Meeting Minutes
Savannah River Site Citizens Advisory Board (CAB) – Full Board Meeting
New Ellenton Community Center, New Ellenton, South Carolina
November 16, 2015

CAB
Gil Allensworth
Tom Barnes
Louie Chavis
Susan Corbett
Robert Doerr
Murlene Ennis
Dawn Gillas
David Hoel
Eleanor Hopson
Virginia Jones
Daniel Kaminski
John McMichael
Clint Nangle
Larry Powell
Bill Rhoten
Earl Sheppard
Harold Simon
George Snyder
Nina Spinelli
James Streeter
Ed Sturcken - ***Absent***
Christopher Timmers - ***Absent***
Louis Walters
Mary Weber

Federal
Jack Craig, DOE-SR
Michael Mikolanis, DOE-SR
Pat McGuire, DOE-SR
Jim Giusti, DOE-SR
de'Lisa Carrico, DOE-SR
Jim Folk, DOE-SR
Richard Olsen, DOE-SR
Maatsi Ndingwan, DOE-SR
Avery Hammett, DOE-SR
Dan Hanson, NNSA

Agency Liaisons/Regulators
Trey Reed, SCDHEC
Gregory O'Quinn, SCDHEC
Heather Cathcart, SCDHEC
Susan Fulmer, SCDHEC
Sandra Snyder, SCDHEC
Dierdre Lloyd, EPA

Contractors
Mike Griffith, SRNS
Kim Cauther, SRNS
Elizabeth Harm, SRNS
Teresa Eddy, SRNS
Amy Meyer, SRNS
Shawn Carey, SRNS
Mtesa Wright, SRNS
Karen Angeles, SRNS
Matt Bodine, SRR
Mark Schmitz, SRR
Richard Edwards, SRR
Larry Ling, SRR
Owen Stevens, SRR
Stuart McVane, SRR
Kelly Laner, SRR
Tim Jannick, SRNL
Marissa Regal, SRNL
Eleanor Prater, Time Solutions
James Tanner, Time Solutions
Tina Watson, Time Solutions

Stakeholders/Public
Mike Johnson, CNTA
Tom Clements, SRS Watch
Nancy Bobbitt, US Senator Isakson

Discussion of EMSSAB Chairs' Meeting Recommendation – Harold Simon, CAB Chair

CAB Chair Harold Simon presents Environmental Management Site Specific Advisory Board (EMSSAB) Chairs Meeting Recommendation: Use of supplemental environmental project policy distributed via email to CAB members. Mr. Simon then discusses the meaning of Supplemental Environmental Projects as an environmentally beneficial project which a violator voluntarily agrees to undertake in settlement of an enforcement action which is not legally required by law. Mr. Simon then states that this recommendation will be brought back the following day (November 17, 2016) for vote.

CAB Chair Harold Simon opened the meeting. He introduced CAB Facilitator, Tina Watson, who reviewed the Meeting Rules of Conduct. She stated a public comment period was scheduled for the end of the meeting and reminded CAB members and attendees to sign-in at the table in the back. She asked the CAB members to state their names before speaking and then reviewed the meeting agenda.

Presentation: Work Plan Update – Tina Watson, Time Solutions

Ms. Tina Watson, Time Solutions, stated the purpose of her presentation was to provide the CAB and Committee Chairs with a status update for each committee and highlighted upcoming presentations specific to each committee. There were no questions regarding upcoming presentations or the Work Plan from any CAB members.

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

CAB member Tom Barnes thanked Ms. Watson and proceeded to list all FD&R committee members. He reviewed the committee's focus and provided a recommendation status update. He then stated that Recommendation #332 was open. CAB member Barnes announced the next FD&R Committee meeting was scheduled for December 8, 2015 from 6:30 PM to 8:20 PM at the New Ellenton Community Center in New Ellenton, South Carolina (SC). He introduced Mike Griffith, SRNS on the Savannah River Site Annual Environmental Report, to begin his presentation.

Presentation: Savannah River Site Annual Site Environmental Report – Mike Griffith, SRNS

Mr. Griffith stated the purpose of his presentation was to complete a FD&R Committee Work Plan topic to provide CAB members and public an overview of the Savannah River Site Environmental Report for 2014. He discussed the history and depth of the environmental reports produced and how requirements and regulations established by the Department of Energy are interpreted. Reports are then established on sample collection, procedural requirements, data collection which is all summarized in the Annual Environmental Report. He states a focused effort regarding the public accessibility and readability, specifically CAB member feedback and improvements on technical language, key terms and graphics. Mr. Griffith states his purpose is to present to CAB members an overview of the annual environmental reports and take questions. He briefly summarizes acronyms and definitions to be referenced throughout the presentation and outlines the overview of the annual environmental report. He states that the annual Site environmental report is required by the Department of Energy to provide public and stakeholders information, gathered and evaluated to be presented to the public on the environmental impacts of the operations at Savannah River Site. He says that it requires compliance with environmental laws and standards with the initial production of the environmental report beginning in 1959. Mr. Griffith states what is included in the report, briefly discussing the individual chapters to include:

- Chapter 1: Introduction and organizations (both Federal and contractor operating on Site).
- Chapter 2: Environmental management system and sustainability, pollution prevention and waste minimization. Energy and water conservation and greenhouse gases.
- Chapter Three: Compliance Summary and environmental laws (both Federal and State) with an updated compliance status.
- Chapter Four: Affluent Monitoring, airborne and liquid emission results from facilities, both radiological and non-radiological
- Chapter Five: Environmental Surveillance, discusses collection analysis of water, soil and food samples from the Site and surrounding areas.
- Chapter Six: Radiological Dose Assessment, gather information from affluent monitoring and environmental surveillance program and in conjunction with Savannah River National Laboratory (SRNL) and produce a dose to a representative person.
- Chapter Seven: Groundwater Management Program describing the groundwater remediation and conservation, to include the 3,000 groundwater monitoring well present on Site in correspondence with the remediation and cleanup program.
- Chapter Eight: Quality Assurance describes programs in place to ensure accurate and defensible data

- Summary Report that gives an overview of the environmental report in its entirety.

Mr. Griffith details the management of 515 operating and construction permits at any given time, specifically focusing on domestic water systems, sanitary waste systems, demolition permits, industrial water waste discharge and the Resource Environmental Recovery Act Permit dealing with waste management and cleanup on Site. Mr. Griffith states that there were no notices of any violations in 2014 for all 515 permits managed. He states the major environmental laws, regulations and DOE Orders specifically DOE Order 458.1, Environmental Monitoring and DOE Order 436.1 and DOE Order 435.1. He then states that the environmental report has to be made available to the public by October 1 of each year. He details specifically the environmental monitoring program graphic included in his presentation, outlining the affluent monitoring through facilities containing contaminants, regulated under federal and state law. Environmental surveillance is a large part, monitoring contaminants and the corresponding amount in the environment. Liquid effluence facilities monitor air effluent with stacks and facility release points (measuring directly what comes from the facilities). Monitoring devices to detect radiation include collecting samples from various media, an extensive program for stream and river surveillance specifically monitoring the Savannah River and drinking water facilities monitored offsite. He states that all this information aids the determination of the public dose range. He then proceeds to discuss non-radiological sampling results, which can all be found in the environmental report and include results from liquid effluent, air effluent, war quality, fish, drinking water and wildlife. He mentions the radiological sampling results with over 21,000 Radiological Analysis performed in 2014 with an effluent point set by DOE standards to release *As Low as Reasonably Achievable (ALARA)* and to not receive a dose limit higher than 100REM per year. He states that the air effluent was well below DOE and Environmental Protection Agency standards, with less than 10 MilliREM per year. He mentions that drinking water is also monitored at various facilities and is currently well below the Environmental Protection Agency (EPA) set standard of 20,000 Picocuries. Wildlife is monitored through harvested deer, hogs and coyotes through controlled hunts held on Site. Monitoring has concluded that the average cesium concentration in deer has been on a steady decline for the past fifty years. Cesium levels in fish are monitored to aid the dose calculation. Mr. Griffith explains what a dose is, or the effluent monitoring and environmental surveillance data are used to determine dose. Radiation dose to person is amount of energy absorbed by human body from radioactive source with the average person exposed to 625 MilliREM per year. He explains that these sources of radiation include an array of sources including medical and natural sources. He details the results for 2014; the all pathway dose for the potential representative person was 0.16mREM, with the DOE dose limit requirement being less than 100 MilliREM per year. Mr. Griffith then outlines the summary of the presentation as the comprehensive environmental monitoring program on and off Site and that SRS operations are protecting the environment and surrounding communities. He also details the communication and outreach (CAB, Info Pods, Environmental Justice (EJ) Meetings, Public Involvement, TREAT, Education Outreach, Social Media, Website with all Environmental and Summary Reports Posted, Outreach media, Presentations, Environmental Bulletin, News Releases).

CAB member Nina Spinelli asked Mr. Griffith if cesium levels in fish also decreased similar to the decline in deer cesium levels. Mr. Griffith answered that cesium levels in fish has remained the same for past five years.

CAB member Susan Corbett asked Mr. Griffith if 80% of the releases were tritium. Mr. Griffith answered that tritium is the major radionuclide released. CAB member Corbett then asked whether it was produced mainly as water vapor and if there was an estimate on how far it can travel? Mr. Griffith responds with an affirmation and states that it varies depending on environmental conditions and references models used to depict emission levels, all included within the environmental report. CAB member Corbett asks whether or not weather data is included and Mr. Griffith responds that meteorological data is a large portion of an overall analysis.

CAB member David Hoel compliments Mr. Griffith on a great presentation. CAB Member Hoel proceeds to ask if SRS do self-reports of non-compliances. Mr. Griffith responds with an affirmation and references chapter three of the environmental report, discussing self-disclosures. CAB member Hoel asks if results from hunting samples are included. Mr. Griffith responds with an affirmation. CAB member Hoel asks if the elevated mercury levels in the Savannah River are not due to SRS. Mr. Griffith concurs with a reference to other major contributors. CAB member Hoel asks if there is a difference in cesium concentration in deer, wild hogs versus turkey and if certain species have a greater uptake than others. Mr. Griffith references Tim Jannick from Savannah River National Laboratory (SRNL). Jannick responds that the concentrations in deer due to their diet are normally higher than wild hogs.

CAB member Bob Doerr asks Mr. Griffith if the current level for drinking water contamination has been lower or higher. Mr. Griffith responds that throughout the last four to five years, the concentration has remained the same and references Karen Angeles, SRNS. Ms. Angeles responds with an affirmation on the past levels. Tim Jannick references that tritium released from the Site is legacy contamination and also references Plant Vogtle as a participant to tritium contamination. Mike Griffith followed up by stating the productivity of the remediation programs on Site for tritium contamination.

CAB member James Streeter asked if the dose standard established and the organizations taking samples are using various equipment with different units of measurements and results. Mr. Griffith responds that standard procedures and equipment are used to acquire data. CAB member Streeter continues by asking how this data is correlated into the report. Mr. Griffith states that uncertainties taken into account with detection devices and also states that guidelines and quality objectives must be met for data to be obtained to continuously improve the program. CAB member Streeter asks if there is a standard set and Mr. Griffith concurs.

CAB member Susan Corbett asks if tri-cholorethylene is water soluble and if it is released via airborne or strictly through groundwater. Mr. Griffith responds that tri-chloroethylene is present in the groundwater at the Site with remediation programs to address and extract. CAB member Corbett continues by asking if they have a half-life. Mr. Griffith responds no. CAB member Corbett asks if tri-chloroethylene biodegrades in the environment. Mr. Griffith answers that he will concur on a later date on how it performs within the environment. CAB member Corbett asks whether it migrates offsite as well. Mr. Griffith responds no, excluding the airborne. CAB member Corbett asks if a certain amount is permitted to be released into the air. Mr. Griffith concurs.

CAB member Louis Walters asks about the current impact and future impact with Vogtle? Is it reported as well with projections of dose levels? Mr. Griffith answers those contributions from Plant Vogtle given in reports and references interfaces with Plant Vogtle quarterly with current updates on their contamination contributions to the Savannah River.

CAB member Clint Nangle asks about the main issue of an activist group located in the state of Georgia, with studies of people living in GA with problems such as cancer. These activist groups turn it all back to picking up something from SRS (cancer, etc.). Nothing from this report gives evidence to this negative contribution, can we distribute this report to further organizations? Mr. Griffith references the extensive mailing list that receives a copy of the environmental report and outreach. Jim Giusti, DOE-SR answers that DOE is already engaged with GA activist groups.

CAB member Susan Corbett states that there is a limit set forth by government agencies on the release of materials and asks if there is any reference in the environmental report regarding the permitted level of tri-chloroethylene in the environment. Mr. Griffith references chemical and radiological admissions and specific limits and permits outlined.

CAB member Nina Spinelli asks if a link can be sent regarding the referenced permits. Mr. Griffith affirms.

Administrative and Outreach (A&O) Committee – Eleanor Hobson, Chair

CAB member Eleanor Hopson listed the A&O committee members and welcomed everyone. She stated that the CAB Membership Campaign was over for this year; however, the membership applications can be found on the table in the back or online. She stated that copies of the Board Beat Magazine were available. She also stated that the committee had no presentations for the meeting.

Nuclear Materials (NM) Committee Update – Virginia Jones, Vice-Chair

CAB member Virginia Jones stated that CAB member Larry Powell could not attend to give the NM Committee update. She listed the NM committee members and stated the committee purpose. She stated that there are currently no pending recommendations. CAB member Jones announced that the next NM Committee Meeting will be scheduled for December 1, 2015 from 6:30 – 8:20 PM at the New Ellenton Community Center in New Ellenton, South Carolina (SC).

Waste Management (WM) Committee – Earl Sheppard, Chair

CAB member Earl Sheppard welcomed everyone and listed the committee members and purpose. He stated that there were no pending recommendations and one draft recommendation. He announced that the next WM Committee Meeting will be December 1, 2015 from 4:30 – 6:20 PM at the New Ellenton Community Center in New Ellenton, South Carolina (SC). CAB member Sheppard introduced Richard Edwards of Savannah River Remediation (SRR) to begin his presentation.

Presentation: Mercury/Antifoam – Richard Edwards, SRR

Mr. Richard Edwards stated the purpose of his presentation was to fulfill a 2015 WM Committee Work Plan topic by providing a background on mercury and recent issues. Mr. Edwards proceeds to give the background of mercury by stating that is a long lasting issue. He states that new occurrences have required the formation of mercury program team to research and analyze these new developments. Mr. Edwards outlines his presentation; detailing near-term and long-term actions for mercury. He says that some new examples presented include mercury collected out of the evaporator systems; collecting a larger amount than expected. He states that the Department of Energy (DOE) requested that mercury be collected and analyzed for further explanation throughout the entire liquid waste system; spawning the mercury program team to accomplish these objectives. He stated that as analysis progressed, mercury monitored in saltstone resulted in a level higher than the control limit, flagging an issue. While investigating this analysis, methyl mercury levels increased. He says that all events outlined are connected. He references the origin of mercury as a catalyst to dissolving fuel elements which then went to the high level waste system consisting of 51 tanks, stored primarily in sludge. He states that mercury is not primarily present in the salt. He says that mercury does not go into glass due to the high temperature process. He states that the outlets for mercury are saltstone in terms of grout and present at a low level. He continues to say that the primary outlet for mercury is the Defense Waste Processing Facility (DWPF). He states that changes including operational and equipment related issues have made it difficult for DWPF to remove the mercury. This is one of the main challenges for the mercury program team. Edwards references the primary changes in behavior is the increasing levels of mercury in soluble waste. He states the reason for the increase in soluble waste is because DWPF has not been able to affectively remove mercury. Mr. Edwards stated that higher concentrations of mercury have been discovered in waste tanks with the recycled water coming from DWPF. He stated the impacts include equipment upgrades as the forms of mercury change, to include re-heaters present in the Tank Farms experiencing

difficulties and pluggage problems at filtration systems. He outlined the near-term actions for safety of workers at the Site; including a temporary control put in place to use nitrile gloves as opposed to latex to protect against methyl mercury in addition to the standard radiation protection glove worn. He also stated that vapor exposures to mercury are monitored. Mr. Edwards said that all processes were re-evaluated and stated that throughout this evaluation, additional sampling was given a higher concentration. He stated that an outside company was hired to conduct mercury sampling and that over forty samples had been collected; conducting speciation which identifies whether mercury is elemental, ionic or organic. He said that the primary source for methyl mercury is associated with DWPF recycle. Mr. Edwards outlined the long-term actions for mercury; established an advisory panel for analysis of mercury to review processes. He stated the issuance of a report to better understand mercury behavior and the processes; recommending doing two system engineering evaluations or a structural evaluation of possible alternatives, ranking these alternatives in order to determine the best path regarding two issues. He stated the first issue is how to re-establish mercury capability in DWPF and the second issue is if there is an issue re-establishing mercury capability in DWPF, is there a way to continue mercury removal in the high liquid waste system. He stated that both system engineering evaluations have been completed and resulted in recommendations and actions that will all be complied into a long-term action plan.

CAB member Chris Timmers asks Mr. Edwards about the toxicity of mercury and does it affect the human nervous system? Mr. Edwards responds that breathing mercury vapors has an unhealthy affect and states that the organic compounds of mercury can penetrate the skin with dermal toxicity. Mr. Edwards describes the control limit set for worker safety. Michael Mikolanis, DOE-SR answers that mercury primarily affects nervous system with airborne going to the brain, with a major concern for other organs including kidneys and liver.

CAB member David Hoel thanks Mr. Edwards for a great presentation and asks him if mercury detected in elevated levels in Tank 50 and Saltstone had been operating, could mercury have ended up in Saltstone, violating control limit permit? Mr. Edwards responds that the control limit has been set primarily lower; resulting in quicker identification (control limit is significantly less than the toxicity limit). CAB member Hoel continues by asking if the control limit did exceed the toxicity limit while Saltstone had been operating, could a toxic form of Saltstone been introduced? Mr. Edwards responds that this scenario should be able to be prevented through continuous monitoring. CAB member Hoel askes Mr. Edwards if he is concerned with twenty-eight day grout curing and an incident occurring during this cure process? Mr. Edwards answers no and explains that a heads up is given before a formal report is issued.

CAB member Susan Corbett thanks Mr. Edwards and asks if mercury is permitted to be released in the environment. Mr. Edwards responds that there is a limit allowed to be released based on a permit. CAB member Corbett asks why mercury is changing overall and in Tank 50. Mr. Edwards responds that it is more the constituents related back to the recycle issue in DWPF. He says that about 43% of mercury going through DWPF is returned through recyclable water back into the Tank Farm evaporator system. He states that sludge waste must be removed but not mercury which then begins to build up in concentrations. He says that we must have a way to purge it from system and not allow mercury to collect.

CAB member John McMichael thanks Mr. Edwards for an excellent presentation and asks about the group of experts assembled to analyze mercury behavior and how will they play a part in moving forward. Mr. Edwards answers that they have participated in a second engineering evaluation system; finding alternate means to remove mercury, some via technology pursuits. He says that they have identified five technological areas to purse. He also states that they are actively engaged in reviewing an action plan to allow something not to be missed.

CAB member Nina Spinelli asks Mr. Edwards who sets mercury standards as to what is safe within the workplace? Michael Mikolanis, DOE-SR answers that the Environmental Protection Agency (EPA) sets it for the drinking water and that the Occupational Safety and Health Administration (OSHA) sets the limits for what is allowed to be breathed for the worker in the workplace. He states that these are the two primary agencies that regulate it.

CAB member David Hoel asks Mr. Edwards whether there is a connection between the Department of Health and Environmental Control (DHEC) mercury advisory for the Savannah River. Mr. Edwards responds that he is not aware of any connection.

CAB member Louis Walters asks Mr. Edwards has there been any sharing of information on whether this has occurred before or occurred at other facilities. Mr. Edwards answers that information is routinely shared with Oak Ridge, Tennessee as well as sharing within the DOE-Environmental Management (EM) system. He states that a mercury focus group has been established allowing the different elements to share information and pull resources among different levels to better understand.

Public comment: Bernice Howard for Georgia Women's Actions for New Directions (GA WAND) asks if the faulty filtration system has been corrected. Mr. Edwards responds that more mercury was collected over a fifteen year time frame, with a collection rate that might need to be increased to better collect more accurate samples. Edwards responds regarding the faulty filtration system; all systems will be addressed by a case-by-case status.

Presentation: Mercury/Antifoam, Richard Edwards, SRR, Continued

Mr. Edwards proceeds to continue the second portion of his presentation regarding antifoam. Edwards states that antifoam is used during the first portion of the Defense Waste Processing Facility (DWPF) process; referencing a cooking analogy with a pot boiling over and remedies including heat control and placement into bigger "pot." Edwards states that high level waste is being "cooked" in the first portion of the DWPF process, with ventilation system incorporated. He explains that the foam is then created, some remaining stable. Antifoam is added to help break this foam down if it occurs, if it does not occur, it will help to keep from forming. Antifoam is a chemical additive with organic methyl groups in silicone present in chemical makeup, used in DWPF to prevent the vessel from foaming over while heating and boiling sludge waste. An issue with antifoam includes a small fraction breaking down into three flammable components that was un-analyzed. To better understand the safety implication, antifoam use was halted until further analysis could be concluded. He further states that DWPF operations were halted until analysis justification was conclusive, with operations addressed and re-started on September 8. Long-term resolution issues are also being addressed. As a solution, antifoam was kept from being in a diluted state resulting in the production of the three flammable materials, with continued sample analysis ongoing. Edwards states that this particular antifoam was designed specifically for the DWPF process.

CAB member Virginia Jones thanks Mr. Edwards for an informative presentation on a short request.

CAB member David Hoel asks what the three flammable components referenced are. Mr. Edwards responds TMS, or tri-methyl siloxane, HMDSO, or hexa-methyl di-siloxane and another additional that Mr. Edwards will follow-up on.

CAB member Dawn Gillas regards the comp measure taken to prevent antifoam addition. Mr. Edwards answers that the initial response was to prohibit antifoam addition and then an analysis with safety measures taken; including the halting of antifoam dilution. Edwards states that these measures were included in the Justification for Continued Operations. Gillas asks if antifoam is being used again. Edwards confirms and states that continued use aids a better understanding. Gillas continues to ask how long this particular antifoam has been used. Edwards

answers that this antifoam has been used since the beginning of facility processes with cold runs in 1994-1995 and hot operations in 1996. It was refined throughout the late 1990s and early 2000s to come up with the exact form used today.

CAB member Susan Corbett asks what was used prior to antifoam. Edwards responds that antifoam was used from the beginning processes.

Discussion of Draft Recommendation: *Prepare a Lessons Learned Report on the Contract Failures for Manufacturing ASME Vessels for SWPF*

CAB member Earl Sheppard made the recommendation to pull the draft recommendation, *Prepare a Lessons Learned Report on the Contract Failures for Manufacturing ASME Vessels for SWPF* back. CAB member Hoel seconded the notion and a vote was taken.

Strategic and Legacy Management Committee Update, Bob Doerr, S&LM Chair

CAB member Bob Doerr welcomed everyone and recognized all committee members and purpose. The committee purpose observes the long term stewardship, long term policy, planning and other strategic matters. CAB member Doerr then presented the three open recommendations: Recommendation 323, *Safety Procedures and Emergency Preparedness*, Recommendation 331, approved by the Board with a response from the Department of Energy. Recommendation 331 was reviewed at a previous committee meeting. S&LM Committee approved the Recommendation 331 and the response from the Department of Energy regarding CAB meeting schedule for both full board and committee meetings yearly, along with location. CAB member Doerr states that the Department of Energy has also committed to supporting the CAB at outreach events. He then states that recommendation 333 received a response from the Department of Energy and will be reviewed at the next S&LM committee meeting.

Next Generation Working in Nuclear Industry, *Panel Discussion,* Matt Bodine (SRR) and Dr. Dan Hanson (NNSA)

Mr. Bodine thanks everyone and introduces Dr. Dan Hanson before beginning the purpose of his presentation. Bodine states that the purpose was to provide an update and positive feedback to the CAB and public on the direction of the next generation of SRS workers. Mr. Bodine then defines “AGENT” as the “Advocacy, Growth, Education and Networking Team” at the Savannah River Site. Mr. Bodine states that the group is a diverse representation of SRS, including members associated with SRR, SRNS, SREL, SRNL, DOE and NNSA. Mr. Bodine outlines the three topics of the presentation as leadership, technical growth and educational outreach with a panel discussion to follow. Mr. Bodine addresses his next topic, identifying the origin of the “AGENTS,” as the Enterprise SRS Sounding Board. He stated that the function of the sounding board was to be recognition of new employees at Savannah River Site. Mr. Bodine stated that as membership grew with different experts per field, the sounding board grew. Mr. Bodine then allows Dr. Hanson to begin his portion of the presentation regarding leadership for specific projects. Dr. Hanson discusses training and leadership opportunities and challenges across the Savannah River Site. Dr. Hanson discusses current members being a part of the Savannah River Site Leadership Association (SRSLA) and the Citizens for Nuclear Technology Awareness (CNTA). Dr. Hanson discusses the origin of the “AGENTS” and their influential role in discussions regarding long-term SRS goals. He closes by stating that leadership is a skill that the “Next Generation” is responding to at SRS. Mr. Bodine began his second half of the presentation by discussing technical growth. Mr. Bodine continues to reference the diverse range of experts located at SRS as a representation to the Site’s commitment to technical growth. He states that members of “AGENTS” include experts dedicated to their education and contribution to SRS. Mr. Bodine states the continued

training on Site allows technical growth as well as a rigorous standards process through the Department of Energy and technical exchange of knowledge between Sites. He continues by saying that Savannah River Site is not the only Site associated with Environmental Management (EM) and NNSA. Mr. Bodine begins discussion on a new nuclear learning event with the continued growth and education of everything nuclear, open to the public. He then begins his portion of the presentation on educational outreach supported by the Savannah River Site, CNTA and Community Reuse Organization. Bodine states that the educational outreach provides an excellent platform to provide information on future career paths to young students. Bodine continues this portion of the presentation by asking why is educational outreach important and cites a recent CSRA job study that references thousands of STEM jobs to come in the near future. Bodine continues to say that this is a chance to mentor young students and offer opportunities on Site. He states the current challenges as the aging workforce at the Savannah River Site, community participation and future workforce preparation. Mr. Bodine concludes his presentation by stating that the continuation and success of the Savannah River Site is the most important to the next generation on Site.

CAB member David Hoel asks how open are Site veterans to new opinions, innovation and a new way of operating. Matt Bodine answers by stating that safety comes first and secondly, employees have gone through generational diversity training to understand how to better communicate through generations.

CAB member David Hoel asks if AGENTS has any facetime with CEOs of contractor organizations. Matt Bodine answers, stating that AGENTS has presented at Presidents Forum and Mission Development Council to better communicate regarding the young generation on Site.

CAB member Clint Nangle thanks the presenters for their presentation. Nangle states that the main concern, in twenty-five years, is that cleanup will be completed. Nangle continues by saying that if more work is not brought on Site, what will be managed in the near future. Dan Hansen answers that the current mission with environmental cleanup and nuclear security on Site is the number one priority. Hansen answers that the young generation is harnessing years of experience from aging workforce and continues to get the local community empowered to create overall mission for Site.

CAB member Bob Doerr asks about outreach to schools, to specifically seek an engineering degree. Hansen and Bodine concur and highlight need for engineers at SRS. Doerr asks if either presenter has noticed a general interest in engineering. Bodine answers that the Site has a huge impact on surrounding communities and should allow focus in local schools on engineering. Bodine states that the educational outreach program does focus on nuclear technology and awareness, partnering with the Nuclear Literacy Project to develop modules for children learning about nuclear energy.

CAB member Gil Allensworth asks how Savannah River Site is financially competitive for the young workforce with non-government agencies. Bodine answers that the private sector financial instability has contributed to the government sector gaining individuals in the workforce. Allensworth asks if the organization is doing anything particular with soft-skill training. Jim Giusti (DOE-SR) answers that recruitment in the southeast is steady for individuals wanting to remain in this area. Giusti continues by stating that the Savannah River Site is partnering with local two year degree technical colleges to prepare future soft-skill employees. Giusti continues to state that the greatest challenge for the Savannah River Site is the digital age and the lack thereof in keeping younger generations from being interested in joining the SRS workforce. He continues to say that the security requirements on Site are difficult for the younger generation to become accustomed to since the Site has limited cellular phone use in specific areas.

CAB member Susan Corbett states that new energy sources of the future need to be explored and continues by discussing the need to increase new energy alternatives for the future with the Savannah River Site by diversifying and branching into new technologies.

CAB member Dawn Gillas praises the presenters for a great presentation. Gillas states that input for the future will come from Department of Energy management and not based on the contractor level. Gillas continues by saying that the new generation needs to get into DOE management and move away from overall political reasons.

CAB member Eleanor Hobson asks how can youth become more involved in becoming CAB members and participating in CAB decisions. Bodine answers that involving input from guidance counselors and career specialists is important and states that AGENTS will begin to spread the message for CAB involvement to the younger generation.

CAB member Louis Walters praises presenters on a great presentation and asks if either of the presenters has had the opportunity to present in Richmond County, GA and counties in South Carolina. Walters continues to ask what reaction is received from minority students. Bodine answers and references a recent event that as a STEM presenter, more minority students personally asked in regards to his presentation. Hansen answers and references a recent presentation at a local university that included over fifty students that were eager and engaged in the presentation, resulting in a positive experience.

CAB member Clint Nangle states that regarding the entire field of new energy, besides nuclear, that the National Lab takes particular involvement as a catalyst and leader to new and innovative technologies resulting in much more productive future. Marissa Regal (Savannah River National Laboratory) answers that the Lab has a clean energy directive including renewable energy with efforts to expand the scope of the National Lab.

Public Comments

Asks audience if anyone else present is a member of the public and further asks the CAB to take the lack of public participation into consideration for Recommendation 331.

-Meeting Adjourned

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Che Long, GA WAND
Tom Clements, SRS Watch
Nancy Bobbitt, US Senator Isakson
Kelly O'Neal, Rep. Rick Allen
Martha Ruthven, Congressman Joe Wilson
Don Bridges, Public
Frazer Lockhart, SN3

CAB Chair Opening and Update – Harold Simon, CAB Chair

CAB Chair Harold Simon opened the meeting before leading everyone in the Pledge of Allegiance. He welcomed everyone to the meeting.

CAB Co-Chair Nina Spinelli addresses topic discussed at previous CAB Full Board Meeting regarding funding for supplemental environmental projects given that EM funding allocated to DOE and/or NNSA for EM work should be used to protect and improve the health and environment of the citizens of the geographic area and population effected by the previous disposal of legacy wastes at DOE sites in lieu of fines and penalties that could be required at the respective facilities. The EM Site Specific Advisory Board recommends that DOE consider supplemental environmental projects as a beneficial means to accomplish the legally mandated cleanup goals at DOE facilities. In addition, the U.S. Environmental Protection Agency (EPA) and most state regulatory agencies allow the implementation of SEP's in lieu of civil penalties when such payment and fines are implemented. This is broken down into seven categories that include public health, pollution prevention, environmental protection and restoration, environmental assessments, environmental compliance and renewable energy. The CAB recommendation is that the Department of Energy Environmental Management (EM) pursues SEP's in lieu of fines and penalties, propose SEP's in settlement of enforcement actions and use SEP's to primarily benefit the community that is directly impacted by the violation.

CAB Chair Harold Simon called the recommendation to be voted upon by the CAB. Recommendation was approved.

CAB Chair Harold Simon encouraged other committee chairs and members to identify topics that should be included and addressed in the Work Plan. Mr. Simon discusses the Educational Process Session and its purpose, to refresh CAB members on general knowledge regarding Site operations, to provide presentations by subject matter experts, provide information to assist CAB members in making informed decisions, update new members on basic Site issues and topics and review internal processes for any recommended changes. Mr. Simon notes his attendance to an SRS Information POD and commends all experts and staff involved with the presentations. Mr. Simon continues by suggesting it be added to the CAB Educational Process Session and announces decision to have SRS POD presentations included in the Educational Process Session. Mr. Simon announces that CAB member Eleanor Hopson along with the CAB Support Team will begin to develop and implement a plan regarding specific events the CAB will attend. Mr. Simon encourages CAB members to sign up for these opportunities and accompany de'Lisa Carrico (DOE-SR) and the CAB Support Team in reaching out to the public.

CAB Facilitator, Tina Watson, Time Solutions, reviewed the Meeting Rules and Conduct and meeting agenda. She said public comment periods were scheduled throughout the meeting and asked everyone interested in making a public comment to sign up at the back table. She encouraged all members to ask questions and seek clarification. She asked everyone to place cell phones and pagers on silent before introducing Mr. Terry Spears, Deputy SRS Manager, to begin his agency update.

Agency Updates

Mr. Terry Spears, Deputy SRS Manager, Department of Energy – Savannah River (DOE-SR)

Mr. Spears welcomed everyone and thanked the CAB members for their continued interest in SRS and recommendations to the Department. He thanked members of the public for attending the meeting and he briefly mentioned the safety topic regarding an incident in a parking lot on Site where an employee walking in the parking lot was hit by a slow moving vehicle. He continued to state that the individual sustained injuries and that the sun was extremely bright the morning of the accident, reminding everyone that your vision can be impaired in broad daylight. He furthered by saying that it pays to slow down and stop while in that situation. Mr. Spears stated that the first topic in the update was to clear up any concerns regarding the Commercial Spent Fuel from the Byron Facility coming to Savannah River Site. Mr. Spears directly stated that SRS is not involved with this activity and that the DOE Office of Nuclear Energy had inquired on the capability of SRS. Mr. Spears stated that the response was that SRS was not capable of that project. Mr. Spears then stated his second topic regarding the budget and said that a continuing resolution remained. He stated that the continuing resolution was passed by Congress to last through December 11 and references John Lopez (DOE-SR) and the budget briefing that CAB members will receive during this Full Board. He then discusses the budget deal reached by the President and Congress, covering two years. He continues by stating that the President and Congress will still have to pass spending bills underneath each agreement and reemphasizes reaming under a continuing resolution. Mr. Spears then discussed the regulatory milestone for startup of the Saltwaste Processing Facility (SWPF) and noted the productive discussions that SRS has had with South Carolina Department of Health and Environmental Control (SCDHEC) regarding the startup milestones on the saltstone permit. Mr. Spears then stated that SCDHEC, as part of that discussion, agreed to refrain from initiation of enforcement actions or civil penalties relating to SWPF through December 18, 2015, allowing discussions to continue. Mr. Spears stated the appreciation to DHEC's willingness to allow discussions to continue and get the issues resolved. Mr. Spears then continued to discuss the status of the operational pause and reported that all facilities at Savannah River Site have entered deliberate operations with the exception of HB Line

which remains in operational pause. Mr. Spears stated that HB Line is on track to enter deliberate operations by the end of November. Mr. Spears continued by saying that DOE is continuing to monitor SRNS progress on returning to operations. Mr. Spears outlined the root cause analysis associated with the initial event that caused the operational pause and stated that it was complete. Mr. Spears details the root causes which include willful procedure violation, the unwillingness of team to call a timeout when processes were unclear in the procedure, significant departure from the expectations of management regarding disciplined operations, less than adequate first-line manager performance and less than adequate management engagement. Mr. Spears stated much has been learned from this root cause analysis in the hopes of contributing to safer operations in the future. Mr. Spears stated that no facilities had completed actions required to exit deliberate operations and that sustainability plans are being regarded so that when SRNS exits deliberate operations and returns back to more routine operations, SRS is not faced with a similar circumstance. Mr. Spears furthered by saying that sustainment plans should focus on future actions as far as preventing reoccurrence and stated that the initial sustainment plan is complete. He detailed that this would be a living document, to be continually revised. Mr. Spears detailed the sustainment plan, further stating that it includes a half day pause by H-Operation every month for six months to ensure that lessons learned can be displayed in the facility and its operations, an externally led assessment of nuclear operations, focusing on the nuclear safety culture of the organization, quantifiable improvements in the training and qualification program, improvement to the contractor assurance system. Mr. Spears said long-term actions necessary to sustaining improvement must include periodic self-assessments and internal evaluation board assessments, a high-level, independent board that SRNS runs to review the operational discipline in the facilities, operational pause periods and routine periodic involvement of the operational excellence organization continued into the future. Mr. Spears stated that on November 4, a Site contractor radiological protection department discovered fixed contamination on a compressed gas cylinder being prepared for return shipment to a vendor in Augusta, GA. He then stated that the cylinder with the radioactive contamination has been processed through the facility. He stated that as a result, the Radiological Assistance Program (RAP), run by the National Nuclear Security Administration (NNSA), deployed personnel to this vendor location to determine if any other issues existed with any cylinder associated with SRNS. Mr. Spears acknowledged that a courtesy notification was made to state officials from both Georgia and South Carolina Mr. Spears stated that the RAP team completed surveying sixty-six compressed gas cylinders at the vendor location on November 11. He continued to state that no contamination was found on the other cylinders. Mr. Spears stated that the Site Radiological Protection Department continues to conduct sampling and testing of the radiological contamination found on that single compressed gas cylinder to determine what it is composed of and its origin. Mr. Spears begins the next topic of the agency update with the liquid waste program. He stated that Savannah River Remediation (SRR) has operationally closed Tank 16 ahead of schedule. Mr. Spears stated that Tank 16 is the seventh high level liquid was tank closed at the Site and the fifth tank closed since 2012. Mr. Spears said that SRR is now in a position to begin grouting, one of the final closure actions. He said that this would allow for Tank 12 to be closed ahead of schedule in May 2016 closure date, a regulatory milestone. Mr. Spears then stated that the Defense Waste Processing Facility (DWPF) produced ninety-three canisters of vitrified waste in the Fiscal Year (FY) 2015, bringing the total number of canisters to 3970. Mr. Spears then stated that hopes to achieve the 4000th canister of radioactive glass this year, a milestone for DWPF. Mr. Spears continued with an update on the Interim Salt Processing System (ARPMCU) processed approximately 752,000 gallons of waste, bringing the total to salt waste processed through that facility to 5 million gallons under the current SRR contract. Mr. Spears stated that in FY 2015, 828,000 gallons of decontaminated salt solution was disposed, along with a million and half gallons of grout through the saltstone facilities. He stated that the total number of gallons of saltstone processed is 8.1 million gallons. Mr. Spears stated that SRR also created 2.7 million gallons of tank space through the Site's two evaporators and praised this good performance, stating that this was the best space gain since 2010. Mr. Spears continued his update by discussing Saltstone Disposal Unit 6 (SDU6) had finished primary construction, a 30 million gallon structure. He stated that leak tightness testing began in October

and the tank was finished being filled with water on November 3, 2015 and is being used as a leak check for the facility. He said as part of the testing, it is filled with water with a florescent dye added, the purpose of the dye allows damp spots on the exterior of the SDU to be easily identified. He stated that the dye allows water from inside the facility to be easily distinguished when compared to atmospheric water or groundwater. Mr. Spears continued with an affirmation that damp spots outside the unit did fluoresce, as they are coming from inside the facility. He then stated that corrective action includes draining the unit and repairing the leaks from the inside to ensure water tightness. Mr. Spears stated that draining the SDU began on November 11, 2015 and once repairs are completed, leak tightness testing will be continued to demonstrate a leak tight container for the grout. Mr. Spears said that the smaller SDU also had leakage, but were successfully repaired prior to any waste disposal. Mr. Spears detailed further into SDU 6, stating that it will be drained into the existing drainage water basin, which drains to waters of the state. He said when discharged the water will traverse over land and will empty into an onsite tributary to the Savannah River. He stated that the dye used is certified by a public health and safety organization for use and drinking water. Mr. Spears stated that there are no health and safety concerns about discharging the dye into the ecosystem waters. Mr. Spears said that this was consistent with approaches taken in the past. Mr. Spears continued his update and stated that the double stacking of canisters in October 2015 relocated 156 canisters of vitrified waste from glass waste storage building number one, relocated them to glass waste storage building number two and began modification process for double stacking the canisters within glass waste storage building number one. Mr. Spears stated that the double stacking of the canisters could begin early 2016 and detailed the concept of double stacking as the modification process to double the capacity of that facility, allowing the life of that storage building to be extended without having to build another facility. Mr. Spears then gave an update on the Saltwaste Processing Facility regarding the construction at 91.2% complete with contactor installation completed October 5 as a major construction milestone. Construction completion is still anticipated for December 2016 with a contractor completion scheduled for April 2016, ahead of current schedule. Operation with radioactive waste is still anticipated by 2018. He outlines several accomplishments within the Nuclear Materials Program; including 80 bundles of MTR spent fuel dissolved in H-Canyon which met the FY15 planned goal, nine destructive examinations of 3013 containers or plutonium storage containers were conducted in K Area to ensure to continue safely storing material. L-Area accepted 8 casks of foreign and domestic research reactor spent fuel in support of the nation's Non-Proliferation Program. The Shielded Transfer System Modifications for acceptance of spent fuel from Canada was completed along with completion of changes to the 235F building safety basis documentation with restoration of infrastructure in cells 6 through 9 to support the beginning of risk reduction activities in this facility. Work has been authorized in building 235F to proceed in cells 6 through 9, with hot cell shield windows drained and outer glass removal in nearly complete. Once this is completed, SRNL will then conduct a more precise analysis of the type and amount of material present within the cells, with significant amounts of plutonium 238 expected. He proceeds with an update on Environmental Cleanup and Site Services and states the 2014 Environmental Report link went live on the SRS external webpage on October 1. He states that SRS has successfully re-negotiated the electrical power and transmission maintenance contract with SCE&G, a ten year, three-hundred million dollar contract that helps Site maintain high voltage infrastructure and will provide power distribution to the Site for the next ten years. In FY15, SRS met or exceeded all FFA and Resource Conservation Recovery Act milestones. Mr. Spears gives an update on D Area, stating that ash consolidation has been completed. The basin is being transitioned to a water management basin with 2D currently being backfilled to long-term manage rainwater within facility. In 4D, the surface is continuing to bee dried and contoured in preparations for the installation of a 21-aacre geo-synthetic cover with requests for proposals for the D Area Ash Phase 2 subcontract will be issued on Nov. 30. Mr. Spears gives a Savannah River National Laboratory Update (SRNL) by stating that SRNL has increased work with Hanford, approximately 12 million dollars in FY15, helping Hanford successfully target disposition of legacy waste. A fixed office will be staffed in Washington State to better support Hanford in the near future. SRNL has also established a permanent liaison to EM Headquarters, a one year,

rotating laboratory position in Washington, D.C to support the Office of Environmental Management. Mr. Spears references David Hobbs currently serving as the Headquarters liaison for the Lab. SRNL administers the Minority Serving Institution Program for EM Headquarters, a program that supports science, technology, engineering and mathematics activities at minority serving institutions. This is part of EM's overall effort to increase the community of technically skilled minority students who understand the breadth and significance of the EM mission and who will be the next generation entering DOE's workforce throughout the country. In conjunction with the SRNS Board of Directors, SRNL has also established a University Scholars Program, a four hundred thousand dollar scholarship investment, creating an exposure to SRNL researchers for students. The pilot of this program has identified the first round of five USC Aiken students at four thousand dollars per student, per school year with plans to export the program to other universities. SRNL signed a licensing agreement with Shine Medical, a Wisconsin based company, enabling Shine to use unclassified tritium processing technology developed and managed by SRNL to produce isotopes used in medical analyses. SRNL deployed the grey cube gamma radiation mapping device at Hanford at the plutonium reclamation facility there. The field deployment is sponsored by a plateau remediation company, with deployment goal to include the mapping of distribution and location of contamination hotspots in the plutonium reclamation facility canyon. SRNL researchers visited the UK's National Nuclear Laboratory as part of a personnel exchange to improve environmental management knowledge, acting as an information sharing program between both countries. SRNL is collaborating with personnel from the Pacific Northwest National Lab to study the advanced waste form, glass ceramic for mobilization of waste from spent nuclear fuel. These studies are sponsored by the DOE Office of Nuclear Energy. SRNL is collaborating with the DOE Office of Legacy Management to asses former uranium milling and tailing disposal areas in the western United States. One of these sites is located in Riverton, Wyoming. The data from this site highlights the importance of the resulting mineral precipitation at arid and semi-arid sites. The data confirmed that regional climate and hydrology are key factors that influence the behavior of sub-surface contaminants and the potential effectiveness of alternative remediation options. SRNL met with representatives of the Naval Undersea Warfare Center to discuss progress on a joint initiative to evaluate solid hydrogen storage systems for un-manned, underwater vehicles, considering alternatives to batteries for powering these small vehicles. Independent technical evaluation was provided by SRNL and PNL to Tokyo Electric Power Company in implementing a frozen soil barrier as a counter measure to address contaminated water in the environment around the Fukoshima reactor in Japan. This soil barrier limits the infiltration of groundwater into the reactor and potential release of contamination through that pathway. He continues as part of the overall strategy to reduce the level of mercury in the liquid waste system, a team from SRNL, SRR and external entities was chartered too identify and examine options to determine the best available means to remove mercury from the system and to provide recommendations and preferred options. Mr. Spears notes the extent of involvement of SRNL with various topics and the extent of the overall SRS mission as an active progress maker.

CAB member Nina Spinelli asks what the gas cylinders referenced in the DOE-SR Update given by Mr. Terry Spears are used for on Site. Mr. Spears responds they are used for breathing air. Susan Corbett, CAB thanks Mr. Spears for the update and asks what the consequences are for personnel when a serious breach of protocol occurs, in reference to the operational pause; she continues to ask if they are re-trained or re-evaluated. Mr. Spears answers that this particular incident at HB Line, as the investigation ensued, found that significant portion of the event was due in cause to bad decisions and poor judgement. He continues to state that as the investigation continued, the individuals involved had to be appropriately handled with a disciplinary review based on the individual's company discipline action and in this case, did result in termination of employment for some individuals involved. Mr. Spears continues to explain that this is not always the response but this was not the case with the operational pause therefore Savannah River Nuclear Solutions (SRNS) took appropriate action. Susan Corbett, CAB asks in regards to the cylinder contaminated, what contamination was involved. Mr. Spears responds that the analysis is still

ongoing. Susan Corbett, CAB asks where information is available to see how many curies are still present in each tank. Jim Folk, DOE-SR answers that this information is recorded and available in the closure module published with each tank closure and posted on the website. Susan Corbett, CAB asks if the double stack canisters will gradually be retro-fitted and moved all back in at once. Jim Folk, DOE-SR answers that 156 canisters have been moved from building one to building two; a set will be modified each time as available space is needed. Bill Rhoten, CAB asks Mr. Spears if the reason the fluorescent dye was used for leak testing in Salt Disposal Unit 6 is due in part that it has higher levels of magnitude as opposed to a color metric dye. Mr. Spears answers that it was used due to its color and chemical constituency, made it very apparent that it was present and allows for more detectability and less ambiguity. Jim Folk, DOE-SR references a presentation to occur later in the day by Carl Lanigan, SRNS on Saltstone Disposal Units to further answer Mr. Rhoten's question. Murlene Ennis, CAB asks if there is a point of contact for the SREL Minority Serving Institute. Mr. Spears responds that Patrick Jackson is the point of contact for DOE-SR and states that the laboratory point of contact can be followed up on. CAB member Ennis continues to ask if the selection of the universities in reference to scholarships is a definitive selection or will others be added. Mr. Spears answers that for the scholarships, this is definitive as most are local and regional universities and that a further update can be given. David Hoel, CAB asks what effect there was on SRS on the recent hurricane heavy rain event. Mr. Spears answers that no significant damage was associated. CAB member Hoel asks if SRS received any notices of violation from regulators regarding the dams. Mr. Spears responds no. CAB member Hoel proceeds to ask if SRS has received any notices from regulators in the past two months since the last DOE-SR Update to the CAB. Mr. Spears responds no. Hoel continues to ask if SRS has made any self-reports of non-compliance during this period. Mr. Spears responds yes. Hoel asks Mr. Spears to please elaborate. Michael Mikolanis, DOE-SR states that information can be retrieved for CAB member Hoel. Hoel asks how much the potential fines for missing SWPF milestones could amount to. Mr. Spears states that they are significant and comments that they are public record and states that this can be followed up on for CAB member Hoel. Hoel comments that there is cost avoidance to building another canister building and asks what the total estimated cost of the double stacking of the canisters is. Mark Schmitz, Chief Operating Officer for SRR states that the total working cost for the double stacking of the canisters was around seventy to eighty million dollars. Hoel states that building another storage building was 74 million in cost and is corrected by Schmitz with the exact total of 155 million. Mr. Spears also comments that aside from the cost difference, that moving canisters is an operating cost and not capital cost; allowing the operating budget to be used to address the issue as opposed to having a large line item capital project that is difficult to be funded and to sustain the appropriated cash flow needed to operate the facility. CAB member Hoel asks the highest number of high level waste canisters produced by the Defense Waste Processing Facility (DWPF) in one year. Jim Folk, DOE-SR answers that 275 canisters were produced in one fiscal year. He continues to state that there was also a twelve month period outside a fiscal year where 320 to 330 canisters were produced. Hoel continues to ask if DWPF has ever produced a smaller number than it did in 2015 in a year. Mr. Spears responds that 2015 resulted in a small number of canisters produced and is among the lowest produced. Jim Folk, DOE-SR responds that the antifoam issue led to a slower process due to being down for four to five months, but the process is continuing to run with a projected 150 canisters this year. CAB member Hoel compliments DOE-SR on the recent information POD held at Aiken Technical College in Aiken, South Carolina and asks for the attendance numbers for that specific POD. Mr. Spears answers that sixty total attended. Dawn Gillas, CAB is complimentary of the work in 235F. Susan Corbett, CAB references the recent flood from hurricane weather and asks if current models exist with that level of rainfall factored in to the dams and facilities on Site. Mr. Spears states that this can be followed up on to retrieve the degree of analysis and continues to answer that significant modeling of dams on Site has been completed. Virginia Jones, CAB regards MOX and the budget and states that the newspaper has been covering this issue extensively and asks as far as DOE-SR is concerned and if government funding is halted, can this be re-reviewed by Mr. Spears. Mr. Spears reminds the audience that the Mixed Oxide Fuel Fabrication Facility is not with the Office of Environmental Management's purview, resulting in little insight into internal debates. Mr.

Spears states that there have been assertions from the administration that this particular facility is not necessary and is an ongoing debate. Mr. Spears encourages the CAB to continue to stay informed as information develops through periodicals and newspapers and states that there is no additional information to share. CAB member John McMichael thanks Mr. Spears for his update and asks in regards to the question asked earlier about significant damage to SRS due to the recent weather event; Mr. McMichael asks if preparation was made ahead of the extreme weather to eliminate possible significant damage. Mr. Spears responds that when extreme weather is anticipated, precautions are taken to ensure the safety of employees. Mr. Spears also references the Savannah River National Laboratory (SRNL) has a meteorology program present to analyze weather patterns. CAB Facilitator Tina Watson asks if there are any additional questions from the CAB regarding the DOE-SR update following with an introduction to Rob Pope for the Environmental Protection Agency (EPA) update.

EPA Update – Rob Pope, Environmental Protection Agency

Mr. Pope begins his update by stating that there will be a joint environmental justice meeting with DOE-SR and EPA present and encourages a CAB presentation for this meeting. Mr. Pope continues to state that DOE and EPA have worked to host environmental justice meetings throughout the community and in different locations to reach a broader audience; using EPA resources to establish the meeting and continue the outreach. Mr. Pope references joint work at SRS between the EPA and DOE-SR including D Area Ash site as an ongoing project with updates given in environmental bulletins. Mr. Pope further details the D Area Ash site work by stating that the ash is being dug up, consolidated into smaller units and then capped for the long-term. Mr. Pope continues to state that difficulties have arisen with this project including the sampling and detection of chromium within the ash. Mr. Pope further states that there is an active soil vapor extraction system present in A Area located at SRS; working to take solvents from the soil. Mr. Pope states that this system has been working well with removal of large amounts of contamination without the use of diesel to maintain the air stripper, allowing for a greener cleanup method. Mr. Pope states that there was supplemental investigation by SRS at a place called the chemicals, metals and pesticides disposal pit (a former cleanup site with contamination recently detected). Mr. Pope states that at the TNX site, also known as the T Area operable unit, still has solvent issues with the groundwater and although there are ongoing, effective cleanups for this location with large cap present, edible oil injections are currently occurring. This method adds a food for the bacteria native in the aquifer in the groundwater to break up the contamination present. Mr. Pope continues to state that regarding the issue with flooding and extreme weather, P Reactor and R Reactor have been completed and grouted. These two reactors were the major contributors to the contamination found in Par Pond located on Site. As a result of those sources, the EPA is beginning to scope the contamination in Par Pond including the detection of Cesium 137. Mr. Pope states that a complete investigation has never been attempted; however it has been continually monitored and will begin to be investigated. Mr. Pope states that the EPA has an interim decision on Par Pond to maintain the water level at a certain elevation to keep sediments covered by water; shielding these sediments from deer. Mr. Pope references the extreme weather and local flooding as an issue that will be approached and taken into consideration in relation to Par Pond water levels. Pope states references the caps located on Site and states the overall EPA effort to promote and plant wildflowers on these caps to further encourage pollination and to aid the honey bee population. Mr. Pope continues to reference Tank 12 closing, and Tank 16 will result in a decision document for monitoring and maintenance. He also states that there is currently a milestone present for this fiscal year for closure of two more tanks located at SRS.

CAB member Louis Walters directs question and asks for further elaboration on the legal position of a Site contractor with an updated count from Terry Spears in reference to the word “owner” in relation to the Site contractor. Mr. Spears addresses the question and states that the Department of Energy is recognized as the

owner of the 310 square miles of SRS. He continues by saying that the department executes its work through contractors that are hired to do the work of the agency at SRS. Mr. Spears states that the roll of "owners" includes the decision on the scope of work and policies with performance assessments of the contractors through monitoring and direct observation. Mr. Spears states the department maintains liability for nuclear operations as long as no negligence is involved and references the Price-Anderson Act. CAB member Walters asks for the number of contractors present on Site. Mr. Spears responds that there are several including Savannah River Nuclear Solutions (SRNS), Savanna River Remediation (SRR), Parsons, Centerra and AMERESCO to reference examples.

CAB member Susan Corbett references an EPA push to lower the radiation dose for the general public and asks if this is still an ongoing decision. Rob Pope addresses her question by stating that this reference is not related to the cleanup but is however related to the Office of Radiation and Indoor Air and how they evaluate the dose to the general public. This process includes evaluating the assumptions of what dosage the general public receives, which has varied throughout time as technological innovations continue to grow. Mr. Pope states that nothing has been changed at this point in regards to the overall dosage for the general public. Mr. Pope continues to say that this does not impact what happens with the Superfund program due to the observation of very Site specific risks and pathways that the public can be exposed to contaminants. Mr. Pope states that a Site specific carcinogenic risk is generated.

Ms. Tina Watson asks if there are any further questions for Mr. Pope from the CAB and introduces Kim Brinkley for South Carolina Department of Health and Environmental Control (SCDHEC).

SC Department of Health and Environmental Control Update, Kim Brinkley, SCDHEC

Ms. Brinkley states that she is present for Shelley Wilson scheduled to deliver the SCDHEC update to the CAB. Ms. Brinkley begins the update by stating that the Saltstone Disposal Facility permit issued by DHEC contains a Salt Waste Processing Facility (SWPF) startup milestone of October 31. She continues to say that DOE has missed this startup date and is subject to penalties in excess of 150 million. Ms. Brinkley states that SCDHEC and DOE have been discussing a possible extension along with enhanced waste treatment commitments which are effected by fiscal year 16 (FY16) funding; therefore DHEC has agreed to delay enforcement of the startup date until December 18, allowing time for a continuing resolution. She states that the key to meeting these milestones is maximizing waste treatment and that sufficient funding is essential to fuel treatment. She says that maximum treatment capacities are needed, specifically an existing DWPF and ARPMCU and commitment to SWPF solvent. She references cleanup activities including a Site visit to by SCDHEC and EPA to scope the Lower Three Runs Integrator Operable Unit. The visit consisted of a boat tour of Par Pond and remaining sections of the canal. These visits are part of the phase three scoping activities, with Lower Three Runs to be the first integrator operable unit to enter phase three. Ms. Brinkley continues by stating that work continues at D Area with DHEC regional staff continuing to monitor through weekly Site visits and has received the Federal Facility Agreement Appendix E. It is being reviewed and comments will be provided. Ms. Brinkley states that the 37 million gallons of radioactive and toxic liquid waste in aging Tanks located on SRS is the single largest threat in SC. She says that SCDHEC and DOE have successfully collaborated to close seven tanks with the remaining old-style tanks under an enforceable closure with a risk reduction now in jeopardy. Two factors are jeopardizing all tank closure milestones after 2016; DOE has requested insufficient funding levels since fiscal year 14 (FY14), the startup of Salt Waste Processing Facility (SWPF) has been delayed. The administration's FY 14 budget request of 552 million contained a drop of over 100 million for SRS liquid waste, the largest reduction for any Site in the Environmental Management budget. Subsequent budget requests have been at similar levels. The reduced budget has waylaid the existing treatment facilities to a third of potential capacity since FY 14. Slow treatment leads to slow tank closure and the SWPF construction delay

also jeopardizes tank closure milestones because it delays additional treatment. She states that DOE could mitigate this delay by maximization of treatment capacity.

CAB member Virginia Jones thanks Ms. Brinkley for her update and requests the update in writing as well. She asks DOE to address Ms. Brinkley's statement on not requesting enough in the budget. Jim Folk, DOE-SR addresses the specific reference as a budget request from two years prior representing the liquid waste program as 100 million dollars underfunded. He stated that the major impact from a funding perspective and the reason for the delay, the FY 16 funding and the continuing resolution, SWPF will have a 59 million dollar budget increase for FY 16. He says that the major status currently is whether that continuing resolution will be resolved and if FY 15 levels of funding are continued. The SWPF facility will only receive 135 million dollars with a request for 194 million for FY 16. He stated that the issue lies within the funding for SWPF. Jim Giusti (DOE-SR) to further address the original question by stating that limits were put into place that further impacted how much funding could be requested. He stated that this limitation does not meet milestones but because there is a limit for the budget, DOE-SR has to work within this limit. Mr. Giusti continues by saying that the shutdown of Waste Isolation Pilot Plant (WIPP) with a potential re-start is taking budget away from all Sites. He states that within discussions with EM management, SRS is in the top three priority list for funding.

CAB member Virginia Jones states that at her recent SSAB meeting she discussed priorities and budget with WIPP representatives and that the influence of WIPP being the main funding priority was directly influenced by politicians. She asks if this is a route Aiken, SC can take as well. Mr. Terry Spears (DOE-SR) addresses her question by stating that all citizens have their vote and letters to Congress that can improve perspective. He states that the sequestration challenges within the budget have made an impact. He encourages members of the CAB to continue to participate.

CAB member George Snyder directs question to Terry Spears (DOE-SR) regarding the recent terrorist attacks in Paris, France. He references a recent newspaper article and a quote from Sen. Tom Young who specifically mentioned Aiken County, South Carolina as a target due to SRS. He continues to ask if there have been any recent security measures at SRS due to this event. Mr. Spears answers that a high state of security is maintained 24/7 on Site. He addressed that when any information regarding potential events from intelligence agencies is received, measures are taken to increase security.

CAB member David Hoel directs a question to Kim Brinkley (SCDHEC), asking whether DHEC regulates any dams located at SRS. Ms. Brinkley responds that they do not.

Public Comments

Tom Clements (Savannah River Site Watch) addresses the SRS Update and discusses permission given by the Nuclear Regulatory Commission (NRC) for commercial spent fuel being used for research purposes to be brought to Savannah River National Laboratory (SRNL) while simultaneously approval was given for shipments from Byron to Oak Ridge, TN. He states that a Freedom of Information Request was filed recently regarding the NRC's approval given to a shipping company located in Atlanta, GA. He states that the need for a NEPA analysis is vital and will continue to be pushed even if the commercial spent fuel is being used for research purposes. He regards the Canadian shipment of high level waste to SRS and states that there is no need to re-locate this to SRS. He says that DOE should leave this material in Canada, de-natured. He then states that the German Spent Fuel Waste and the live proposal to bring graphite spent fuel from Germany. German Nuclear Waste Commission adopted a resolution not to export this specific material. He states that DOE has said that this has no proliferation risk if it stays in Germany. He states that his letter regarding the re-location of this waste to the DOE-SR Manager, Jack Craig has

not been responded to nor has DOE Headquarters responded. He states that SCDHEC and their December 18 deadline for SWPF should prevent future waste from coming to SRS and allows for further negotiating positions. He urges SCDHEC to put forth conditions including Canadian and German waste not traveling to SRS along with other materials to be included into the tanks.

Facilities Disposition and Site Remediation Committee Update, Tom Barnes, FD&R Chair

FD&SR Chair Tom Barnes welcomes everyone to New Ellenton, SC and introduces the committee members. He states that Recommendation 332, *Health Effects Reported by SRS*, is the only open recommendation at present. He states that there are no pending or draft recommendations. He says that the next committee meeting will take place on December 8 at the New Ellenton Community Center in New Ellenton, SC from 6:30 PM to 8:20 PM and encourages attendance. CAB member Barnes introduces the first presentation, Federal Regulatory Oversight, presented by Rob Pope, EPA.

Presentation: Federal Regulatory Oversight, Rob Pope, Environmental Protection Agency (EPA)

Mr. Pope begins by stating the purpose of his presentation as the discussion of the EPA role at Savannah River Site, the origin of Superfund and its application to SRS along with the EPA involvement in the remediation and cleanup program. He states that the EPA is an independent agency formed in 1970 and has remained an independent agency. He explains that Congress writes the environmental laws and that the EPA then writes the regulations to input these laws. He states that the EPA enforces regulation and sets national standards, with the EPA broken into ten regions. He then discusses the Superfund as the nickname for the Comprehensive Environmental Response Compensational Liability Act, an act that initiated a tax on chemical companies. From this tax, a fund was created to be used to cleanup abandoned disposal sites. It was amended in 1986 and was a reactive law due to places and incidents of negligence on the behalf of disposal companies. As a result, the National Contingency Plan was put into place that lays out rules and procedures and established the risk level that triggers cleanup action. The National Contingency Plan states that anything that would cause an increased lifetime cancer risk for more than one in a hundred thousand people is a trigger action for the EPA, resulting in the EPA response of lowering this risk to one in a million people. He then states that Federal facilities should be applicable to this law as well with the responsibility to designate EPA as a rule maker for cleanup. He states that in reference to the Department of Energy, sites have been included in the EPA scope for cleanup including SRS, Padooka and Oak Ridge. He states that EPA is active on Department of Defense facilities as well. He says that SRS was added to the National Priorities List for the EPA as the worst Superfund site(s) in 1989. As a result of being added to the list, SRS was required to negotiate a Federal Facilities Agreement, a legal agreement that sets up milestones and cleanup processes and is a court registered document. This agreement is a three party agreement and must be signed by DOE, EPA and the state of South Carolina. Decisions made within the Superfund for cleanup work at SRS are also three party decisions. He then references federal statutes at SRS, taken into consideration under Superfund. These include CIRCLA, the Resource Conservation Recovery Act, the Oil and Pollution Control Act, Safe Drinking Water Act, the Clean Water Act and the Clean Air Act. These are all referenced upon a decision. He then states the EPA oversight of remedial actions and cleanup at SRS and adherence to the National Contingency Plan and Superfund, EPA gives guidance over cleanup and documentation. EPA provides various information and training for specific cleanup activities. Mr. Pope states that before activities can occur, the EPA and the state of SC must concur on that record of decision. This includes the course of action for the activity and any operations involved. EPA and the state will then receive regular reports from DOE to aid in the determination of whether the cleanup goal has been reached. EPA is involved in the design process review and that the strategy is one that meets EPA standards and regulations

before implementation. He then states that EPA is also a part of the ongoing process throughout its entirety. Mr. Pope then references the DOE-SR team and the various roles associated. Once the EPA team has come to a joint decision on the course of action with the state level concurrence, the document is drafted and made available to the public for comment and review. He then states that it is DOE's position to respond to public feedback with EPA and state consultation. Mr. Pope reiterates the importance of having the accordance of all three organizations and public input before any plan is signed by EPA, DOE and state level management. He then discusses five year remedy reviews and their inclusion within the Superfund. This includes the plan being re-examined every five years to ensure they are continuously checked and that they remain protective. He states a current issue with SRS currently with feral pigs rooting in the caps with possible exposure to workers. The solution to the current situation includes a fence being designed and retro-fitted to eliminate the rooting of feral pigs. Mr. Pope then continues on the collaboration with DOE that includes a core team present for decision making. This core team includes a DOE decision manager, an EPA decision manager and a state level decision manager. This core team then takes technical input and organizational decision back to their respective organizations for further consultation. He then reviews a run down for projects and commitments including C Area, groundwater work in P Area, D Area ash project and T Area groundwater with different phases for each. He then states what EPA has no engagement in; nuclear materials and MOX. Pope states that the information he receives regarding MOX are from either the media or Tom Clements. Pope mentions that EPA has no regulatory role for the National Nuclear Safety Administration (NNSA). Pope continues his presentation by discussing the high level waste tanks located at SRS and the EPA involvement with liquid waste. He states the overall goal; 22 non-compliance tanks that are to be closed by 2022, with seven currently closed and two more must achieve Bulk Waste Removal by the end of FY 16. Individual tank closures are per SC regulations using closure modules. Tank farms are CIRCLA operable units, allowing EPA to look at the tank farms from a regulatory perspective. Pope continues with the individual tank closure milestones that are incorporated into the Federal Facilities Agreement and are subject to dispute if missed. Each tank farm has a performance assessment along with a general closure plan. South Carolina is the lead for the tanks with EPA assistance and comments given to the state level decision to send to DOE. Once tanks are closed, they exit the state permit and enter into FFA compliance with an NRC monitoring role. Of equal concern to EPA, is the ability for DOE to meet all milestones including SWPF, although SWPF has no designated EPA role as it is under a state permit.

CAB member David Hoel asks Mr. Pope to further explain the difference between regulatory roles for radiation and exposure to radiation. Pope says the discussion of remedy for a discreet unit is the only role EPA has in this question. If radiation limits are not a part of CIRCLA operable units on Site, EPA has no role. DOE has its own authority granted by the Atomic Energy Act that allows oversight. Hoel asks what involvement EPA has in environmental motoring and surveillance. The environmental report is not reviewed by EPA as regulators. Hoel asks for Pope to contrast CIRCLA on scene coordinators on EPA sites with on scene coordinators on a DOE monitored site. Pope responds that every Federal facility is supposed to have a designated on scene coordinator, an emergency responder. A release of waste on Site will be handled by DOE however a release off Site will be coordinated with South Carolina and EPA.

CAB Chair Harold Simon asks if SRS is a Superfund site. Mr. Pope confirms. Simon continues by asking if a failure to comply with the FFA it will go into an informal stage. Mr. Pope states that it will go into a dispute resolution process. Simon then asks at what point is the Supplemental Environmental Projects (SEP) involved. Mr. Pope responds that those are worked on via the state and a Federal agency without EPA involvement. Simon asks for further explains the relationship between CAB and Environmental Justice (EJ). Stating that the CAB is DOE's biggest outreach effort. CAB reaches a certain portion of the population along with other outreach methods including information pods and environmental justice meetings. CAB member Simon thanks Mr. Pope for his presentation.

Presentation: State Regulatory Oversight, Jennifer Hughes, South Carolina Department of Health and Environmental Control (SCDHEC)

Ms. Hughes states her experience with the CAB since 1999 with her first few interactions. She states her position as an Area Director at the Regional Office and the overall mission of DHEC as the goal to protect and serve the environment. Hughes states that SCDHEC operates with federal and state laws and that EPA delegates implementation to the state. Categories are created for air, water and land with bureaus located in the central office to include the Bureau of Air Quality, the Bureau of Land and Waste Management and the Bureau of Water. Hughes detailed the activities DHEC participates in; including the conduction of ambient monitoring, respond to complaints, respond to animal bites, provide compliance assistance, environmental surveillance and respond to environmental emergencies. The emergency preparedness and response coordination between both the environmental side and health side of SCDHEC in response to natural disasters. She discusses the Nuclear Response and Environmental Surveillance Program which exists to observe SRS and different types of nuclear scenarios that could occur. She continues to state that there is a five member team present as an emergency response team. Hughes discusses DHEC's role on a routine basis, which includes facility inspections, ambient air monitoring throughout the state, open and prescribed burning, bureau of water activities including inspection, hazardous waste, solid waste, underground storage tanks. She explains the coordination with the FFA program on the Site on a daily basis. She discusses the Environmental Surveillance and Oversight Program, a non-regulatory program that supports other regulatory programs present.

CAB member David Hoel asks for an explanation of any regulatory activity SCDHEC has over radioactivity at SRS. Hughes responds that radioactivity is measured through samples, including violations of drinking water standards and any radioactivity present in drinking water. SCDHEC has the authority to take action if these violations with the state regulation occur.

Public Comments

Bernice Howard (GA WAND) thanks the CAB for their community friendly recommendations put forth and references recommendation #331. She states that she tracked 55 to 60 people at the first day of the Full Board meeting and noted that only two present were members of the public. She references the recent extreme weather and notes that being pro-active would be beneficial to DOE.

Tom Clements (SRS Watch) thanks the CAB for attentiveness to the issue and continuing to inform the public. He states that aerial photos were recently released of the MOX project and encourages everyone to observe and visit the link. He references a recent news release regarding the law that requires one metric ton of plutonium to be removed from South Carolina by January 1, 2016. References the law requiring the movement of this material as a joke; requirements that must be met before the plutonium is to be moved are not possible. Clements states that Lindsey Graham keeps shifting dates further out to better protect the MOX program. He states that currently no material will be moved due to change of laws until DOE has a firm disposition option. He says that he has heard rumors circulated regarding the disastrous construction at the MOX plant. He encourages CAB members to take notice of their growing role in the topic of plutonium disposition. Clements then references a 2005 shipment of 180 kilos of weapons grade plutonium oxide from Los Alamos National Lab to French facility to be fabricated into test fuel. He states that it was brought back and temporarily stored at SRS until it was moved to the Catawba plant to be tested. He says that this test was aborted early but states that he followed this shipment throughout France and notes that it could possibly be a target for an attack by terrorists. He states that any disposition allows vulnerability and recalls a personal incident that a plutonium truck was shipped via vehicle and his personal account as witness.

Tina Watson, CAB Facilitator, announces to the CAB directly regarding surveys that were distributed by CAB member Nina Spinelli and states that the surveys may be returned to the CAB Support Team.

Waste Management (WM) Committee Update, Earl Sheppard, WM Chair

WM Chair Earl Sheppard welcomes everyone to New Ellenton, introduces the WM committee members and states the committee purpose. Mr. Sheppard states that WM committee currently has no open recommendations or pending recommendations. Mr. Sheppard says that recently the committee withdrew and brought back the Prepared Lessons Learned Report, Contract Failures in Manufacturing Draft. He states that the next WM committee meeting will be held December 1 from 4:30 PM to 6:20 PM at the New Ellenton Community Center in New Ellenton, SC. He introduces the next presenter as Carl Lanigan, DOE-SR.

Presentation: Saltstone Disposal Units, Carl Lanigan, DOE-SR

Mr. Lanigan begins his presentation by stating that he is the Federal Project Director for the Saltstone Disposal Units (SDU) at SRS. The focus of this presentation is to give a history and clarify the present situation with the SDU's, along with a status on the one currently being built, Saltstone Disposal Unit 6 (SDU6). He notes that there is a sludge stream and salt mixture present in these waste storage tanks, with primary focus of today's presentation on the salt component where the salt is taken out and processed in the ARP; taking that salt solution and separating the majority of the radionuclides. This separated mixture then goes to DWPF where it is vitrified into glass for final disposal. The remainder and majority of the waste are then sent to the Saltstone Disposal Facility where it is mixed with grout and finally disposed of on Site as a low-level waste. When SWPF comes online, it will also do the salt separation process at a lot higher processing rate. When the radionuclide portion is separated from the salt mixture, it is sent to the Saltstone Production Facility, where the liquid salt solution with trace radionuclides is mixed with a slag mixture allowing a stable matrix for the waste steam. He continues to elaborate as it is then sent to Pump 2 or a disposal vault. He then states, to provide additional background, 99% of treated waste in the tank farm will be in the form of this low-level salt waste, well over 200 million gallons of this salt mixture called Saltstone will be developed. Radionuclides and disposal of material is needed to close future tanks. Lanigan describes his current position as the continued effort to produce Saltstone and assist with tank closures. These facilities and units must be constructed on time before additional units begin to fill up. Lanigan states that in the late 1980s, when the Saltstone production facility was built, it was built on rectangular structures to hold the Saltstone. The lessons learned from operating these units was the greater influx of water coming into the units than expected. When Saltstone is created, grout is pumped into disposal units, as is cement and the line must be flushed that feeds into these tanks. That particular design was not the optimum way to handle this additional water pressure. Long term operation led to a more robust structure for containing Saltstone. The first reviewed designs were originally commercial designs used to store waste water, using a circular, pre-stressed designed tank. This design was evaluated and reviews concluded that this design had a better geometry to handle Saltstone. He then states that Saltstone Disposal Unit's 2, 3 and 5 were built in the mid-2000s, they are concrete enforced tanks, 150 feet in diameter and 22 feet tall with a water tight design, made for holding Saltstone and hydrostatic pressure accompanying it. Lanigan stated that a drain water collection system was included where the flushed water goes into drain water collection systems as a surrounding mesh works to filter sediments. He stated that six disposal units have been built thus far; evaluating the safest and most cost effective design. Lanigan explains that the 3 million gallon tanks were initially thought to be large, but that the commercial world builds them much bigger. The original plan was to build 72 Saltstone Disposal Units but has switched to a larger design and has saved a potential 300 million dollars due to structure and capacity of improved, larger design. Lanigan discusses the design used for SDU6, used in Syracuse, NY, where two, thirty million gallon tanks are in operation. Lanigan continues that in addition to the cell, the Saltstone Production facility must be connected; grout must be received and bring drain

water back into monitored operations. This includes HEPA filtration systems and cameras to monitor the operations. Lanigan continues that a number of wells are used to eliminate the drain water. Temperature is monitored; saltstone being put in is halted until high heat temperatures dissipate. Lanigan elaborates on the current status as complete with a water tightness test or water leakness test, used on all disposal units on Site before entering operations. He states that seepage occurred once the Tank was filled; therefore it did not pass the water leakness test and is currently being drained. Once drained, the leak path is located and epoxy is injected before entering operations later in 2016. Once Saltstone is deposited into disposal cell, the final closure for disposal units is to include an engineer landfill cap on top of all disposal units, including groundwater monitoring wells as an early warning sign for corrective action to be taken. Lanigan states that in summary, this is the final disposal location for the decontaminated salt solution as a cost-effective and safe solution.

CAB member Louis Walters asks Lanigan how hot concrete being laid is avoided. Lanigan states that the temperature is monitored before any concrete is placed due to heat of hydration. Night shifts due to cooler temperatures were undertaken to aid the heat situation.

CAB member James Streeter asks Lanigan if 99% of waste included in disposal units is low level waste. Lanigan responds that the amount of radionuclides is 1% of all radionuclides disposed of as saltstone. Streeter continues by asking how long it takes to fill and drain the tanks. Lanigan responds that it takes twenty-two days to fill and twenty-two days to empty.

CAB member Bob Doerr asks Lanigan regarding the evolution of the SDU design, the mega-tank, is the projected savings of over $300 million based on any cost. Lanigan answers that this estimate is based on the cost of how a unit is built, that they are designed to meet DOE order 435.1 for long-term disposal. Lanigan states that these tanks incorporate more steel and structure to better handle the amount and type of waste but is overall the same commercial design concept. Doerr continues to ask if less material is used in building the larger disposal units as opposed to the smaller units. Lanigan confirms by stating that mobilization cost is factored into overall estimate.

CAB member Mary Weber asks Lanigan for an update on the status of Tanks 1 – 5. Lanigan responds that vaults 1 and 4 are not currently in operation. Weber continues to ask regarding Tanks 2, 3 and 5. Lanigan answers that 2 is full and that 3 and 5 are being filled. Weber continues to ask what will happen to the status of 1 and 4. Lanigan responds that there is currently no final decision of the disposition of that unit.

CAB member David Hoel thanks Lanigan for his presentation and proceeds to state that 99% of treated tank farm waste will be in the form of low-level salt waste, while other presentations have stated that this percentage is 90. Hoel asks Lanigan for the correct percentage. Lanigan states that he will follow-up on the correct percentage. Hoel continues to ask Lanigan what was changed in SDU6 to avoid the drain water issue. Lanigan responds that nine wells were included along with removable and replaceable pumps. All piping is bolted and sections can be individually replaced. Hoel continues to state that the vaults are considerably taller than previous vaults and asks if a problem is then presented with the placement of a cap. Lanigan answers that packing them together; therefore allowing the use of less soil is a solution. Hoel states that he did not doubt there was enough dirt and asks if erosion occurs due to height. Lanigan answers that slope requirements must be met along with standard landfill requirements and drainage requirements. Hoel states that the CAB was informed of soil contamination in Vault 4 in previous presentations, where it was spreading to the rainwater retention pond to the Saltstone facility. Hoel asks Lanigan for the status of this issue. Lanigan defers to Savannah River Remediation (SRR) employee Stuart McVane who responds that the surface contamination has been cleaned along with the basin. A second basin was built with 100 year storm capability. Vault 4 source of the contamination has been cleaned with a two-year campaign. A new roof cover cap has been placed over Vault 4 with continued monitoring and positive indications.

Hoel continues to ask McVane if the removal of contamination references the removal of the soil surface. McVane responds that the contamination was dug up and placed in the solid waste disposal facility.

CAB member Susan Corbett asks for the cause of the contamination breach in Vault 4 and how practices were altered to avoid future contamination. McVane responds that the roof of Vault 4 cracked due to weather conditions allowing rainwater to accumulate and wash through the Saltstone matrix, exiting through the sidewalls. McVane continues that overall design eliminates drainage issues along with a membrane over the top; continuing that Vault 4 had neither of these features. Corbett continues to ask the material of the membrane. McVane states that the material is an EDPM Rubber. Corbett then asks Lanigan the life expectancy of the facility. Lanigan responds that this will meet DOE order of 435.1 of 1800 years. Corbett continues to ask what type of radioactive material is stored within. Michael Mikolanis (DOE-SR) responds that the Vaults primarily hold Cesium. Corbett continues to ask what corrective actions referenced earlier would be taken if any issues arose. Lanigan responds that multiple engineering corrective routes can be taken depending on the issue.

Administrative and Outreach Committee – Eleanor Hopson, A&O Chair

Eleanor Hopson, A&O Chair introduces committee members and states that the CAB is seeking new members. She references the Board Beat magazine and to visit the CAB website for more information. She states that there are no presentations for the Administrative and Outreach Committee.

Nuclear Materials Committee – Larry Powell, NM Chair

Larry Powell, NM Chair welcomes everyone to New Ellenton and introduces committee members. Powell states that there are currently no pending, open or draft recommendations. The next Nuclear Materials Committee meeting will be held at the New Ellenton Community Center in New in New Ellenton, SC on December 1 from 6:30 to 8:30 PM. Powell introduces Maxcine Maxted (DOE-SR) for an update on L-Basin.

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

Ms. Maxted introduces herself as the Spent Fuel Program Manager for the Department of Energy, Savannah River Site; stating the location of spent fuel as L-Basin. Maxted states that this update is fulfilling a work plan requirement. Maxted shows and explains the connection between L Reactor and L-Basin. The reactor was converted with a basin already in it that was made more useable to allow more storage. She states that L-Basin is located inside L Reactor. Maxted references a photo depicting the water storage, with a 3.4 million gallon storage pool. Maxted explains that the fuel is bundled and then stored underwater in these storage pools. She states that in this particular case, the water is not used for cooling as it is often commercially, but used for the safety and protection of the workers, keeping radiation from them. Maxted says that foreign research reactor fuel is received along with domestic. She continues to say that “every kind of fuel” is stored in the basin, a reference to the diversity. The standard material test reactor fuel is about a 3 to 4 foot long rectangular cube, where the fuel is stored, clad in aluminum. She states that there is stainless clad fuel presently in L-Basin that cannot be sent to H-Canyon for processing but will either be dry-stored or sent to another facility to be handled. She states that the fuel is safely stored in the reinforced concrete basin. The concrete has been analyzed by taking core samples of C Reactor in its closure state, built at the same time as L Reactor, resulting in an analysis of the concrete that confirmed its strength. Maxted explains that a fifty year analysis of the basin was conducted to determine how long it could last, with initial thoughts of being finished with L-Basin by 2019. She states that without a federal repository present to relocate the spent fuel, an analysis was conducted to better understand the longevity of L-Basin. Analyzing the concrete was a part of this overall fifty year analysis. She states that the analysis concluded an additional fifty years of longevity left for storage in L-Basin. Maxted further explains the types of fuel including

bundled fuel that is 10 to 12 feet long with holes in both the top and bottom allowing the water to circulate. She further explains that L-Basin is about 85% full with 3,650 bundle slots; current status is 2,960 slots, a number that fluctuates when receiving fuel. She states that there is an amended record of decision that allows up to 1,000 bundles to be processed, allowing no further racks to be put in. Based on the projections for foreign and domestic fuel within the upcoming years, this will allow no further racks to be put in, also allowing uranium to be used in that fuel. Maxted states a high flux isotope reactor fuel is also received; a circular fuel with an inner core and outer core stored separately. She states that slots for 120 bundles are present and continues to say that the high flux isotope reactor located in Oak Ridge, TN can store up to 96, with a capacity that will allow them to continue until a 2019-2020 time period. Apart of this amended record of decision will allow the process of up to 200 high flux isotope reactor fuel cores, a process not yet started due to flow-sheet work in the canyon, transportation work and the ability to change out the dissolver that requires an optimum time. Maxted continues to explain the isolation cans, which store stainless zirconium clad fuel. If this has been degraded in any way (i.e. damaged in transport) anything making the fuel susceptible to leakage, goes into isolation can. She continues to state the meaning of isolation can, or the isolation of fuel from the basin water to maintain the purity of the water and protect other fuel present. Maxted elaborates on the 2015 accomplishments; the shielded transfer system modification was completed, eleven transfers were made to H-Canyon with 120 bundles shipped and processed 80 with 40 to be completed this year, received 4 casks from Foreign Research Reactor (FRR), 3 casks from Domestic Research Reactor (DRR), storage of heavy water used as a moderator when five reactors on Site were used (this heavy water is now stored in stainless steel drums). She details the currently management approach as the continuation to safely store spent nuclear fuel, continue to receive fuel, supporting the National Nuclear Security Administration (NNSA) and the hope to process of 100 bundles and 200 the high flux isotope reactor cores through H-Canyon along with the continued evaluation of L-Basin to maintain optimum safety. Maxted further elaborates on the processing of H-Canyon by stating that the sodium reactor experiment campaign was completed, a fuel that was susceptible while stored in water. This material was removed and dispositioned due to fuel fabricators not being able to accept the material. As part of the AROD, 120 bundles have been processed. Amount shipped depends on levels of funding, at both H-Canyon and L-Basin. Budget issues must be worked to maintain consistency as both H-Canyon and L-Basin are interrelated.

CAB member Chris Timmers asks Ms. Maxted if the basin water used to shield the radiation has an additive or if it is de-ionized. Maxted responds that this water is regular water and explains that the water slows down neutrons so that they do not move as fast, acting as a great shield.

CAB member Dan Kaminski thanks Ms. Maxted for her array of information regarding L-Basin and for an informative presentation.

CAB member Dawn Gillas asks Ms. Maxted if a schedule is maintained, what is the length of time to process the 1000 bundles and 200 cores. Maxted responds that this schedule has fluctuated, with a projection for the 2023 time frame.

CAB member David Hoel asks Ms. Maxted to elaborate on Canadian FRR fuel and Canadian liquid fuel. Maxted answers that this is two different campaigns and further elaborates that the Canadian Fuel is a National Research Experimental and National Research Universal Fuel. Canadian Liquids used in Top River Nuclear Laboratories produces medical moly 99 for medical isotopes, referenced as target material now in dissolved or liquid form, which would be sent to H-Canyon. Hoel continues to ask regarding the status for the receiving in H-Canyon. Maxted answers that modifications in H-Canyon are proceeding well, modifications that must be made before fuel can be processed but answers that this is not her field of expertise and references Pat McGuire, DOE-SR.

Pat McGuire, DOE-SR responds to Hoel's initial question by stating that with modifications referenced by Ms. Maxted, projections to date will have receivable during May timeframe of next year. He further states that Canada is also making modifications to their facilities to be able to retrieve and ship. He states that all costs associated with the modifications are being funded by Canada. Hoel further asks regarding the threat assessment for fuel being shipped through New York. Maxted answers that this is not specific to this material but encompasses a general scope for anything moving in commerce that is biological, radiological, and chemical. She further details that any material that is moved throughout the United States or outside the United States is covered by this threat assessment bill and states that this also encompasses any overall commercial movements and governmental movements and has no specific reference to the Canadian fuel movement. Hoel continues to ask what happens with fuel that cannot be made into new fuel, specifically regarding the sodium reactor experiment that uranium from processing fuel is contaminated with thorium and therefore cannot be made into new fuel. Maxted responds that this fuel was sent as waste to the Tank Farms. Hoel further asks the status of receiving German graphite sphere fuel. Maxted responds that discussions with the Germans indicate the Germans believe that they have every legal right to transport this material and references an environmental assessment that is in draft form in DOE Headquarters, hoping to be released soon. She continues that an evaluation has been done regarding impacts if this material were to travel to the United States to be processed. Maxted further details that this fuel cannot be accepted until the NEPA process has been undergone. She states that the next step for the pending process is to have the Draft Environmental Assessment out for public comment. Until this is completed, no final status on acceptance of fuel can be undertaken.

CAB member Susan Corbett asks in regards to zirconium clad fuel, if it will be placed into dry cask storage. Maxted answers that dry cask storage is currently an option with a potential to trade fuel with Idaho including an additional option to potentially re-fit H-Canyon's dissolvers with baskets to collect those pieces and parts. She further states that all options are still under evaluation. Corbett asks if H-Canyon were no longer operating, could this fuel be dry cask stored. Maxted responds that regarding the entire inventory of spent fuel with the storage of aluminum fuel (this is unlike commercial fuel) with the primary difference being that aluminum hides water. She states that water contains hydrogen and that this causes an issue with gas generation, furthering the need for research into how long and how quickly it will need to be dried. Maxted states that drying too quickly creates Hydrides that attack the fuel structure, making It a more viable sludge. She states that this research referenced has not yet been conducted. Corbett asks if the percentage of what is located there aluminum. Maxted confirms with a response of 90 percent. Corbett asks if this is from research reactors as commercial reactors use a different cladding. Maxted confirms.

Strategic & Legacy Management Committee, Bob Doerr, S&LM Chair

CAB member Bob Doerr welcomes everyone to New Ellenton and states the committee purpose. He regards the Recommendation Status update on open Recommendation 323, Recommendation 331*, Improved Public Participation*, with a vote to be conducted with response from DOE regarding options for the quantity of Full Board meetings and Committee meetings. Doerr states that Recommendation 333, *Timely CAB Notification of SRS Unusual Events and Issues*, S&LM Committee will review DOE response at the next committee meeting on December 8 from 4:30 PM to 6:20 PM at the New Ellenton Community Center in New Ellenton, SC.

Presentation: Savannah River Site Budget Update, John Lopez, DOE-SR

John Lopez introduces himself as the Director of Integration and Planning for DOE-SR. Lopez states that the purpose of this presentation is to provide a discussion and overview of the Federal budgeting process and how budgets are put together each fiscal year (FY) and a status on FY16. Lopez states that current issues with the

budget are included in FY16 with the Federal government not passing a full year spending bill and presently under a continuing resolution through December 11 with funding for 2015 levels less than 2.108 percent. He explains that what was received in FY15 was reduced by the percentage referenced and was given for 77 days' worth of allocated funding. He states that the recent two-year spending bill passed by Congress only increased the debt limit that Congress is now allowed to spend authorization bills. He further explains that we are still waiting for Congress to pass another short term continuing resolution or to pass a full year spending bill. Lopez begins his presentation by stating that Environmental Management (EM) portion of DOE, submits budgets complex wide with all other agencies within DOE. This budget submission becomes the overall DOE budget that further becomes the basis of the president's budget submittal every February, required by law. Lopez states that the President will submit FY17 budget request this upcoming February for Congress to pass the bill where it returns to the President to be signed into law. Lopez continues that funding allocations come down from this law to DOE and different agencies within DOE and then back down to the Sites. Lopez states that timing consists of two-year block with a current planning status for FY18 budget request. This budget request is prepared throughout the year, with submission of FY 17 budget complete. Lopez explains how the budget is received with bucket analogy referencing Program Baseline Summary (PBS). He further details that SRS as a Site does not have authorization to move funding from one PBS, or bucket, to another. A request must be submitted to the Office of Management and Budget to request an authorization to move funding from one PBS to another. Lopez explains that these restrictions require advanced planning and informative decision making before it is received and given to contractors on Site for work authorizations. Lopez furthers his presentation with a status update on FY15 and FY16 by saying that FY15 encompassed 1.2 billion dollars and the projected FY16 budget of 1.37 billion dollars. The DOE-EM budget complex wide adds up to 5.8 billion dollars a year with the DOE-SR budget increasing. Lopez states that the increase includes the DOE-SR Liquid Waste Program and an increase in the Salt Waste Processing Facility (SWPF).

CAB member Louis Walters asks Lopez to further explain the 10 million dollar decrease in safeguards and security. Lopez explains that Congress authorized DOE-SR an additional 10 million dollars within FY15 to implement the ARGOS project, a one-time security upgrade to H-Canyon.

CAB member Clint Nangle compliments Lopez on an informative presentation and continues to ask where the 2.108 originated from. Lopez responds that this percentage originated from Congress in order to reduce budgets complex wide to stay below the debt ceiling.

CAB member Bob Doerr thanks Mr. Lopez for his presentation and asks for the timeline for the FY18 budget. Lopez responds that the FY18 budget is being worked on currently. Doerr continues to ask if the allocations for FY16 are similar to possible FY18 allocations. Lopez answers that final numbers for FY17 have not been processed yet with no hint to FY18 budget allocations. Lopez further states that a five-year planning budget has been created complex wide for DOE-EM Sites, with projected funding for the Savannah River Site increasing within the next five years. Lopez states that the current challenge is pension funding. Doerr continues to ask in the out-year planning, beginning with the Site level with collaboration with the other Sites, how much the Office of Management and Budget can change overall projections. Lopez responds that OMB is given a projector target for the EM Program. The target always originates with the OMB with a final decision pending with the Secretary of Energy.

CAB member Mary Weber asks for clarification regarding the approval of the FY16 budget by December 11 and operating under a continuing resolution based on 2015, and this only encompassing the next 72 days. Lopez furthers by stating that various scenarios are included but overall leads to an unsure possibility.

CAB member Bob Doerr asks if the Congressional spending bill is for two years, as opposed to four years. Lopez explains that this encompasses the debt limit and not spending bills and further states that the authorized spending bills are on a yearly basis.

CAB member Dawn Gillas asks in regards to the 24 percent decrease in spent fuel and how this will effect operations. Lopez responds that this is a current issue being processed. He further states that PBS 11 and PBS 12 are being under-funded with DOE-SR requesting a bill to be passed by Congress that will move 27 million dollars from this program.

CAB member David Hoel states that in the February time frame, the CAB provides input into the priorities for a proposed budget. Lopez confirms. Hoel further asks for the status of receiving the Integrated Priority List (IPL) from previous years. CAB facilitator Tina Watson responds that these have been processed through Site security for external release and are pending in DOE Headquarters security with a confirmation within a week. Lopez states the priorities will be further discussed at the next committee meeting scheduled for December with a follow-up recommendation scheduled for January Full Board meeting.

CAB member Bob Doerr asks for the percentage is pension based and what percentage is operational. Lopez answers pension for nuclear materials as 25-30 million dollars. Lopez states that pension breakouts can be further discussed at the committee meeting. Lopez explains that Savannah River Site is the only site in the EM complex that must set aside funding for pensions. Doerr continues to ask when a point will be reached for pension expense to decrease. Lopez answers that once retirees are no longer pulling pensions, a decrease will be seen. He also states that an updated change includes new employees being added to the Site workforce but not added to the pension plan.

CAB member Louis Walters asks why the Savannah River Site is the only site within the EM complex required to use Site funding for the pension plan. Lopez responds that decision making throughout the 1990's, used pension funding to continue cleanup work at SRS and as a result, pension is being paid for through Site funding. Jim Giusti, DOE-SR answers that during this time frame, SRS was only required to pay the minimum pension payment to allow further funding for cleanup. He continues by saying that this minimum payment created the current situation of SRS paying into the pension plan via Site funding.

Voting on Response Option for Recommendation #331

CAB member Bob Doerr opens the floor to voting on Recommendation #331 and the DOE response offering options for the frequency of CAB meetings. Doerr states that Option 1 presented six, bi-monthly meetings; option 2 presented the CAB with the reduction of meetings to four, quarterly meetings. Doerr states that the S&LM committee voted for option 1, the option that includes more meetings with an attempt to have a continued downstream presences, specifically Augusta, GA as a meeting location. CAB chair Harold Simon opens the recommendation to be voted upon by CAB members present. CAB member David Hoel asks for comment from Jim Giusti, DOE-SR regarding the meeting location; asking specifically for comment regarding more downstream locations. Giusti responds that two downstream meetings will be incorporated into the FY17 meeting schedule. Giusti continues by saying that attendance at these down river locations is crucial to the decision making process. CAB member Louis Walters objects to losing Augusta, GA as a main meeting location as opposed to more downstream locations due to population representation. CAB member David Hoel states that the downriver locations deserve representation for meeting locations since the Central Savannah River Area (CSRA) is represented with five meeting times and two locations that include New Ellenton, SC and Augusta, GA. CAB member Larry Powell suggests to trade off one meeting located in New Ellenton for a downriver meeting. Jim

Giusti, DOE-SR responds that the budget may not be flexible enough for this. Giusti states that two downriver location meetings was the original recommendation and further states that the New Ellenton, SC location is more easily accessible to Site personnel for attendance. CAB member Bob Doerr states that he believes Giusti is presenting flexibility; Doerr states that the vote today will be to choose between option one and two as referenced, with further discussions to be undertaken with attendance in consideration throughout the 2016 meeting schedule. Giusti responds that a draft projected schedule will be presented to the CAB for FY17 at the July Full Board meeting and further states that two downriver meetings will be offered within the confines of the budget. CAB chair Harold Simon asks for further clarification regarding meeting locations; specifically the transition of moving at least one Augusta, GA meeting location to a downstream location. Giusti confirms and answers that staying within the option offered means a meeting location must be traded. Simon continues to ask if there is a higher cost associated with meeting in Augusta, GA as opposed to meeting in New Ellenton, SC. Giusti confirms. CAB member Dawn Gillas asks whether or not the purpose for further downriver meetings was for the CAB members' accessibility convenience of for the local public to have a better attendance opportunity. Giusti answers that it is for public accessibility and downriver representation and further iterates the overall goal of providing an opportunity for the public to express interest in SRS. Michael Mikolanis, DOE-SR proposes a vote today on the recommendation or to have it withdrawn and further detailed. CAB Chair Harold Simon states that the committee has recommended to go with Option 1, based on the discussion, there will be one Augusta meeting in 2016, two Augusta meetings in 2017 corresponding with three New Ellenton meetings and one downstream location for a meeting. CAB Chair Harold Simon makes a motion to approve Option 1 as recommended by the committee, all in favor to signify by show of hands along with opposition and abstention. The motion is carried.

Public Comments

There are no public comments.

-Meeting Adjourned