr. Senderling stated nothing was being found at other sites like what was found at the Los Alamos National Laboratory (LANL). Mr. Senderling said there were programmatic and procedural breakdowns at LANL that ultimately resulted in WIPP's current situation.

CAB Chair Parson asked Mr. Senderling to comment on the WIPP Recovery budget. Mr. Senderling said within the WIPP Recovery Plan DOE was using August data from the Performance Measurement Baseline the contractor provided. Mr. Senderling stated at that time the budget was roughly 242 million dollars for the operations part of the activities. He said 242 million dollars was the estimate DOE was working towards and the actual capital asset projects, which included the new exhaust shaft and ventilation system, varied from 80 million dollars to 300 million dollars.

Nuclear Materials (NM) Committee Overview – Rose Hayes, Chair

CAB member Hayes briefly reviewed her presentation from the day before welcoming Ms. Maxcine Maxted, DOE-SR, to begin her presentation.

PRESENTATION: L-Basin Update– Maxcine Maxted, DOE-SR

Ms. Maxted said L-Basin was expanded from the original reactor basin in the 1990's. She said L-Basin had a capacity of 3.4 million gallons of water and a pool depth of 17 to 50 feet. She mentioned there was one transfer bay in L-Basin and explained how L-Basin received typical Foreign Research Reactor (FRR) and Domestic Research Reactor (DRR) Material Test Reactor Fuel assemblies. Ms. Maxted discussed the L-Basin water purification system and explained how the water in L-Basin helped protect workers from radiation. Ms. Maxted discussed the inventory of L-Basin stating there were approximately 3,050 bundles of fuel within L-Basin; however, she said that number would be changing this year since L-Basin would be shipping bundles to H-Canyon for processing. She stated most of the fuel in L-Basin was aluminum cladded fuel, but there was some stainless steel/zirconium based SNF. She said the fuel in L-Basin was safely and securely stored. Ms. Maxted explained DOE asked the Savannah River National Laboratory (SRNL) to conduct a report that determined L-Basin could safely store material for at least an additional 50 years. She stated L-Basin was currently at 90 percent full. She said an Amended Record of Decision (AROD) allowed the processing of 1,000 bundles, which would enable L-Basin to receive what was projected to come into without having to add rack space. Ms. Maxted said there were 120 cores of High Flux Isotope Reactor (HFIR) Fuel Racks; however, she explained the AROD also allowed DOE to process up to 200 HFIR cores. Ms. Maxted showed a chart that depicted the forecasted expanded basin storage (EBS) bundle positions filled by FRR/DRR receipts with H-Canyon processing. She discussed another graph that showed the projection capacity of HFIR storage capacity, receipts, and H-Canyon processing. Ms. Maxted discussed how the Canadian Nuclear Laboratories had National Research Universal/ National Research Experimental (NRU/NRX) fuel, which was longer and heavier than fuel that was typically handled in L-Basin. She said since the NRU/NRX fuel could not be handled in the L-Basin transfer bay, modifications had to be made to the shielded transfer system (STS) in order to remove the fuel from the legal weight truck (LWT) cask. Ms. Maxted explained that a contract was signed in 2012 where Canada prepaid in order for the L-Basin modifications. She stated a new unloading station was developed to remove the fuel from the basket and load the fuel into bundles for storage in L-Basin. She explained that fabrication and modifications to the STS were expected to be finished by the end of calendar year (CY) 2014, but now modifications were projected by the end of February 2015. She said the NRU/NRX was a multi-year shipping campaign with Canada and she said no other modifications were expected for SRS facilities. She commented that all non-typical Material Test Reactor fuels would be evaluated on a case-by-case basis. Ms. Maxted said the current management approach was to continue safe wet storage, processing up to 1,000 bundles and 200 HFIR cores, and continue operating L-Basin as evaluated by SRNL for safe usage of L-Basin up to an additional 50 years. She discussed processing in H-Canyon stating the Sodium Reactor Experiment (SRE) fuel campaign was completed in August 2014. Ms. Maxted discussed dry storage stating the SRS lifecycle assumed dry storage; however, she said a decision had not been made about processing. She mentioned a dry storage study was conducted in 2012, but there were concerns about drying of the aluminum fuel that would need to be addressed. She stated fuel was safely stored in L-Basin and some processing of fuel was occurring in H-Canyon. Ms. Maxted stated alternatives to wet storage were evaluated and a Departmental decision was needed on future direction of fuel storage versus processing.

CAB member Hayes asked what the assumptions to the right of the graph on slide six meant. Ms. Maxted said the assumptions listed on the graph were fuel types NNSA identified that could potentially come to SRS in the outyears. Ms. Maxted said based on the listed assumptions L-Basin would never have to go above its capacity.

Mr. Pope asked if the chart on slide six indicated L-Basin ceases operations at FY 2033. Ms. Maxted said this chart would indicate that, but the baseline did not. She said the baseline showed L-Basin operating out until around the 2040 time period when everything was moved out of L-Basin and into dry storage. Mr. Pope asked if L-Basin operating until 2040 "meshed" with the 2065 date Mr. Hintze discussed the day before. Ms. Maxted said, "Yes."

Waste Management (WM) Committee Overview – Earl Sheppard, Chair

CAB member Virginia Jones listed the WM Committee members and reviewed the committee's purpose. She provided a recommendation status update, stating recommendation 321 was open and briefly read the recommendations. She referenced the joint draft recommendation between the WM and NM Committees and allowed Recommendation Manager, CAB member Nina Spinelli, begin the discussion.

Recommendation Voting

"Double Staking of Defense Waste Processing Facility Canisters"

CAB member Nina Spinelli stated she wanted to change the title of the recommendation to "Double Stacking of Defense Waste Processing Facility Canisters." CAB Chair Parson called for a motion to accept the recommendation. The CAB approved this recommendation with 14 votes of approval, no oppositions, and no abstentions. A copy of this recommendation has been attached to this document.

Public Comments

Ms. Suzanne Rhodes, League of Women Voters for South Carolina (LWVSC), discussed LWVSC's opinion of interim storage of commercial SNF; however, she explained two important reports were released at the end of 2014 that caused the LWVSC to re-evaluate. She concluded her public comments saying it was prudent to plan for SRS wastes to remain at SRS for the foreseeable future. A copy of Ms. Rhodes comments have been attached to this document.

Mr. Tom Clements, SRS Watch, discussed the import of nuclear waste. Mr. Clements said he appreciated all the CAB had done to try and determine what the exit paths were for materials that came to SRS. Mr. Clements said there was a Statement of Intent just signed with Belgium to look at more HEU contaminated materials, which was reported on the Exchange Monitor this morning. Mr. Clements said Greenpiece Germany was releasing an expert legal opinion titled, "Shipment and Disposition of Spent Nuclear Fuel from the AVR Jülich Nuclear Reactor to the U.S. Department of Energy Savannah River Site and Non Compliance Under German and European Law." A copy of the documents Mr. Clements discussed have been attached to this document.

Ms. Amanda Hill-Attkisson, GAWAND, said she appreciated all the work done by the CAB members. Ms. Hill-Attkisson said GAWAND appreciated that SRS was cleaning up and taking care of the waste. She stated she was concerned with how budget cuts and restrictions were impacting DOE. She discussed the WIPP and said situations that occurred ultimately at WIPP impacted the community. She shared her wish that the safety culture throughout the DOE complex would become more vigilant.

Ms. Dawn Gillas, public, said she lived two miles from the New Ellenton SRS barricade. Ms. Gillas said she supported the processing of SNF. She said she understood the L-Basin was safe; however, she felt L-Basin should never be expected to be here for 200 years.

Facilities Disposition and Site Remediation (FD&SR) Committee Overview – Tom Barnes, Chair

CAB member Tom Barnes reviewed the presentation from the day before. He then introduced Mr. Brian Hennessey, DOE-SR, to begin his presentation.

PRESENTATION: Federal Facility Agreement Appendix E – Brian Hennessey, DOE-SR

Mr. Hennessey said the purpose of his presentation was to satisfy an annual commitment for recommendation 279 and also complete a 2014 FD&SR Work Plan topic. He stated he planned to discuss Revision 0 FY 2015 Federal Facility Agreement (FFA) Appendix E Submittal and anticipated effects of regulatory comments on Revision 1 FY 2015 Appendix E Submittal. He said Appendix E was a list of DOE's cleanup milestones and commitments for the future, beginning with FY 2016, which was updated annually and submitted to EPA and SCDHEC in November. Mr. Hennessey stated the timing of this presentation was "a little odd" since DOE still had to consider regulatory comments, revise Appendix E, and get regulatory approval before DOE would have an Appendix E that established future milestones. He mentioned the FFA, established in August of 1993, was a legally binding agreement between DOE, EPA, and SCDHEC. He said the FFA included administrative requirements, enforceable schedules, and milestones for actions and documents. He explained the FFA listed the Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response Compensation and Liability Act (CERCLA) "waste units," other potential releases DOE must address, and the processes for addressing additional releases. Mr. Hennessey explained how the FFA spelled out authorities and responsibilities of DOE, EPA, and SCDHEC, procedures for resolving disputes, and provided requirements for "Removal from Service" of some SRS liquid waste tanks. He explained that Appendix E, within the FFA, had a lifecycle list of cleanup milestones for SRS waste sites. He said the three parts of Appendix E were "E.1," "E.2," and "E.3." He said Appendix E.1 was for the first year, Appendix E.2 was for the second year, and Appendix E.3 was for year three and beyond. He provided the schedule for preparing, submitting, revising, and issuing Appendix E. He said DOE planned to submit Appendix E Revision 1 on February 2, 2015, to which SCDHEC and EPA had 30 days to approve or comment again on the submittal of Revision 1.

CAB member Spinelli asked if there was a time period when members of the public could provide comments to DOE about an Appendix E submittal, as SCDHEC and EPA did for each submittal. Mr. Hennessey said there was not a public comment stipulated within the FFA; however, he said CAB meetings were intended to inform the CAB of DOE's future direction. Mr. Hennessey also mentioned the FFA Appendix E was not public notice like a Proposed Plan or another cleanup decision document.

Mr. Hennessey discussed types of activities and documents that carried milestones in the FFA. He stated the first step in the investigation process involved the RCRA Facility Investigation/ Remedial Investigation (RFI/RI) Work Plan, a DOE-developed plan regulators approved, which was used to determine the type and extent of contamination at a waste site. He explained once the waste site was studied, sampled, and analyzed, the next step was to reduce and interpret the collected data and produce a RCRA Facility Investigation/ Remedial Investigation (RFI/RI) report with a Baseline Risk Assessment (BRA). He said the RFI/RI report, with the BRA, provided an assessment of the contamination and any associated health or environmental risks. Mr. Hennessey stated the next step was to conduct a Corrective Measures Study/ Feasibility Study (CMS/FS) to determine available options for how to remediate the contamination in the waste unit. The next step was the Statement of Basis/ Proposed Plan (SB/PP), which identified a preferred alternative for the waste unit and allowed public comments. A Record of Decision (ROD), the official report documenting the chosen remedy and why it was selected would be issued. After the ROD, a Corrective Measures Implementation/Remedial Action Implementation Plan (CMI/RAIP) was used to implement the selected remedy for the waste unit. Mr. Hennessey provided a flow diagram to explain the documents he described that were required to carry out Appendix E milestones. He provided various charts to show the FY 2015 Appendix E proposed changes before discussing how the final actions for area F, N, K, L, and A were proposed to be moved out to FY 2039 and beyond; however, he explained the ROD dates that were in place for those areas would remain in the Appendix E. Mr. Hennessey also pointed out that C-Area operable unit, F-Area Tank Farm Operable Unit, H-Area Operable Unit, H-Area Tank Farm Operable Unit, and E-Area Low Level Waste Facility were also proposed to start in FY 2044 and beyond. He said the milestones for groundwater operable units in C- Area, Central Shops, K-Area, General Separations Eastern and General Separations Western were proposed for revision. Mr. Hennessey commented that remediation of Ash Basins, Landfill, and Coal Pile Runoff Basins in D-Area would be completed by FY 2020. He noted that due to ongoing missions at the D-Area Powerhouse, the submittal of the Final Action D-Area Operable Unit ROD was proposed for May 2045. He discussed impacts of regulatory comments and agreements for the FY 2015 Appendix E. He stated the "D-Area Ash Basin Revision 0 Removal Site Evaluation Report/Engineering Evaluation/Cost Analysis Submittal" would be available for public comment and review on February 29, 2016. He provided a chart titled "SRS Area Completion Plan" to show the completion dates for industrial areas of SRS and groundwater units going along with each area. He said the regulatory approved FY 2014 FFA Appendix E was available online at http://www.srs.gov/general/programs/soil/ffa/ffa.html.

CAB Chair Parson stated it was very disappointing that actions kept being pushed further into the future. She asked where she could find a copy of the ROD's since she was unable to find them as she was preparing the comment letter for the "Early Action Statement of Basis/ Proposed Plan for the C-Area Operable Unit." Mr. Hennessey said a complete copy of the SRS Administrative Record file which was located at the University of South Carolina – Aiken and USC Columbia libraries; however, partial copies were available at the Georgia Regents University and Savannah State University libraries.

Letter Voting

Comments on "Early Action Statement of Basis / Proposed Plan for the C-Area Operable Unit"

CAB member Barnes allowed CAB Chair Parson to discuss the draft comment letter. CAB Chair Parson said she attended the public meeting the night before. She provided minor grammatical changes to the draft letter. CAB member Barnes asked if there was any discussion. CAB member Hayes said she also attended the public meeting the night before and she felt there should be a firmer plan for monitoring. Since there was no further discussion, CAB Chair Parson called for a motion for the comment letter; the CAB approved the comment letter with 14 votes of approval, no oppositions, and no abstentions.

Recommendation Voting

Follow-up on Savannah River Ecology Laboratory's Report "Technical Assessment of DOE Savannah River Site-Sponsored Radionuclide Monitoring Efforts in the Central Savannah River Area"

CAB member Barnes reviewed the changes made to the draft recommendation the day before and asked if there was any further discussion. There were additional comments and CAB Chair Parson called for a motion. The CAB approved this recommendation with 14 votes of approval, no oppositions, and no abstentions.

"Limiting the Use of Acronyms in Presentations Provided to the Public"

CAB member Barnes stated Recommendation Manager, CAB member Larry Powell, was unable to attend the meeting; however, CAB member Barnes reviewed each item of the draft recommendation. CAB member Barnes asked if there was any discussion. CAB member Barnes called for a motion and the CAB approved the recommendation with 14 votes of approval, no oppositions, and no abstentions.

"Providing Opportunity for the Public to Provide Written Comments on Savannah River Site Cleanup Decisions"

CAB member Barnes read each item of the draft recommendation before asking if there was any additional discussion. There were no further comments and the CAB approved the recommendation with 14 votes of approval, no oppositions, and no abstentions. Copies of the comment letter and the three recommendations have been attached to this document.

Strategic and Legacy Management (S&LM) Committee Overview – Clint Nangle, Chair

CAB member Clint Nangle provided a brief recommendation status update, stating the S&LM Committee had no open recommendations; however, recommendation 323 was pending since it awaited a formal DOE response. CAB member Nangle announced that due to a busy schedule, he was formally removing his name from the S&LM Committee Chair ballot. He said he would remain on the S&LM Committee; however, he said he wanted to allow someone else to have the opportunity to serve as S&LM Chair. He then introduced Mr. Rich Olsen, DOE-SR, to begin his presentation.

PRESENTATION: Environmental Management Cleanup Program Performance Measures Targets for Fiscal Year 2015 – Rich Olsen, DOE-SR

Mr. Olsen said the purpose of his presentation was to fulfill a 2014 S&LM Work Plan topic by providing an update of the actual EM performance results for FY 2014 and the performance metric targets for FY 2015. He said he would also provide year-to-date actuals through December 2014. He provided an introduction of the SRS EM Cleanup Program, which began in the 1990's, and he stated performance measures were developed to track progress towards end state targets. Mr. Olsen said the current Lifecycle Estimate, which included cost, scope, and schedule, indicated EM cleanup at SRS would conclude by 2065. Mr. Olsen provided a chart that broke down the four major areas of the cleanup program. He noted He stated the four major cleanup areas were "Radioactive Liquid Waste," "Solid Waste," "Nuclear Materials," and "Soil, Water, and Facilities." He stated DOE made progress during FY 2014, but there were several challenges. He said FY 2014 challenges included: a government shutdown at the beginning of FY 2014 that resulted in temporary funding authorization constraints and temporary SRS furloughs, a FY 2014 CR, a polar vortex with freezing temperatures that caused steam outages and equipment damages, an ice storm that closed SRS and caused further equipment damage, and the temporary closing of WIPP that delayed planned transuranic (TRU) shipments. Mr. Olsen reiterated that despite all the challenges, DOE still made progress during FY 2014. He provided pictures of activities for each of the four major cleanup areas as well as individual charts to show the actuals for FY 2014 and targets for FY 2015. For the "Radioactive Liquid Waste" major cleanup area, Mr. Olsen discussed the actuals for FY 2014 and targets for FY 2015 for canister production, saltstone processing, and tank closure. For the "Solid Waste" major cleanup area he discussed the FY 2014 actuals and FY 2015 targets for TRU waste and mixed and low level waste. For the "Nuclear Materials" major cleanup area, Mr. Olsen described the FY 2014 actuals and FY 2015 targets for nuclear material disposition and nuclear materials management. Lastly, for the "Soil, Water, and Facilities" major cleanup area, he described the FY 2014 actuals and FY 2015 targets of waste site remediation and deactivation and decommissioning of facilities. He stated FY 2014 highlights included: vitrifying 126 canisters of radioactive waste, HLW tanks 5 and 6, remediated all legacy TRU waste and WIPP characterization, 405 cubic meters of TRU waste disposed at WIPP, completed dissolution of the SRE campaign, began dissolution of FRR and DRR for uranium recovery, prepared plutonium for MOX, continued receipt, safe storage, and shipment of nuclear materials, and began field activities for the D-Area Ash Project. He showed a chart titled, "Savannah River Site Workforce" and stated there were 10,956 employees as of September 2014. Mr. Olsen then discussed another chart that showed all the SRS Cleanup Program Performance Measures Summary through December 2014. He explained that DOE-SR would continue to track and monitor performance measures for the key operational areas of EM cleanup operations.

Recognition of Retiring CAB Members

Mr. Terry Spears, Deputy SRS Manager, expressed his appreciation of the three members who were leaving the CAB. He presented the three CAB members in attendance, Marolyn Parson, Rose Hayes, and Cleveland Latimore, with a certificate and letter of appreciation for their dedication to the CAB.

Committee Chair Election

CAB member Spinelli revealed the results of the Committee Chair election. CAB members elected Mr. Earl Sheppard as the Waste Management Committee Chair, Mr. Bob Doerr as the Strategic and Legacy Management Committee Chair, Mr. Tom Barnes as the Facilities Disposition and Site Remediation Committee Chair, Mr. Larry Powell as the Nuclear Materials Committee Chair, and Ms. Eleanor Hopson as Administrative & Outreach Committee Chair.

Public Comments

Ms. Hill-Attkisson thanked the CAB for listening to the concerns of the Georgia communities surrounding SRS. She said GAWAND would continue to ask for environmental monitoring on the Georgia side to guarantee the community was represented. She said GAWAND was thrilled to be identified as one of the community liaisons and she said GAWAND was excited to continue working together with the CAB.

Ms. Bernice Johnson Howard, Shell bluff resident and GAWAND affiliate, thanked the CAB members for their hard work of paying attention to issues she was concerned about. She specifically thanked CAB member Hayes and CAB Chair Parson for asking meaningful questions that often helped her better understand topics. She stated she would be attending future CAB meetings to request monitoring in Georgia. Ms. Johnson Howard provided an example of how she felt the current monitoring in Georgia. She said it was like Georgia and South Carolina were within one sick patient; however, the doctor planned to only treat the South Carolina portion of the sick patient and let Georgia "fend for itself." Ms. Johnson Howard stated it was scary to live in Shell Bluff since she did not know if it was safe to consume things that came in contact with the water, soil, and animals.

Ms. Cee Cee Anderson, GAWAND, discussed the training drills that occurred at SRS stating she was concerned about who was training the personnel. She asked how the public was being informed of training drill data. She also asked who was holding employees accountable for their training drill performance. Ms. Anderson also referenced the WIPP recovery presentation from earlier in the meeting stating she was interested if there was a backup plan to the proposed new ventilation system.

Mr. Giusti commented that Highway 125 remained closed due to the train accident that morning. He recommended people traveling back to the low country take 278 South and stay off Highway 125.

CAB Chair Parson thanked the CAB members for their hard work and said she enjoyed getting to know each of the CAB members. She said she would be watching and supporting the CAB in the future. She wished the CAB the best and hoped they had a very successful 2015. CAB Chair Parson then passed the gavel to the new CAB Chair, Harold Simon.

~Meeting adjourned

Savannah River Site
Citizens Advisory Board

Recommendation 326
Double-Stacking of Defense Waste Processing Facility Canisters

Background

As the nation's only radioactive glassification waste plant, the Defense Waste Processing Facility (DWPF) converts the liquid nuclear waste stored at the Savannah River Site (SRS) into a stabilized solid glass form suitable for long-term storage and disposal. Scientists have long considered this glassification process, also known as "vitrification," as the preferred option for treating liquid nuclear waste. By immobilizing the radioactivity in glass, the DWPF reduces risks associated with continued storage of liquid nuclear waste at SRS, while holding the waste until for final disposal in a federal repository. About 37 million gallons of liquid nuclear wastes are stored in 45 underground carbon-steel tanks at SRS, with about 281 million curies of radioactivity.

The waste in the underground tanks is in two forms, a sludge waste and a salt waste. The salt waste, which contains low radioactivity, is processed and ends up as saltstone in the Saltstone Disposal Facility. The sludge waste contains the higher radioactivity and is the waste sent to DWPF for vitrification that is vitrified. To complete the waste vitrification mission, DWPF is estimated to produce 7,800 canisters.. To process the sludge, a sand-like borosilicate glass ("frit") is mixed with sludge waste and sent to a 65-ton steel and ceramic melter. The melter uses electricity to heat the waste/frit mixture to nearly 2,100 degrees Fahrenheit until a molten form is made, and then poured, in a pencil-thin stream into stainless steel canisters to cool and harden. Each canister is 10 feet tall and 2 feet in diameter, and weighs about 5,000 pounds. A stainless steel plug is fitted into the neck of each filled canister, and the canister is welded shut.

A specially designed vehicle (Shielded Canister Transporter) moves each sealed canister from DWPF to one of two Glass Waste Storage Buildings adjacent to the facility. At the storage buildings, canisters are lowered by the transporter into an underground reinforced concrete vault. The two storage buildings have the capacity to store about 4,590 canisters.

As outlined in Revision 19 of the Liquid Waste System Plan (May 2014), SRS is closing and cleaning tanks to the extent practical in order to reduce operational and leak risks to the environment. Of the 14 tanks with leakage history, four tanks are closed and grouted (tanks 5, 6, 19 and 30), two are cleaned (tanks 12 and 16), four are dry with virtually no liquid residue (tanks 1, 9, 14 and 15), and four contain liquid waste that is at a level in the tank that is known to be below the leak site (tanks 4, 10, 11, and 13).

While SRS has made progress in closing these tanks, projected funding in Revision 19 is insufficient to perform all activities to fully engage the liquid waste program. Given the limited funding, DOE examined two options for prioritization. Both options hailed safe storage as the overarching goal. Option A opted to clean and grout the tanks with hazard elimination and risk reduction being secondary Option B focused primarily on hazard elimination and risk reduction

with tank cleaning and grouting. Essentially, Option A is geared towards maximizing compliance with regulatory requirements over activities that continue waste processing rates.

While removing waste from tanks with a leakage history and working to meet the January 15, 1993 Federal Facility ~~A~~greement (FFA), storage space at SRS is at a premium. The FFA requires SRS to operationally close Tank Styles I, II and IV no later than 2022. Canister production will exceed existing storage space in fiscal year 2019. Currently, 3,877 of the estimated 8,582 canisters are complete. Currently, there are no plans to build a third Glass Waste Storage Building (GWSB), as the cost is estimated at roughly $130 million dollars. While plans are underway for a storage pad, DOE believes interim canister storage is required. By "double-stacking" canisters in GWSB1, DOE will increase canister capacity from 2,254 to 4,508.

The South Carolina Department of Health and Environmental Control (SCDHEC) calls the 37 million gallons of highly radioactive "the single largest environmental threat to South Carolina," and threatens to fine the federal government $10,000 a day for failure to close the tanks per their agreement. South Carolina could also fine the federal government $193 million through fiscal year 2016 for missing deadlines to clean and close nuclear waste storage tanks at SRS.

Recommendations

The SRS Citizens Advisory Board recommends that the Department of Energy:

1. Work with Savannah River Remediation and its contractors to request and justify necessary funding to ensure safe treatment and storage of waste while moving forward with maximum effort to close the aging tanks no later than the agreed upon schedule in the Federal Facility Agreement and other legally binding documents.
2. Continue to research double-stacking to ensure that double-stacked canisters are as safe to the community and environment as traditionally stored canisters, and protect workers from radiation exposure per applicable DOE regulations.
3. If research results indicate that double-stacked containers do not pose a threat to the public and environment utilize this temporary storage method while a federal repository is sought.

Savannah River Site
Citizens Advisory Board

Recommendation 327

Follow-up on Savannah River Ecology Laboratory's Report
"Technical Assessment of DOE Savannah River Site-Sponsored Radionuclide Monitoring Efforts in the Central Savannah River Area"

Background

In response to "Recommendation #317, Fund an Independent Environmental Monitoring Program in Georgia", adopted by the Savannah River Site Citizens Advisory Board on January 17, 2014, the Department of Energy asked the Savannah River Ecology Laboratory to:

1. " Provide the Department of Energy with a recommendation on whether there is fact-based evidence to support the request for conducting additional radiological environmental monitoring in Georgia by the State of Georgia or SRS, and based on the results of this recommendation:
2. Provide the Department of Energy with a recommendation on the potential options that could be undertaken by the Department of Energy to address the concerns of the Citizens Advisory Board and the citizens of Georgia in regard to this issue."

The "Technical Assessment of DOE Savannah River Site-Sponsored Radionuclide Monitoring Efforts in the Central Savannah River Area" report was summarized by Dr. Olin E. Rhodes, Jr. at the Citizens Advisory Board's September 23, 2014, meeting and the full report is available online at http://www.srel.uga.edu/docs/SREL_CAB_317.pdf.

The report states that:

1. The existing monitoring programs for radionuclide transfer into Georgia are sufficient to provide timely and accurate data for Georgia citizens, but goes on to say that there are several areas in which the monitoring programs could be improved either to provide more appropriate and comprehensive special coverage or to provide a greater degree of validation than currently exists.
2. The methodologies used by the Department of Energy and the South Carolina Department of Health and Environmental Control for dose calculations are consistent and indicate that the expected doses to potential individuals are well below the 100 mrem/yr total set by the Department of Energy.
3. The information provided to citizens in Georgia and South Carolina is largely technical in nature and assumes they have the ability to interpret the data and draw conclusions regarding risk.

Comments

The report recommends specific actions that the Department of Energy should take or at least consider to improve areas of the monitoring program and to improve communication through public outreach. At this time the reaction of the Department of Energy to the recommendations contained in the report is unknown. Further, some of the recommendations would require action

by the Department of Energy in the future if environmental data change. For example, the report states that "additional sampling warranted only if significant increases in atmospheric deposition or, groundwater or surface water transport of radionuclides detected."

Recommendations:

The Savannah River Site Citizens Advisory Board recommends that the Department of Energy:

1. Give a presentation to the Facilities Disposition and Site Remediation Committee that describes the Department of Energy's actions that are planned or being implemented to meet the recommendations listed on pages 5-7 in the "Technical Assessment of DOE Savannah River Site-Sponsored Radionuclide Monitoring Efforts in the Central Savannah River Area" report.
2. Provide opportunities for the public to help implement the four actions suggested in the report to educate the public about radiological health risks.
    a. Should be provided at the Citizens Advisory Board Combined Committee meeting as soon as practicable in 2015.
    b. The Citizens Advisory Board should be asked to identify local community leaders who could work with the Department of Energy to implement the four actions referenced above.
    c. The members of the public, who have expressed concern about radiological impacts from the Savannah River Site, should be identified and invited to participate in the development of a strategy to educate the public about radiological health risks.
3. Add a topic to the annual work plan of the Facilities Disposition and Site Remediation Committee for 2015, and thereafter, that reviews the recommendations in the report and any new actions that the Department has taken in response to them.
4. Explore the possibility of establishing a task force to assist with public education on radiological health risks as allowed under Section 6.2 of the Citizens Advisory Board's Standard Operating Procedures.
5. Make copies of the report available to the public at the Citizens Advisory Board's meeting in 2015.

Savannah River Site
Citizens Advisory Board

Recommendation 328

Limiting the Use of Acronyms in Presentations Provided to the Public

Background

On November 15, 2011, the Savannah River Site Citizens Advisory Board adopted Recommendation #283, "Revising the Department of Energy Websites & Using Plain Language to Communicate with the Public More Effectively." In this recommendation the phrase "using plain language" was used because there was an initiative underway at the Department of Energy in response to an updated version of the "Federal Plain Language Guidelines" in May 2011. These "Guidelines" include a chapter that describes how the elimination of acronyms can be used to improve written and spoken communication.

In the response from the Department of Energy on January 18, 2012, it was stated that the "Department appreciates and agrees with the CAB's position that releasable information should be written in reader-friendly, understandable language and also be made readily available to the public in a timely manner."

As a result of the recommendation cited above and the Department of Energy's positive response to it, there was a heightened awareness by the Department, its contractors and liaisons to the Citizens Advisory Board that resulted in a dramatic drop in the use of acronyms during verbal presentations to the public. This change resulted in an enhanced level of understanding and communication with the public.

Unfortunately this year, this trend has been reversed. A few facts will illustrate this point.

- During calendar year 2014, there were 47 presentations given during the six Citizens Advisory Board full board meetings.
- During these presentations acronyms were used over 300 times.
- The method of introducing these acronyms varied.
    - Some presenters provided a list on a single slide at the beginning of the presentation, others provided the acronyms within each slide, and still others provided the list of acronyms on a single slide at the end of the presentation.
- When acronyms are used, sometimes each letter is spoken, such as the acronym for the Environmental Protection Agency, is stated as "E", "P", "A". In other cases, the acronym is spoken as if it is a word, such as the acronym for Resource Conservation and Recovery Act is RCRA and is pronounced "rick rah."

Comments

The use of extensive acronyms greatly hinders the process of comprehension during a verbal presentation. Unlike a written piece, where a reader can take the time to go back to a previous paragraph where an acronym is defined or to an earlier page where a list of acronyms is presented, a listener often must be able to have instant recall of an acronym to understand what is

being said. Obviously, this is not possible in many cases. This results in a lack of understanding and hinders the ability of the public and the Citizens Advisory Board members to ask timely questions and to provide meaningful input to the Department of Energy on issues that are important to the cleanup mission of the Savannah River Site.

Recommendations:

The Savannah River Site Citizens Advisory Board recommends that the Department of Energy:

1. Ensure that all verbal presentations given to the Citizens Advisory Board during committee meetings and full board meetings be free of acronyms, except those that are known to the public at large, such as SC, GA, SRS.
    a. Work with the Citizens Advisory Board Executive Committee to develop a list of such acronyms.
2. Assign the responsibility of reviewing all presentations for the use of acronyms before the presentation is sent to Department of Energy Headquarters for review and approval.

Savannah River Site
Citizens Advisory Board

Recommendation 329

Providing Opportunity for the Public to Provide Written Comments on Savannah River Site Cleanup Decisions

Background

In 1993, the Department of Energy negotiated a Federal Facility Agreement with the US Environmental Protection Agency and the SC Department of Health and Environmental Control. This Agreement coordinates the remedial actions at the Savannah River Site that are required under two laws, the Resource Conservation and Recovery Act and the Comprehensive Environmental Response, Compensation and Liability Act.

Both of these Acts require the public to be given an opportunity to review and comment on draft Resource Recovery and Recovery Act permit modifications, which regulates how the Site manages hazardous waste materials, and proposed remedial alternatives under the Comprehensive Environmental Response, Liability, and Control Act.

To facilitate public involvement in the decision-making process for permitting, closure, and the selection of remedial alternatives, Federal Facility Agreement includes a Community Involvement Plan. In the Community Involvement Plan it is stated that "The objectives of the program are:

- Keep the public well informed of ongoing and planned activities
- Encourage and enable the public to get involved
- Listen carefully to what the public is saying
- Identify and deal responsibly with public concerns
- Change planned actions where public comments or concerns have merit
- Explain to citizens how DOE considered their comments, what DOE plans to do, and why DOE reached its decision." (Page 5, WSRC-RP-96-120, Revision 7, February 2011)

In the Community Involvement Plan it is also stated that

> "Over the years, the CAB has been the primary forum to respond to key community concerns about SRS. The board's membership is carefully considered to reflect a full diversity of viewpoints in the affected community and region. Board members are composed of people who are directly affected by DOE site clean-up activities, and represent entities including, but not limited to, stakeholders from local government; Tribal nations; environmental, civic and religious groups; labor organizations; and/or academia." (Page 5, WSRC-RP-96-120, Revision 7, Februarv 2011)

Comments

Recently, a 45-day public comment period was announced for the "Early Action Statement of Basis/Proposed Plan for the C-Area Operable Unit (U)." In the Proposed Plan it is stated that "The final remedial decision will be made only after the public comment period has ended and all comments have been received and considered." (Page 2 of 40, SRNS-RP 2014-00009, Revision 1) The comment period ran from November 17, 2014 to January 1, 2015.

Unfortunately, the timing of the comment period did not allow for the Citizens Advisory Board to get input from the public, formulate comments, and take action on written comments as the Board did not have a Full Board Meeting in that timeframe. As a result, the Board submitted a request to the Department of Energy to extend the comment period for 30 days, until January 31, 2015, and asked for a public meeting at least one week prior to its Full Board Meeting, which was scheduled for January 27, 2015. The Department of Energy accommodated the 30-day extension period, but was unable to schedule the public meeting in the timeframe that was requested.

If the Citizens Advisory Board is really going to function in its role as the forum for- community concerns, the Department of Energy should schedule public comment periods on cleanup decisions and other actions that are important to the public so the Board has an opportunity to provide a written comment letter or formal recommendation.

In addition, any document that is written with the intent of public input should be written using plain language. In the 40-page Proposed Plan that is discussed above, there are 65 acronyms used, which hinders understanding and extends the reading time greatly. The unnecessary use of acronyms is illustrated by the use of an acronym for human health (HH).

Recommendations:

The Savannah River Site Citizens Advisory Board recommends that the Department of Energy:

1. Schedule public comment periods on documents that are relevant to the Federal Facility Agreement and other documents that are a concern to the public in a timeframe that allows the Board to take formal written action.
2. Routinely schedule public meetings on documents out for public comment.
3. Include topics in the annual work plan of relevant committees those actions that will be proposed and made available for public comment.
4. Prepare documents intended for public review and comment using the principles described in the "Federal Plain Language Guidelines" revised in May 2011.

Position Statement
Citizens Advisory Board View of SRS Cleanup
January 2015

- Overview: The SRS Citizens Advisory Board **(**CAB) supports DOE's Cleanup Program and acknowledges that the process:
  - Is massive and very complex,
  - Is assumed that it could last until 2065, and
  - Is assumed that it could cost on the order of $75 - $80 B to complete[1].

Even in the face of this extensive effort, the cleanup program is progressing in a timely manner to meet regulatory standards.

- Priorities for Cleanup: The CAB supports the following priorities established by DOE:
  - Essential activities to maintain a safe and compliant posture.
  - Stabilization and disposal of radioactive tank waste: Liquid Radioactive Waste Program.
  - Receipt, storage, and disposition of spent nuclear fuel: Spent Fuel Program.
  - Consolidation, stabilization, and disposition of special nuclear material: Plutonium Disposition Program.
  - Transuranic and mixed/low-level waste disposition.
  - Groundwater and soil remediation.
  - Excess facilities deactivation and decommissioning.
- CAB's position on DOE's priorities are as follows:
  - The Radioactive Liquid Waste Program should be given top priority, adequate funding, and management attention.
  - Spent fuel Program should be given a higher priority beyond the FY 13 budget year, which allows for spent fuel receipts at SRS but does not provide a path forward for site removal.
  - The H-Canyon should remain fully operational to support processing and disposition of all spent fuel at SRS.
  - As the only such processing facility in the entire U.S., the H-Canyon should remain fully operational to support all future chemical separations and stabilization of DOE nuclear materials.
  - The Plutonium Disposition Program should also continue major priority and emphasis.
    - The disposition process for this material has gone on far too long (in excess of 10 years) and more decisive and definite measures should be taken.
- The CAB understands that a certain degree of balance will be necessary to carry out all of the programs including programs of lesser priority. For example, some funding of lesser priority programs may be necessary even when higher priority programs are not fully funded.
- DOE should keep the public informed, in a timely manner consistent with commitments to the State of SC, on measures being taken to disposition plutonium, spent nuclear fuel, and the removal of waste canisters from SRS.
- CAB's position on long-range future for SRS.
  - The Site should be postured to receive new missions based on historic Site capabilities.
  - DOE should be ever mindful of the unique environmental assets that the site offers, should be especially protective of the opportunities for environmental research, and allow the public to view and enjoy nature in this setting.

[1] SRS Integrated Life-Cycle Baseline

January 27, 2015

Ms. Janet Griffin
Savannah River Nuclear Solutions, LLC
Savannah River Site
Building 730-1B
Aiken, SC 29808

Re: Comments on "Early Action Statement of Basis / Proposed Plan for the C-Area Operable Unit"

Dear Ms. Griffin:

The following comments are being submitted by the Savannah River Site Citizens Advisory Board on the "Early Action Statement Basis / Proposed Plan for the C-Area Operable Unit" that was made available for public comment on November 17, 2014, by the U.S. Department of Energy.

The following comments are based upon the assumptions that the human health risks presented in the Plan are scientifically valid, represent cancer risks based upon life-span exposure, and were developed using widely-accepted methods. In other words, validation and a discussion of how the human health risks were developed are beyond the scope of these comments. In addition, the following comments are restricted to the "Early Action Statement Basis / Proposed Plan for the C-Area Operable Unit" and as such do not address the draft Resource Conservation and Recovery Act permit modifications that were also made available for comment on November 17, 2014.

COMMENTS:

Background Information:

According to the Plan identified above:

1. The early remedial action is being taken in specific areas located in the C-Area Operable Unit, because there are refined constituents of concern in the soil, gravel and concrete that may pose a threat to human health.

2. The C-Area Operable Unit is an area of the Savannah River Site that is currently designated for industrial use and due to subsurface radiological contamination will not support unrestricted land use, such as residential.

3. The C-Area Operable Unit and associated subunits are located within the Fourmile Branch Watershed.

4. The refined constituents of concern include cesium-137, strontium-90, Aroclor 1254, and polycyclic aromatic hydrocarbons. Note: refined constituents of concern require remedial action.

5. The subunits located inside the C-Area perimeter fence that have refined constituents of concern are Building 717-C and C-Area Cask Car Railroad Tracks as Abandoned.

6. The subunits located outside the C-Area perimeter fence that have refined constituents of concern are the Early Construction and Operational Disposal Site, and Outfall C-03.

7. In the Early Action Record of Decision for the C-Reactor Complex, published in 2009, in-situ decommissioning was selected at the preferred end-state, so the future site worker was chosen as the baseline risk assessment scenario for human exposure at all of the C-Area Operable Unit subunits. However, a future resident scenario was also considered for subunits outside of the C-Area perimeter fence if a subunit qualified for unrestricted land use.

8. The exposure pathways for human to the refined constituents of concern were identified as exposure to surface media to a depth of one foot from incidental ingestion, dermal contact, inhalation of windblown dust, inhalation of volatile constituents, and external exposure from radionuclides. (P. 8 of 40, SRNS-RP-2014-00009, Revision I, September 2014.)

9. Based on the exposure pathways identified, the human health risk assessments for the four subunits are as follows: (Page 33 of 40, SRNS-RP-2014-00009, Revision I, September 2014.)
    a. Building 717-C: (contaminated media is concrete)
        i. For a worker exposed to cesium-137, the risk to get cancer over the span of a lifetime is 1 in 9,300,000 (written in the Plan as 9.3E-06);
        ii. For a worker exposed to strontium-90 the risk to get cancer over the span of a lifetime is 1 in 2,200,000 (written in Plan as 2.2E-06); and
        iii. For a worker the total accumulative risk of getting cancer over the span of a lifetime is 1 in 120,000 (written in plan as 1.2E-05).

    b. C-Area Cask Car Railroad Tracks as Abandoned: (contaminated media is soil and gravel)
        i. For a worker exposed to cesium-137, the risk to get cancer over the span of a lifetime is 1 in 2,800,000 (written in the Plan as 2.8E-06).

    c. Early Construction and Operational Disposal Site: (contaminated media is soil):
        i. For a future resident exposed to polychlorinated biphenyl-1254, the risk to get cancer over the span of a lifetime is 1 in 120,000 (written in the Plan as 1.2E-05).

        ii. For a resident exposed to benzo(a)pyrene, the risk to get cancer over the span of a lifetime is 1 in 8,500,000 (written in the Plan as 8.5E-06).

iii. For a future resident exposed to benzo(b)fluoranthene, the risk to get cancer over the span of a lifetime is 1 in 1,500,000 (written in the Plan as 1.5E-06).

iv. For a resident the total accumulative risk of getting cancer over the span of a lifetime is 1 in 220,000 (written in the Plan as 2.2E-05).

v. For a worker exposed to polychlorinated biphenyl-1254, the risk to get cancer over the span of a lifetime is 1 in 3,600,000 (written in the Plan as 3.6E-06).

d. Outfall C-03: (contaminated media is soil)
   i. For a resident exposed to cesium-137, the risk to get cancer over the span of a lifetime is 1 in 190,000. (written in the Plan as 1.9E-05).

   ii. For a worker exposed to cesium-137, the risk to get cancer over the span of a lifetime is 1 in 120,000. (written in the Plan as 1.2E-05).

10. A contaminate migration analysis was performed; and it was concluded that there was no potential for groundwater contamination of the refined constituents of concern to exceed drinking water standards. (P. 9-10 of 40, SRNS-RP-2014-00009, Revision I, September 2014)

Remedial Action Goals

According to the Plan identified above: (P. 11 of 40, SRNS-RP-2014-00009, Revision I, September 2014)

1. The remedial action goals are:
   a. To prevent future resident exposure to contaminated media or structure within the C-Area perimeter fence.

   b. To prevent industrial worker exposure to the refined constituents of concern (cesium-137, strontium-90, Aroclor 1254, and polycyclic aromatic hydrocarbon) where the risk to get cancer from exposure exceeds 1 in 1,000,000 in Building 717-C, C-Area Cask Car Railroad Tracks as Abandoned, and the Early Construction and Operational Disposal Site.

   c. To prevent industrial worker and future resident exposure to cesium-137 at Outfall C-03.

2. When remedial alternatives are considered, there are three categories of requirements that clarify how remedial actions comply with requirements and standards set forth under Federal and State environmental laws as required by the Superfund Amendments Reauthorization Act. The requirements are referred to as "Applicable or Relevant and

Appropriate Requirements", and the three categories are action-specific, location-specific, and chemical-specific.

a. Action-specific requirements may control the design, performance and other aspects of implementation of specific remedial activities;

b. Location-specific requirements reflect the physiographic and environmental characteristics of the unit or the immediate area, and may restrict or preclude remedial actions depending of the location or characteristics of the unit; and

c. Chemical-specific requirements are media-specific concentration limits promulgated under Federal or State Law. (P. 12 of 40, SRNS-RP-2014-00009, Revision I, September 2014)

Remedial Alternatives

The selection of alternatives per the Comprehensive Environmental Response, Compensation and Liability Act is guided by a desire to develop a list of alternatives that can be compared in order to select the most effective cost-efficient remedial action. The alternatives include options that 1) immobilize chemicals, 2) reduce the contaminant volume, 3) or reduce the need for long-term, on site management. Other alternatives include little or no treatment to protect human health by controlling exposure through Land Use Controls. For the subunits in the C-Area Operable Unit, addressed in this Plan, a No Action and Land Use Controls remedial alternatives were determined to be adequate as agreed to in the RCRA Facility Investigation/Remedial Investigation/Baseline Risk Assessment/Corrective Measures Study/Feasibility Study completed in 2014. (P. 12 of 40, SRNS-RP-2014-00009, Revision I, September 2014)

Alternative 1 - No Action

If this alternative were selected, no action would be taken to address the refined constituents of concern in the subunits in the C-Area Operable Unit and the 5-year remedy review would not be conducted.

Alternative 2 - Land Use Controls (P. 13 of 40, SRNS-RP-2014-00009, Revision I, September 2014)

If this alternative were selected, Land Use Controls would limit only exposure of the industrial worker and future resident to the refined constituents of concern. Exposure for workers would be limited by the use of administrative and engineering controls, limiting work activities by the use of work clearance permits, and posting signs to inform personnel of the presence of hazardous materials. In addition, deed restrictions would prevent residential land use.

1. Perimeter Fencing would be used to surround the 82 acre area of contamination in the C-Area, which includes the two subunits, Building 717-C and C-Area Cask Car Railroad Tracks as Abandoned.
    a. This fencing would need to be in place for greater than 200 years as residual contamination will be long-lived.

2. Additional perimeter fencing would be used to surround the two subunits that are outside of the perimeter fencing, the Early Construction and Operational Disposal Site and

Outfall C-03. For the Early Construction and Operational Disposal Site, fencing would surround an area of 38,751 square feet. For Outfall C-03, 1,115 linear feet of fencing would be necessary.

   a. The fencing around Outfall C-03 may be required for less than 200 years due to the radioactive decay of cesium-137, which has a half-life of about 30 years.

3. Annual inspections would be required and maintenance would be performed as needed to keep the Land Use Controls functioning as designed.

4. The 5-year remedy review would be conducted to determine if the Land Use Controls were still protective.

Evaluation of Alternatives

Potential remedial alternatives are analyzed using nine evaluation criteria to satisfy the requirements of the Comprehensive Environmental Response, Compensation and Liability Act. A comparison of these criteria across the alternatives is shown below. (P. 38 of 40, SRNS-RP-2014-00009, Revision I, September 2014)

Table 5. Comparison of Alternatives Against the CERCLA Evaluation Criteria

Criterion	Alternative 1: No Action	Alternative 2: Land Use Controls
Overall Protection of Human Health	Not protective of the Industrial worker or future resident because there are no controls or remediation	Protective of the Industrial worker because of access controls and the future resident because of deed restrictions
Overall Protection of the Environment	Protective of the environment because no ECO/CM/PTSM RCOCs	Protective of the environment because no ECO/CM/PTSM RCOCs
Compliance with ARARs	Doesn't meet the PCB ARAR	Meets the PCB ARAR
Long-Term Effectiveness and Permanence		
Magnitude of Residual Human Health Risk	Residual human health risk remains above $1x10^{-6}$	Residual human health risk remains above $1x10^{-6}$
Adequacy of Controls	Not adequately protective of human health receptors	Effective in preventing exposure to human receptors and breaking the exposure pathway. Leaves contaminants in place. LUCs required as long as contaminants are present
Permanence	Not permanent. Leaves contaminants in media	Not permanent. Leaves contaminants in media
Treatment		
Treatment type	No active treatment	No active treatment
Degree of Expected Reduction in Toxicity, Mobility, or Volume	No reduction	No reduction
Short-Term Effectiveness		
Amount of Hazardous Material Destroyed or Treated	None	None
Risk to Remedial Worker	None	None
Risk to Community	None	None
Risk to Environment	None	None
Time to Implement and achieve RAO	Never	6 months
Implementability		
Availability of Materials, Equipment, Contractors	Not Applicable	Readily available
Ability to Construct and Operate the Technology	Not applicable	Easy to construct
Ability to Obtain Permits/ Approvals from Other Agencies	Not Applicable	Easy to obtain approval
Estimated Cost		
Total Estimated Capital Cost	$0	$131,583
Total Estimated Present Worth O&M Cost	$0	$2,136,579
Total Estimated Cost	$0	$2,268,162
Overall Protection of Human Health and the Environment		
State Support/Agency Acceptance	Not acceptable	Both USEPA and SCDHEC support the preferred remedy.
Community Acceptance	This criterion will be completed following public review	This criterion will be completed following public review.

Acronyms used on this table:
ECO= not defined in acronym list
CM=contaminate migration
PTSM=principle threat source material
RCOCs=refined constituents of concern
PCB=polychlorinated bipheny
ARAR= Applicable or Relevant and Appropriate Requirements
RAO=remedial action objective

The estimated cost is based upon the assumption that the Land Use Controls would be maintained in place for 200 years.

Summary of Analysis:

Alternative 1 – No Action does not meet the threshold criteria for overall protection of human health and is not compliant with the chemical Applicable or Relevant and Appropriate Requirements.

Alternative 2 – Land Use Controls is protective of the industrial worker and the future resident, and can meet the Remedial Action Objectives. The refined constituents of concern are left in place and human health is protected by restricting exposure by fencing off the subunits where the refined constituents of concern are. The residual risk is low with a cancer risk of 1 in 10,000. This risk will continue to be reduced overtime as cesium-137, which is the primary risk driver, will decay naturally. The hazardous materials are left in place and the residual risk that remains is greater than 1 in 1,000,000. (P. 16 of 40, SRNS-RP-2014-00009, Revision I, September 2014)

Preferred Alternative

The preferred alternative is Alternative 2 – Land Use Controls. The preferred remedy for the C-Area Operable Unit "leaves hazardous substances in place that pose a potential future risk and require land use restrictions for an indefinite period of time." (P. 17 of 40, SRNS-RP-2014-00009, Revision I, September 2014) To ensure that land use restrictions are maintained and periodically verified, the Savannah River Site has a "Land Use Control Assurance Plan" that was written in response to the US Environmental Protection Agency's policy, *Assuring Land Use Controls at Federal Facilities.*

The cost for implementation of Alternative 2 – Land Use Controls is shown below. The initial capital cost for the project is $59,400, and the total cost for the 200-year project is estimated to be $2,268,162. (P. 39 of 40, SRNS-RP-2014-00009, Revision I, September 2014)

Table 6. Summary of the Present Value Costs

Alternative 2:
Land Use Controls
Subunits at CAOU – SRS

Item	Quantity	Units	Unit Cost	Total Cost	
Direct Capital Costs					
Institutional Controls					
Posting of Warning Signs	90	ea	$100	$9,000	
Land Use Control Implementation Plan	1	ea	$20,000	$20,000	
Deed Restrictions	3	ea	$5,000	$15,000	
Subtotal - Direct Capital Cost				$44,000	*
Mobilization/Demobilization	20%	of subtotal direct capital		$8,800	*
Site Preparation/Site Restoration	15%	of subtotal direct capital		$6,600	*
Total Direct Capital Cost		(sum of * items)		**$59,400**	
Indirect Capital Costs					
Engineering & Design	14%	of direct capital		$8,316	
Project/Construction Management	25%	of direct capital		$14,850	
Health & Safety	3%	of direct capital		$1,782	
Overhead	30%	of direct capital + indirect capital		$25,304	
Contingency	20%	of direct capital + indirect capital		$21,930	
Total Indirect Capital Cost				**$72,183**	
Total Estimated Capital Cost				**$131,583**	
Direct O&M Costs	1.1%	discount rate for costs >30 years duration[1]			
Annual Costs (Existing System during Post-ROD Design & Const)	2	years O&M		*Years 2015 - 2016*	
Access Controls	1	ea	$750	$750	
Subtotal - Annual Costs				$750	
Present Worth Annual Costs (-1.4% Discount Rate)				$1,525	
Annual Costs (Institutional Controls)	200	years O&M		*Years 2017 - 2217*	
Access Controls	1	ea	$750	$750	
Annual Inspections / Maintenance	1	ea	$5,000	$5,000	
Subtotal - Annual Costs				$5,750	
Present Worth Annual Costs (1.1% Discount Rate)				$206,358	
Five Year Costs	41				
Remedy Review	1	ea	$15,000	$15,000	
Subtotal - Five Year O&M Costs				$15,000	
Present Worth Five Year Costs				$238,467	
Total Present Worth Direct O&M Cost				**$446,350**	
Indirect O&M Costs					
Project/Admin Management	217%	of direct O&M[2]		$967,200	
Health & Safety	5%	of direct O&M		$15,600	
Overhead	30%	of direct O&M + indirect O&M		$428,745	
Contingency	15%	of direct O&M + indirect O&M		$278,684	
Total Present Worth Indirect O&M Cost				**$1,690,229**	
Total Estimated Present Worth O&M Cost				**$2,136,579**	
TOTAL ESTIMATED COST				**$2,268,162**	

[1] Interest rate for costs with duration <30 years (i.e., before 2043) based on OMB Circular A-94 (Dec 2012).
[2] Percentage rate based on Full-Time Employee (FTE) involvement until 2217

Post-ROD Schedule

The remedial action plan is scheduled to start in January 2016. (P. 18 of 40, SRNS-RP-2014-00009, Revision I, September 2014)

CONCLUSIONS

In conclusion, we agree that Alternative 2 – Land Use Controls is preferred over No Action, but are concerned with the indefinite period of time that the Land Use Controls must be in place to protect the future workers and residents. It is hard to imagine that these controls could be kept in place for 200 years or more. Two hundred years represents eight generations and 50 US

Presidential Terms! The United States of America is only 238 years old. The Department of Energy is just 39 years old, and the Office of Environmental Management was established a mere 26 years ago.

It is difficult to believe that the Department of Energy will have control of this land 200 years from now on. In addition, to estimate the cost to maintain the Land Use Controls for 200 years is not a meaningful exercise as it is largely a guess. In addition, the use of deed restrictions to prevent future residents from being exposed to the refined constituents of concern is also flawed, because it again assumes that there is permanency in local government structure to control land use. Even if a deed restriction is in place, it is very difficult for the government to control what happens on private property so far into the future.

As stated at the beginning of this letter, it is beyond the scope of these comments to debate the risk assessments presented in this Plan. Rather, we are basing our opinions on the fact that the US Environmental Protection Agency, the SC Department of Health and Environmental Control, and the Department of Energy believe that four subunits in the C-Area Operable Unit (Building 717-C, C-Area Cask Car Railroad Tracks as Abandoned, Early Construction and Operational Disposal Site, Outfall C-03) have refined constituents of concern that pose a cancer risk to workers and future residents, if they are exposed to surface media to a depth of one foot from incidental ingestion, dermal contact, inhalation of windblown dust, inhalation of volatile constituents, and external exposure from radionuclides. Not only are these risks present now, but these risks would be present for at least 200 years into the future.

The Savannah River Site should be cleaned up to protect future generations of workers and residents, if it is possible to do so. As a result, installing Land Use Controls that must be in place for 200 years is not an acceptable approach. Unfortunately, there is nothing in the Plan that addresses how difficult or expensive it would be to remove and treat the contaminated soil, gravel and concrete where the contamination resides. However, it is hard to imagine that this is not possible as similar soil excavation projects have been completed at the Savannah River Site in recent years. One project that comes to mind is the cleaning up of contamination in Lower Three Runs where about three acres of contaminated soil was removed and disposed of. The cost of this excavation and treatment was over a million dollars, so we recognize that removal and treatment of soil, gravel and concrete is an expensive endeavor.

Another project that demonstrates the feasibility of removing surface media is the cleanup of ash in the wetlands area at Dunbarton Bay. In this project about 13 acres will be excavated to remove ash. The cost of this cleanup project is millions of dollars. Again, it is recognized that the removal and treatment of soil, gravel and concrete is an expensive endeavor. However, in the long run it is worth the cost if future generations are protected. From the information presented, it appears that it would be feasible to cleanup of the subunits in the C-Area Operable Unit rather than just preventing access to the areas where refined constituents of concern reside.

It is recognized that these subunits in Area-C Operable Unit do not come close to the risks of the High Level Waste Tanks and strongly agree that the cleanup of these subunits should not take funds away from the High Level Waste Tank cleanup project at this time. Further, the timely

completion of the clean out and closure of the High Level Waste Underground storage tanks should continue to be of the highest priority.

However, there is a 3rd Alternative that is appropriate. Thus, Alternative 3 – Temporary Land Use Controls and Final Removal of Refined Constituents of Concern is being proposed. In this scenario, the Land Use Controls as described in Alternative 2 would be put into place per the proposed Plan, but in 2040, when the major work is projected to be completed on the High Level Waste Tanks, excavation and treatment or disposal of the contaminated soil, gravel, and concrete from Building 717-C, C-Area Cask Car Railroad Tracks as Abandoned, Early Construction and Operational Disposal Site, and Outfall C-03 would be initiated. This timeline would delay cleanup of these subunits for one generation, but it is more reasonable to expect that the Land Use Controls would still be in place to protect workers and residents until the excavation could be completed. Importantly, this Alternative is perfectly in line with two of the three options that are used to guide the process to select alternatives under the Comprehensive Environmental Response, Compensation and Liability Act, the desire to reduce contaminant volume and to reduce the need for long-term on site management. (P. 18 of 40, SRNS-RP-2014-00009, Revision I, September 2014)

The cost for this first phase of this alternative would be the same as Alternative 2 – Land Use Controls, with Direct Capital Costs of $59,400 and Indirect Capital Costs of $131,583. Instead of 200 years of Direct Operating and Maintenance costs, there would be 25 years, which would add approximately $56,000 for the first 14 years of the project, until 2040.

We strongly urge you to consider Alternative 3 – Temporary Land Use Controls and Final Removal of Refined Constituents of Concern as proposed here. This alternative would allow protection for another generation of future workers and residents at a modest cost and cleanup of the subunits so that all future generations are protected without question. The cost of cleanup in 25 years will probably escalate from current costs, but there is also a possibility that new methods and equipment could make the project easier.

CLOSING

A few comments on the public participation process for this comment period are warranted. First, the extension of the comment period for an additional 30 days is appreciated. Second, the online availability of the two documents that were prepared for public review, the "Early Action Statement of Basis / Proposed Plan, Fact Sheet for the C-Operable Unit" and the full document "Early Action Statement of Basis / Proposed Plan for the C-Area Operable Unit, made the review process easier. Third, two sections in the proposed Plan give the impression that the decision to go with Alternative 2 – Land Use Control is a "done deal" and that the input at this time from the public is an exercise without meaning.

1) In the "Summary of Analysis" section on the third from the last page of the Plan narrative, there is a paragraph about Alternative 2 that includes the following sentence: "Alternative 2 is also the only Likely Response Action agreed to during scoping of the project," (P. 16 of 40, SRNS-RP-2014-00009, Revision I, September 2014). This makes it seem unlikely that new input from the public will make a difference. If this was agreed upon, is there really an

opportunity for the public to suggest a new Alternative? 2) In section "VII. Summary of Remedial Alternatives" in the Plan the following is stated: "Thus, for subunits requiring further action in the CAOU, a No Action and LUC remedial alternative were determined to be adequate as agreed to in the RFI/RI/BRA/CMS/FS document (SRNS 2014)." (P. 12 of 40, SRNS-RP-2014-00009, Revision I, September 2014) Again, this makes it seem unlikely that new input from the public will make a difference. If this was agreed upon, is there really an opportunity for the public to suggest a new Alternative.

In addition, there are two issues that should be addressed by the Department of Energy in the future. First and foremost, when documents are prepared for public review and comment, they should be written without the use of acronyms, except those that are understood by the public at large, as described in the "Federal Plain Language Guidelines" revised in May 2011. In the current situation, the Plan contains 65 acronyms, which hinders comprehension and greatly extends reading time.

Second, any fact sheet that is prepared to accompany another document should contain all pertinent information. For example, in the Plan that is being discussed here, a fact sheet was also provided. It was fairly easy to read, even with the abundance of acronyms, but there are two omissions that are pertinent to the decision-making process involving the alternatives. 1) Risks are presented without stating what the risks are, and the risks are stated in an unfamiliar form. If these are cancer risks over the span of a lifetime, then that should be stated. Also, stating risks in scientific notation, such as 2.8E-06, is not readily understood by the public. 2) The explanation of the Alternative 2 does not include the timeframe involved for Land Use Controls. It is very important for the public to understand that the Land Use Controls that are the favored remedy in this Plan are going to have to be in place and maintained for 200 years or more.

In closing, the Citizens Advisory Board appreciates the opportunity to provide input on this proposed Plan and looks forward to working closely with the Department of Energy as cleanup decisions at the Savannah River Site are made in the future.

Sincerely,

Marolyn J. Parson, Ph.D.

Marolyn Parson, Ph.D., Chair

Please note: forwarded message attached

From: "Suzanne Rhodes" <suzrhodes@juno.com>
To: tinawalson@srs.gov
Subject: LWVSC statement today at CAB
Date: Tue, 27 Jan 2015 21:32:47 GMT

Tina - it was nice to meet you today. I hope you find your new responsibilities interesting.
Suzanne Rhodes

THE EFFECTS OF RECENT FEDERAL REPORTS ON SRS NUCLEAR WASTE STORAGE RESPONSIBILITIES

LEAGUE OF WOMEN VOTERS OF SC (the League) FOR SRS CAB 1/27/15

Some may be aware that the League has opposed "interim" or tempoary storage of commercial spent nuclear fuel. We had been hopeful that states currently storing nuclear waste would become our partners in the development of a geologic repository. The governors and congressional delegations of SC, Tennessee, and Washington led such a project in the

80s, when the Nuclear Waste Policy Act (NWPA) became law.

Two important reports released at the end of 2014 have caused us to re-evaluate. A Government Accountability Office (GAO) report[1] states that the US is unlikely to be successful in finding an interim host for spent fue\ – until a geologic repository is available – because such a "temporary" storage site is regarded as likely to become permanent. The GAO, which is an arm of Congress, also stated – more importantly to us in SC – that the public is not confident of DOE's ability to develop such a plan, and that **public acceptance of a permanent geologic repository will also be a problem.**

Since the GAO is an arm of Congress, feel free to interpret this as: "the public is **not** confident that **Congress** has the ability to develop such a plan." When most of us criticize DOE - or the Post Office or the IRS - we are usually criticizing Congress. Because we are unable to criticize Congress collectively, we criticize where we can.

GAO - upon the request of chairs of congressional committees - reports to Congress on the effectiveness of government programs. We have been reviewing GAO reports on nuclear and other programs for decades, and their reports are consistently reliable, including this spent fuel report and their reports critical of the MOX program.[2]

The second report to complicate nuclear waste management planning at SRS was one of the five reports NRC has been directed to produce regarding its Safety Evaluation Report on the status of Yucca Mountain (YM).[3] In part, Report #4 states that DOE lacks both the land rights and also water rights necessary to license the site. A series of Nevada Governors and Attorneys General have opposed Yucca Mountain. Nevada has been working hard - while we have been complaining in the press and going to court - and Nevada seems to have won. There are more than 100 other legal challenges from Nevada, in addition to these two issues.[4]

The CAB has been interested in strategies to ship SRS wastes as soon as possible to Yucca Mountain. The League assumes that, if Yucca Mountain or another geologic repository becomes available, the nuclear power industry will have more political power, and wider community support, to move commercial spent fuel to a repository. Weapons wastes would likely be much later, and may not necessarily be part of a new federal law.

Fortunately, SRS technical staff has thus far done an outstanding job of making SRS wastes as safe as practicable at SRS. However, staff engineering design has been for temporary storage at SRS, destined for Yucca Mountain, and we will be pushing the waste envelope if the wastes

stay indefinitely at SRS.

Incidentally, the Nuclear Waste Fund - which the NWPA established to finance development of **three** national repositories (originally not only Yucca Mountain) - has received contributions from industry since the early 80s. After only a couple of years, Congress began diverting the Fund. Even worse, Congress was slow and stingy with appropriations for Yucca Mountain. DOE YM staff was attempting to design mining equipment, have it built, contract for studies of geology & hydrology, etc. After years of budget and planning confusion, staff turnover became excessive. So - industry **and Congress** started accusing DOE of "bad management!" The Fund no longer exists.

The US is not alone with a waste problem. Other countries have unresolved nuclear waste challenges *(China, India, Japan, Germany and Canada, as well as Russia and eastern European countries with Russian reactors)* . Only Sweden and France seem to have workable plans to deal with high-level nuclear wastes.

So – It is prudent to **plan** for SRS wastes to remain at SRS for the foreseeable future. If SRS receives German and Canadian commercial wastes, as DOE Headquarters proposes, what is the chance those countries will provide international nuclear waste leadership for their regions? If we accept commercial international wastes at SRS, we undermine international leadership and perhaps pave the way for SRS to become an international high-level nuclear dump. It is now realistic to recognize that any foreign wastes which are received at SRS will stay here.

Thank you very much for the opportunity to comment on the possible future of SRS waste management.

1 http://www.gao.gov/assets/670/666454.pdf GA0-15-141: publicly released November 12, 2014. "..officials noted that the department's strategy cannot be fully implemented until Congn.:ss provides direction on a new path forward. However, expcns and stakeholders believe that one key challenge-building and sustaining public acceptance of how to manage spent nuclear fuel-will need to be addressed irrespective of which path Congress agrees to take."

2 http://www.gao.gov/products/GAO-I..J-231

3 http://pbadupws nrc.gov/docs/ML1435/MLI4352A379.pclf Volume 4 of Yucca Mountain Safety Evaluation Repon. "Specifically, DOE has not acquired ownership or jurisdiction over the land where the geologic repository operations area would be located.and the land is not free of significant encumbrances such as mining rights.deeds. rights-of-way or other legal rights. DOE also bas not acquired water rights it detem lined are needed to accomplish the purpose of the geologic repository operations area."

4 http://www.state nv.u: nucwaste/news2009/pclf/nv09042Intp.pdf

Suzanne Rhodes/LWVSC Nuclear Waste suzrhodes@ juno .com

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SRS WATCH

Savannah River Site Watch

Major Savannah River Site (SRS) Victories by the Public – For a Cleaner, Sustainable Site

Stopped operation of the Allied General Nuclear Services (AGNS) reprocessing plant, adjacent to SRS and commonly known as "Barnwell," resulting in no shipment of commercial spent fuel to the facility and no associated nuclear waste streams from reprocessing of that spent fuel; late 1970s;

Opposed restart and operation of the L-Reactor for production of nuclear weapons materials; aging reactor restarted 1985 and then shut permanently in 1988;

Opposed restart and operation of the K-Reactor for nuclear weapons materials - primarily tritium; aging reactor briefly operated in 1992 and then shut permanently; DOE Secretary Watkins said "we are up to our eyeballs in tritium" and ordered the termination of the project;

- Opposed construction of costly new cooling tower for the reactor.

Defeated efforts for the "New Production Reactor" (NPR) – known as the "New Pork-Barrel Reactor," for production of totally unneeded nuclear weapons materials at SRS; ~1988 to 1992; program terminated;

Stopped the "Modern Pit Facility" (MPF) for unneeded production of the plutonium "pits" (triggers) for nuclear weapons; ~2003-2004; program terminated;

Stopped the effort under the "Global Nuclear Energy Partnership" (GNEP) for "fast" reactors and reprocessing of commercial spent fuel at SRS or any DOE site; ~2006-2009; program abandoned;

Opposed policies to bring spent commercial fuel to SRS for "consolidated interim storage" (and reprocessing); 2013, 2014; fight will continue against bringing spent fuel to SRS;

Outcome unknown but program in deep trouble: the plutonium fuel (MOX) program; actively opposed since its inception in mid-1990s, with support for immobilization of plutonium in existing high-level nuclear waste, mismanaged program may be headed for termination due to massive cost overruns, extensive schedule delays and no customers (reactors) to use the experimental MOX fuel.

Conclusion: Costly, misguided efforts at and near SRS for large, complex projects that add to the SRS nuclear waste burden have faced stiff opposition from the public and fiscal conservatives for 40 years and will continue to do so. Though several billions of dollars were perhaps spent on planning and initial implementation of the above-named misguided programs, the defeat of them has saved the tax payer tens of billions of dollars. Likewise, these victories for the public have resulted in far less nuclear waste at SRS than would be the case if any of the programs had been fully carried out (which would have placed even more strain on DOE's clean-up budget). A lesson that still hasn't been learned is that the public will opposes dirty, questionable missions and support good ones.

Prepared by Tom Clements, Director, Savannah River Site Watch, Columbia, SC, www.srswatch.org, January 2015

link to Full report:

http://energy.gov/downloads/improving-project-management

Improving Project Management

Report of the Contract and Project Management Working Group

November 2014

"The MOX project has expended approximately $4 billion and is approximately 50 percent complete. Estimates for the capital work range from $8-12 billion depending on the funding profiles. In developing a path forward for plutonium disposition, DOE is reevaluating the options identified in the early stages of the plutonium disposition program." page 22

UCS news release, with links to executive summary and full report released on January 14, 2015

http://www.ucsusa.org/news/press_release/mixed-oxide-nuclear-fuel-report-0456

Excess Plutonium Disposition: The Failure of MOX and the Promise of Its Alternatives

Edwin S. Lyman

December 2014

Union of Concerned Scientists

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Expert Opinion

Shipment and Disposition of Spent Nuclear Fuel from the AVR Jülich nuclear reactor to the U.S. Department of Energy Savannah River Site and Non-Compliance Under German and European Law

Prepared on behalf of **Greenpeace e.V.**,
Hongkongstraße 10, 20457 Hamburg, Germany

By Rechtsanwalt Dr. Ulrich Wollenteit,
Rechtsanwälte Günther, Mittelweg 150, 20148 Hamburg

I.
Executive Summary

The proposed shipment of spent nuclear fuels from the permanently shut down experimental reactor AVR Juelich (hereafterAVR) does not comply with German and European law. The AVR is not a research reactor. The shipment of spent nuclear fuels contradicts sec. 9a (1) Sentence 2 of the German Atomic Energy Act (hereafter AtG) which stipulates that the transfer of spent nuclear fuels for reprocessing purposes is not allowed after 1. July 2005. The shipment also is in non-compliance with sec. 9a (2) Sentence 1 and 3 AtG and Sec 1 (1) of the law concerning the selection process for final storage (hereafter StandAG) which states that high active waste originating from German nuclear facilities has to be transferred to a national final storage or in case of sec. 9a (2) Sentence 3 AtG into an interim storage facility. Furthermore, the shipment of high active waste from Germany to the United States (U.S.) Department of Energy (DOE) Savannah River Site does not stand in line with Art. 4 (4) Council Directive 2011/70/EURATOM of 19 July 2011 (establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste). This also stipulates that radioactive waste shall be disposed of in the Member State in which it was generated. Last but not least a shipment does not comply with Sec. 9 (1) No. 4 of the German regulation concerning transboundary shipment of waste (hereafter AtAV) which provides that such a shipment is not admissible when it contradicts sec. 9a (1) Sentence 2 AtG or sec. 9a (2) Sentence 1 AtG[1].

II.
Facts

In 2012 plans emerged to transfer 152 casks with spent nuclear fuels from the AVR to the nuclear reservation in Savannah River Sites. In a *Statement of Intent* from April 2014 the U.S. DOE and the German Federal Ministry for Education and Science (BMBF) and the Ministry for Innovation, Science and Research of the State of North Rhine-Westphalia agreed to promote the project "immediately"[2].The *Statement of Intent* from April 2014 furthermore elaborates that DOE is considering the feasibility of utilizing the H-Canyon reprocessing

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[1] The paper is a revised and updated version of a former Expert Opinion of the author; *Wollenteit*, Rechtsgutachten zur Zulässigkeit der Verbringung von abgebrannten Kernbrennstoffen aus dem stillgelegten Kernkraftwerk AVR Jülich in die Wiederaufbereitungsanlage Savannah River Site (USA), erstellt im Auftrag von Greenpeace e.V., 3rd of September 2014, https://www.greenpeace.de/sites/www.greenpeace.de/files/publications/rechtsgutachten-juelich-20140917.pdf.

[2] http://www.srswatch.org/uploads/2/7/5/8/27584045/statement_of_intent_march_april_2014.pdf; sub I. Nr. 4.

plant at the Savannah River Site to chemically remove the graphite from the fuel kernels by using molten salt technique being developed by the Savannah River National Laboratory and that the remaining fuel kernels could then be processed through the H-Canyon system for disposition[3]. It is not perfectly clear whether the *Statement of Intent* additionally is aiming at 303 casks from the Thorium High-Temperature Reactor (THTR) at Hamm Üntrop stored in an interim storage facility at Ahaus (Germany). The documents presented by U.S. DOE on June 2014 in connection with the public scoping meeting (Potential Acceptance and Disposition of German Pebble Bed Research Reactor Highly Enriched Uranium (HEU) Fuel - Environmental Assessment)[4] suggest this.

The 152 casks are presently stored in an interim storage facility located on the compound of the Research Center Juelich (FZJ). The waste originates from the AVR, an experimental reactor (Versuchskernkraftwerk) that was run by a consortium of 15 electricity companies. The AVR was the first German graphite based high temperature reactor that was relying on a pebble bed technology. The AVR had a net output of 13 MW per year and did operate from 1966 until 1988.

In the *Statement of Intent* is argued that the graphite-based spent nuclear fuel was irradiated for "research and development purposes". The assumption that the AVR can be considered to be a "research reactor" serves as the main justification for the proponents of the shipment[5] and for some politicians[6] to deem the shipment to be in compliance with national and European law.

In an official list of the Federal Agency for Radiation Protection (Bundesamt fuer Strahlenschutz - BfS) the AVR until today has been considered to be a commercial nuclear power plant[7]. In a separate list by the BfS that covers research reactors, the AVR is not listed.[8] The International Atomic Energy Agency (IAEA) lists the AVR as a commercial nuclear power reactor with the further specification: "permanent shut down"[9].

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[3] http://www.srswatch.org/uploads/2/7/5/8/27584045/statement_of_intent_march_april_2014.pdf; sub I. Nr. 4.

[4] http://www.srswatch.org/uploads/2/7/5/8/27584045/doe_public_meeting_presentation_june_2014-1.pdf

[5] E.g Kölner Stadtanzeiger vom 04.04.2011, http://www.ksta.de/politik/hintergrund-der-forschungsreaktor-juelich,15187246,11965764.html; Aachener Zeitung vom 3. April 2014, http://www.aachener-zeitung.de/lokales/region/avr-reaktor-vor-umzug-ins-zwischenlager-1.798583.

[6] See e.g. MOP Krischer, Kotting-Uhl and Behm in their „Small Inquiry" (Kleine Anfrage), BT-Drs. 17/843.

[7] http://www.bfs.de/de/kerntechnik/ereignisse/standorte/karte_kw.html .

[8] http://www.bfs.de/de/kerntechnik/ereignisse/standorte/karte_fr.html .

[9] http://www.iaea.org/PRIS/CountryStatistics/ReactorDetails.aspx?current=114 ; see also *Kollar/Mathews*, Evolution of Safeguards Over Time, Past, Present, an Projected Facilities, Material and Budget, Prepared for the U.S. Department of Energy, July 2009, p 19.

III.
Legal Assessment

1. Violation of the Ban on Delivery of Spent Nuclear Fuels to a Reprocessing plant in Sec. 9a (1) Sentence 2 AtG

a) The Content of Sec. 9a (1) Sentence 2 AtG

Sec. 9a (1) Sentence 2 AtG bans the disposal of spent nuclear fuels to a reprocessing plant from any installation that is or has been commercially generating electricity by nuclear fission after 01. July 2005.

The provision has been implemented in the course of the first German phase out legislation in 2002. The ban intended to put an end to the irresponsible practice of reprocessing nuclear fuels which caused severe ecological and additional waste-management problems[10]. The compliance of the ban with European law was questioned but did not cause any serious concern[11].

b) Disposal of Spent Nuclear Fuel Resulting from Commercial Generation of Electricity

Sec. 9a (1) Sentence 2 AtG prohibits the disposal of spent nuclear fuels for the purpose of (harmless) reprocessing only if the spent nuclear fuel is deriving from a commercial generation of electricity. The disposal of spent nuclear fuel from a research reactor to a reprocessing plant for the purpose of "harmless"[12] reprocessing is not covered by the prohibition[13]. Predominant arguments already suggest that a "harmless" reprocessing of spent nuclear fuel at the U.S.DOE Savannah River Site is not feasible[14]. The second and more decisive question to be answered is whether the AVR qualifies for being a "research reactor". The *Statement of Intent* tries to suggest this by using the wording "research and development purposes".

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[10] BT-Drs. 14/6890, p. 14; see also *Wollenteit/Gebauer*, Risiken der Wiederaufbereitung und die Vereinbarkeit des Verbots der Wiederaufbereitung mit Gemeinschaftsrecht, ZUR 1999, 250 ff, m.w.N..

[11] *Wollenteit/Gebauer*, ebenda; *Scheuing*, in: Koch/Roßnagel, 10. ATRS, 2000, S. 121 ff.

[12] As far as Sec. 9a (1) Sentence 2 AtG does not preclude disposing spent nuclear fuel to a reprocessing plant the provision only allows it if the reprocessing takes place in a "harmless" way.

[13] See *Posser/Schmans/Müller-Dehn*, Atomgesetz, Kommentar zur Novelle 2002, § 9 a, Rn. 188.

[14] See *Ekardt/Weyland*, Rechtmäßigkeit des Exports radioaktiver Abfälle des AVR Jülich in die USA, Forschungsstelle Nachhaltigkeit und Klimapolitik, Rechtsgutachten im Auftrag des Bund für Umwelt und Naturschutz Deutschland, Landesverband Nordrhein-Westfalen e.V. BUND NRW, Endfassung vom 21.09.2014,

The designation of the reactor to be an experimental reactor (Versuchsreaktor) might prima facie create the impression that the reactor has something to do with research purposes. But this impression is deceptive[15]. Research reactors are not designed to generate electricity. They have an exploratory focus. Usually they deal with the investigation of physical and material properties and the production of radionuclides in the field of medical science and other fields of technique. Research reactors do not use the thermal energy but the neutron radiation. They also serve educational purposes[16].

The German phase-out legislator followed the same logic when only prohibiting the licensing of reactors commercially generating electricity by Sec. 7 (1) Sentence 2 AtG. The official reasoning for the legislation follows the same specifications when exempting research reactors on constitutional grounds (with respect to academic freedom; Art 5 (3) of the Basic Law) from the prohibition of erecting new reactors:

> "Unaffected remain reserach reactors the significance of which e.g. in the field of basic research, materials research, isotopic research, biological measures (inter alia cancer therapy) and the production of tracer is widely acknowledged. Because of their function and because of their integration in European and bilateral, international binding scientific cooperations these reactors represent an exception with respect to power reactors. They do not serve the generation of electricity and represent a lesser risk potential because of their lower degree of power." [17]

Experimental reactors pursue completely different goals. The AVR and the Thorium High- Temperature Reactor (THTR) at Hamm Üntrop[18] were both

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[15] See *Wollenteit*, l.c. (fn. 1).

[16] *IAEA*, Research Reactors: Purposes and Future, November 2010, p.2: "Research reactors comprise a wide range of different types of reactors that are generally not used for power generation. The primary use of research reactors is to provide neutron source for research and various applications, including education and training"; see also http://de.wikipedia.org/wiki/Forschungsreaktor.

[17] BT-Drs. 14/6890, S. 19: "Unberührt bleiben die Forschungsreaktoren, deren Bedeutung zum Beispiel für die Grundlagenforschung, die Materialforschung, die Isotopenforschung für medizinische Zwecke (u. a. Krebstherapien), für biologische Maßnahmen (u. a. Umweltanalytiken) sowie zur Erzeugung von Tracern weiterhin anerkannt wird. Diese Reaktoren stellen sowohl auf Grund ihrer Funktionen als auch auf Grund ihrer Einbindung in europäische und bilaterale, völkerrechtlich verbindliche Forschungskooperationen einen Sonderfall gegenüber Leistungsreaktoren dar. Sie dienen nicht der Erzeugung von Elektrizität und stellen auf Grund ihrer deutlich niedrigeren Leistung ein geringeres Risikopotential dar."

[18] The THTR even more was not a research reactor; see *Wollenteit*, l.c. (fn. 1), p. 6 f, and *Hermes*, Rechtliche Zulässigkeit der Verbringung der bestrahlten THTR-Brennelementekugeln in die USA zum Zweck der Wiederaufbereitung und des Verbleibs unter Berücksichtigung des europäischen Rechts und diesbezügliche Rechtschutzmöglichkeiten, Rechtsgutachten erstellt im Auftrag des Ministeriums für Klimaschutz, Umwelt, Landwirtschaft, Natur- und Verbraucherschutz des Landes Nordrhein-Westfalen, 4th of February 2014.

operating on the basis of a new High-Temperature Gas Reactor technology (HTGR). Both reactors are considered to be "prototype reactors" for new HTGR fuels[19]. The AVR served as kind of blue-print for future HTGR-technologies. In early publications this purpose of the AVR has precisely been described as follows:

- "Brown Boveri/Krupp Reaktorbau Ltd. is developing a line of high-temperature helium-cooled pebble-bed reactors, with completely integrated primary system. The feasibility of the concept has been demonstrated by the AVR experimental reactor, which has been supplying electricity to the grid since December 1967. The next stage in the development is the 300 MWe THTR, which has the same design characteristics as the AVR."[20]

- "The AVR is a 15-MWe HTR steam cycle demonstration plant in Jülich, West Germany. The AVR began generating electricity in December 1967. Its purpose is to demonstrate the feasibility of an HTR with pebble fuel elements and high operating temperatures. The operating utility group is Arbeitgemeinschaft Versuchs-Reaktor (AVR) GmbH of Düsseldorf. The constructor was Brown-Boveri-Krupp Reaktorbau GmbH."[21]

- "The main purpose of the AVR experimental power station is to demonstrate the feasibility of the pebble bed high temperature gas-cooled reactor and the on-line refueling principle associated with this type of reactor, and to provide the basis for further development of this reactor line to the THTR 300."[22]

These quotations clearly show that the purpose of the AVR was to demonstrate the feasibility of a future HTR-reactorline with pebble fuel elements and high operating temperatures. The operating utility (Arbeitsgemeinschaft Versuchs-Reaktor GmbH), consisting of 15 electricity companies, and the constructor (Brown-Boveri-Krupp Reaktorbau GmbH) were not acting out of scientific curiosity but were governed by commercial interests. Experimental reactors always seek to show the feasibility of a new technology and to develop proto-

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[19] *Shropshire/Herring*, Fuel-Cycle and Nuclear Material Disposition Issues Associated with High-Temperature Gas Reactors, Paper presented at the Conference: Americas Nuclear Energy Symposium (ANES 2004), Miami, FL (US), 10/03/2004-10/06/2004, p. 7.

[20] *Oehme/Schöning*, Design, Features, and Engineering Status of the THTR 300 MWe Prototype Power Station, Paper presented at the Conference: Gas cooled reactor meeting, April 27-30, 1970, Oak Ridge, p. 1.

[21] *Cleveland*, ORNL Analyses of AVR Performance and Safety, Paper to be presented at the IAEA Specialists' Meeting on Safety and Accident Analyses for Gas-Cooled Reactors, Oak Ridge, Tennessee May 13 – 15, 1985, p. 3.

[22] Gas Reactor International Cooperative Program Interim Report, Construction and Operation Experience of Selected European Gas-Cooled Reactors, Prepared by NUS Corporation, Rockville, Maryland for General Electric Company, September 1978, sub 2-1.

types for new reactor lines. This clearly indicates that spent fuels from such a reactor is not deriving from a scientific background but out of a commercial context in the sense of Sec. 9a (1) Sentence 2 AtG.

The decisive division line between power reactors and research reactors runs along functional criteria. As already was pointed out research reactors do not use the thermal energy but the neutron radiation. These reactors are linked to basic research, materials research and medical research while power reactors by using thermal heat are meant to generate electricity to be fed to the grid [23]. AVR has produced a considerable amount of electricity over 20 years and has fed this electricity to the grid. The AVR was a prototype for a new reactor line and clearly was built and operated in a commercial context. The fact that the technological concept of the AVR and the intention to develop a new line of power reactors retrospectively did not turn out to become a commercial success does not make the AVR a research reactor. Since the AVR (and the THTR even more) no doubt does not feature the characteristics of a research reactor it has to be deemed to be a power reactor[24]. This qualification complies with the approach of the BfS and the IAEA which both did not put the AVR and the THTR on their list of research reactors but on their list of power reactors.

c) Intermediate Result

The analysis above clearly shows that the disposal of spent fuel from the AVR to the U.S.DOE Savannah River Site for the purpose of reprocessing does not comply with binding German law[25]. The disposal contradicts Sec. 9a (1) Sentence 2 AtG which prohibits the disposal of spent nuclear fuel deriving from a power reactor to a reprocessing plant after 01. July 2005. This assessment without any doubt even more applies to the 303 casks deriving from the THTR at Hamm Üntrop[26] which possibly might also be covered by the *Statement of Intent*.

2. Violation of Sec. 9a (2) Sentence 1 and 3 AtG and of Sec. 1 (1) StandAG

The *Statement of Intent* from April 2014 clearly assumes a final disposition of the shipped spent nuclear fuel at Savannah River Site after a possible reprocessing procedure. The final disposition of nuclear waste deriving from a German nuclear installation in a foreign country brings up additional legal questions.

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[23] *IAEA*, Research Reactors: Purposes and Future, November 2010, p.2.
[24] See *Wollenteit*, l.c. (fn. 1), p. 5 f; *Ekardt/Weyland*, l.c. (fn. 14), p. 7 ff.
[25] See also *Ekardt/Weyland*, l.c. (fn. 14), p. 7 ff.
[26] See *Wollenteit*, l.c. (fn. 1), p. 6; even more specific *Hermes*, l.c. (fn. 18).

a) Violation of Sec. 9a (2) Sentence 1 and 3 AtG

The option to dispose of nuclear reactor spent fuel from a nuclear power plant by shipment to a foreign reprocessing plant has been closed by the phase out legislation in 2002 with no further transports after the 1st of July 2005. The only remaining legal way to dispose of spent nuclear reactor fuel is provided by Sec. 9a (2) Sentence 1 and 3 AtG[27]. The provision contains a compulsory obligation to dispose of high active waste in a final waste disposal site or an interim storage facility before final disposal. A cross border shipment of spent nuclear fuel that has been generated in Germany would violate the obligation stipulated in Sec. 9a (2) Sentence 1 and 3 AtG and therefore would be illegal[28]. This national concept of nuclear waste management is supported by Sec. 9a (3) AtG which contains a basic decision that the federal authorities are obliged to erect and to operate a final waste disposal site.[29]

b) Violation of Sec. 1 (1) StandAG

In July 2013 a law concerning the selection process for final storage (StandAG)[30] went into force. The objectives of the selective process established by the StandAG are outlined in Sec 1 (1) Sentence 1 StandAG as follows:

> "Goal of the selection process is to find in the **Federal Republic of Germany** a site for a final storage for nuclear waste subject to Sec. 9a (3) Sentence 1 AtG caused by activities in inland, especially of high active waste, in a scientific based and transparent procedure which guarantees best possible safety for a period of one million years."[31]

With this provision the German legislator has affirmed its basic decision that waste generated in a German nuclear installation shall ultimately be disposed in a final storage facility on within the boundaries of Germany. But the StandAG did not only affirm this basic decision but also closed a potential loophole

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[27] *Fehling/Schneider/Theobald*, Recht der Energiewirtschaft, § 8. Zulassung von Erzeugungsanlagen, 4. Auflage 2013, Rn. 2013.

[28] That the disposition of spent nuclear fuel to a third party country under German law is not admissable clearly shows *Borck*, Die Endlagerung radioaktiver Abfälle aus Deutschland im Ausland, Kassel 2014, p. 53; see also *Wollenteit*, l.c. (fn. 1), p. 8; *Ekardt/Weyland*, l.c. (fn. 14), p. 9 ff; with respect to the THTR, *Hermes*, l.c. (fn. 18), p. 21.

[29] *Roßnagel/Hentschel*, Kurzgutachten, Verbringung in Deutschland erzeugter radioaktiver Abfälle und abgebrannter Brennelemente ins Ausland, im Auftrag der Fraktion Bündnis 90/Die Grünen im Bundestag, Kassel 2013, S. 10.

[30] Gesetz zur Suche und Auswahl eines Standortes für ein Endlager für Wärme entwickelnde radioaktive Abfälle; Standortauswahlgesetz, 23rd July 2013, BGBl I 2013, 2553.

[31] „Ziel des Standortauswahlverfahrens ist, in einem wissenschaftsbasierten und transparenten Verfahren für die im Inland verursachten, insbesondere hoch radioaktiven Abfälle den Standort für eine Anlage zur Endlagerung nach § 9a Absatz.3 Satz 1 des Atomgesetzes in der Bundesrepublik Deutschland zu finden, der die bestmögliche Sicherheit für einen Zeitraum von einer Million Jahren gewährleistet."

that might arise from European law under Art 4 No 4 Council Directive 2011/70/EURATOM of 19 July 2011 (establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste)[32]. Art 4 No 4 Council Directive 2011/70/EURATOM allows the cross border shipment of nuclear waste if this shipment is justified by an international agreement. This possibility to circumvent the provisions of Sec. 9a (2) Sentence 1 AtG and of Sec 1 (1) Sentence 1 StandAG has been explicitly excluded by Sec 1 (1) Sentence 2 StandAG. Under Sec 1 (1) Sentence 2 StandAG the Federal Republic of Germany may not,

> "according to Council Directive 2011/70/EURATOM of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste (OJ L 199 of 19 July 2011, p 48) negotiate a treaty which would make possible the disposal of nuclear waste including spent nuclear fuel for the purpose of final disposal outside of Germany."

Sec 1 (1) Sentence 2 StandAG is meant to effectively discourage any future attempts to undermine the basic (national) concept of nuclear waste management by seeking an international solution.

a) Intermediate Result

The final disposition of spent nuclear fuel from the AVR at the U.S.DOE Savannah River Site does not comply with Sec. 9a (2) Sentence 1 and 3 AtG and with Sec. 1 (1) StandAG which both allow a disposition of radioactive waste and spent nuclear fuel only in a federal final disposal site or an intermediate storage facility in Germany. The targeted project to dispose of spent nuclear fuel from the AVR at the U.S.DOE Savannah River Site therefore would be illegal under German law.

3. Violation of Art 4 No 4 Council Directive 2011/70/EURATOM

Art 4 No 4 Council Directive 2011/70/EURATOM stipulates, that

> "(r)adioactive waste shall be disposed of in the Member State in which it was generated, unless at the time of shipment an agreement, taking into account the criteria established by the Commission in accordance with Article 16(2) of Directive 2006/117/Euratom, has entered into force between the Member State concerned and another Member State or a third country to use a disposal facility in one of them."

[32] OJ L 199 of 19 July 2011, p. 48.

As already was pointed out Sec. 1 (1) Sentence 2 StandAG cuts off the possibility to legalize cross border shipment of nuclear waste through an international agreement. Since no treaty with the U.S. allows German authorities to use a foreign disposal facility in the U.S. the targeted shipment does not comply with Art 4 No 4 Council Directive 2011/70/EURATOM.

Art 2 (3) b) of the Directive Art 4 No 4 Council Directive 2011/70/EURATOM is not applicable for research reactors. However, this exception may not be invoked with respect to the AVR because the AVR is not a research reactor as already has been shown.

Therefore the targeted disposition of spent nuclear fuel from the AVR at U.S.DOE Savannah River Site would also violate European Law especially Art 4 No 4 Council Directive 2011/70/EURATOM. The violation therefore could trigger treaty violation proceedings under Art 258 f of the Treaty on the Functioning of the European Union (TFEU). Citizens of the EU could place an informal complaint with the Commission of the European Union[33].

4. Violation of Sec. 9 (1) No. 4 AtAV

The German Regulations concerning shipment of radioactive waste and spent nuclear fuel[34] (AtAV) contain provisions implementing the requirements of Council Directive 2006/117/Euratom of 20 November 2006 on the supervision and control of shipments of radioactive waste and spent fuel[35]. They also supplement the provisions of Sec. 3 AtG which deal with licensing procedures concerning the import and export of nuclear fuel. Its scope is limited by Sec. 1 (1) AtAV to the "cross border shipment of nuclear waste and spent nuclear fuel".

Sec 5 (2) No 1 b) requires a license if radioactive waste or spent nuclear fuel shall be shipped from Germany to a third party country like the U.S. Sec. 9 AtAV contains licensing requirements for a cross border disposition of radioactive waste and spent nuclear fuel to a third party country. Sec. 9 (1) No 4 AtAV refers to Sec. 8 (1) No 4 AtAV which provides that a license may only be issued if

> "the shipment does not violate provisions within the area of application of this regulation especially Sec. 9a (1) Sentence 2 AtG and Sec. 9a (2) sentence 1 and 3 AtG".

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[33] See also *Hermes*, l.c. (fn. 18), p. 21, with respect to the THTR.

[34] Verordnung über die Verbringung radioaktiver Abfälle oder abgebrannter Brennelemente (Atomrechtliche Abfallverbringungsverordnung – AtAV) vom 30. April 2009 (BGBl. I S. 1000).

[35] Council Directive 2006/117/EURATOM of 20 November 2006, OJ L 337/21.

As already has been pointed out the disposition of spent nuclear fuel for reprocessing purposes violates Sec. 9a (1) Sentence 2 AtG. The shipment of spent nuclear fuel with the intention of waste disposition contradicts Sec. 9a (2) sentence 1 and 3 AtG. Under Sec. 9 AtAV therefore a license for the disposition of spent nuclear fuel may not be issued[36]. The issuing of a license allowing the shipment of spent nuclear from the AVR the U.S.DOE Savannah River Site would clearly violate German law and therefore would be illegal.

5. Transport License to U.S.DOE Savannah River Site Illegal

The shipment of spent nuclear fuel from the AVR to the U.S.DOE Savannah River Site would finally need a transport license under Sec. 4 AtG.

Since the disposition of the spent nuclear fuel from the AVR to U.S.DOE Savannah River Site would be illegal, preponderant considerations suggest that this would also apply to the issuing of a transport license under German law[37].

IV.
Final Conclusion

The licensing of a disposition of spent nuclear fuel from the AVR stored in an interim storage facility in Jülich (Germany) to the U.S.DOE Savannah River Site would severely violate several German and European laws and therefore would clearly be illegal. This assessment without any doubt also applies to the 303 casks deriving from the Thorium High-Temperature Reactor (THTR) at Hamm Üntrop.

Hamburg, 3rd of December 2014

Rechtsanwalt
Dr. Ulrich Wollenteit

[36] See also *Borck*, Die Endlagerung radioaktiver Abfälle aus Deutschland im Ausland, Kassel 2014, S. 53.
[37] See *Wollenteit*, l.c. (fn. 1), p. 10 ff..