

March 24, 2026
Savannah River Site (SRS) Citizens Advisory Board (CAB)
Full Board Meeting Summary
Advanced Manufacturing Collaborative

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Tuesday March 24 Attendance

CAB Attendees

Hazel Cook	Sallie Cooks	Deborah Creech
Wanda Jackson	Tonya Moton	Dell Priester
Willie Priester	John Thomas	

SRS Personnel

Tara Armstead, SRNS	Matt Baker, DOE-SR	Jeff Bentley, DOE-SR
Jeff Carter, SRNL	John Clark, DOE-SR	Edwin Deshong, DOE-SR
Catelyn Folkert, SRNL	Bridget Ford, SRNL	Myah Gaskins, DOE-SR
Dr. Johney Green, SRNL	Karen Morrow, DOE-SR	Emily Saleeby, SRMC
Mike Serrato, SKLS	James Tanner, CAB DDFO, DOE-SR	Mtesa Wright, SRNS
Monte Volk, DOE-SR		

SRS CAB Support Staff (S&K Logistics)

Audrey Barron, Communications Coordinator	Stephanie Kemmerlin, Coordinator/Program Analyst	
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Agency Liaisons & Public

Heather Cathcart, SCDES	Susan Fulmer, SCDES	Erin Harrison, Cong. Joe Wilson's office
Jon Richards, EPA	Crystal Robertson, SCDES	

Meeting Summary
SRS CAB – Full Board Meeting
Advanced Manufacturing Collaborative
4345 Trolley Line Road, Aiken, SC
March 24, 2026

Meeting began at 9:00 AM Eastern Standard Time

Meeting Introduction: James Tanner, CAB Facilitator/DDFO

Mr. Tanner opened the March Full Board meeting by welcoming everyone to the Advanced Manufacturing Collaborative. He shared with attendees that Ms. Juanita Campbell, the CAB facilitator, was unable to attend due to a personal emergency, and announced that he would be facilitating the meeting in Ms. Campbell's absence. He acknowledged the lower board attendance due to pending reappointments, affecting members, including the recently elected chair, Mr. Hubert Van Tuyl. However, he assured every one of the group's competence to proceed. He provided a thorough overview of the meeting guidelines, reviewed the agenda and reminded everyone of several housekeeping items. He then had everyone in the U-shape introduce themselves.

Chair Update: Deborah Creech, Acting CAB Chair

There was no chair update. Ms. Creech gaveled everyone in calling the meeting to order.

Environmental Management (EM) Manager Update

Mr. Edwin Deshong enthusiastically welcomed attendees to the Advanced Manufacturing Collaborative (AMC) and highlighted the facility as innovative and inspiring. He expressed pride in the work being done at the Savannah River Site (SRS) through collaboration among corporate, federal, and local partners, emphasizing the site's focus on safety and environmental protection. Key updates included:

1. **DOE Announcements:** The Department of Energy (DOE) has made two major decisions:
 - Restarting uranium and isotope recovery at the H-Canyon facility to support advanced nuclear reactors, strengthen the nation's nuclear fuel production, and advance energy independence.
 - Restarting HB Line operations to recycle surplus plutonium into fuel, saving \$350 million, accelerating the plutonium disposition mission, and bolstering the U.S. nuclear industrial base.
2. **National Laboratory Highlights:** Approximately 50 scientists are working at the collaborative facility, with advancements like the MK-18 program's first batch of plutonium-244 sent to Oak Ridge.
3. **Budget Milestone:** The 2026 Appropriations Act provided \$8.5 billion for environmental management and cleanup of Cold War-era contamination, ensuring no interruptions due to continuing resolutions.
4. **Operational Achievements:**
 - **Nuclear Materials:** Progress in L Area, H Canyon's uranium recovery, and K Area's plutonium down blends. Multiple shipments to WIPP have also been completed.
 - **Liquid Waste Mission:** Significant milestones, including preliminary cessations at waste tank 14, strategic updates to the liquid waste system plan, and accelerating tank closures. The Defense Waste Processing Facility (DWPF) celebrates 30 years with over 4,500 waste canisters poured to date.

- **Salt Waste Processing Facility:** On track to set records with over 6 million gallons processed in FY26. Meanwhile, Saltstone Disposal Units (SDUs) 10-12 remain on schedule and under budget.
- **Area Closure and Decommissioning:** Progress across various phases, including demolition and milestone deliveries ahead of schedule for multiple areas.

He concluded by expressing enthusiasm for the advancements.

EM Manager Update Q&A

Mr. Priester asked that with the increase in production in H Area, would there be any changes to the current staffing patterns?

Mr. Deshong responded by saying that ultimately, yes, staffing patterns would change to accommodate the shift in operations at H Canyon, moving from fuel dissolution to uranium recovery. As HB Line operations ramp up over the coming years, additional staffing adjustments would also be necessary to support these activities.

Agency Updates

Mr. Jon Richards, with the U.S. Environmental Protection Agency (EPA) shared that they recently took a tour of SRS, with Mr. Deshong leading the briefing. Attendees included new managers like Hunter Johnson, the Superfund division director, who was impressed by the site's scale.

A representative from the federal facilities headquarters also participated, ensuring consistency in reviews across DOE and military sites. EPA staff used drones to conduct a more efficient 5-year review, focusing this year on engineering cover systems, following last year's focus on groundwater units. Progress was highlighted by the closure of the last cease removal tank and a proposed DOE project to reuse coal ash on-site as fill material, which aligns with EPA guidelines. He stated that he will be talking to the board in May about the EPA's role and Superfund activities at the site.

Ms. Susan Fulmer from South Carolina Department of Environmental Services (SC DES) provided updates on the Resource Conservation and Recovery Act (RCRA) program, noting that on January 30th, a RCRA permit application was received for hazardous and mixed waste storage at the proposed Savannah River Plutonium Processing Facility (SRPPF) in F Area. Public notices about the application are available, and while there is no comment period currently, one will follow the issuance of a draft permit. The application is under review and available for public access in DOE reading rooms. Recent inspections by DES included ambient stream monitoring and monthly saltstone inspections in February and March. Additionally, the 2024 Environmental Surveillance and Oversight Program (ESOP) annual data report is now available online and in summary form. Lastly, a quarterly ESOP program meeting is being held to discuss sampling and dose for the upcoming report.

Ms. Shelly Culpepper from Georgia Environmental Protection Division (EPD) was not in attendance.

Agency Updates Q&A

There were no questions for Mr. Richards, EPA.

Ms. Creech inquired about the timeline for processing hazardous waste applications and how long it takes once recommendations are made.

Ms. Fulmer explained that the process typically aims for a 90-day target, with a 30-day public notice period included. However, the permitting process often takes longer and may extend beyond 90 days if there are agreements to do so. It is unclear in this specific case whether an extension is in place, but the general goal is to issue permits within 90 days.

Introduction – Dr. Johney Green, Savannah River National Laboratory Director

Dr. Johney Green welcomed attendees and shared his background, including over a year at the Savannah River National Laboratory (SRNL), 21 years at Oak Ridge National Laboratory, and over eight years at the National Renewable Energy Laboratory. He highlighted SRNL as one of 17 DOE laboratories, uniquely stewarded by the Office of Environmental Management (EM), and praised Edwin and the support from EM leadership.

SRNL employs about 1,400 staff, with a \$440 million annual budget, focusing on national security, environmental stewardship, and energy resilience. Current initiatives include leveraging artificial intelligence to reduce costs and timelines for environmental cleanup, supporting isotope recovery and the nuclear fuel cycle, grid research for energy resilience, and nuclear deterrence and proliferation efforts. SRNL is also advancing fusion energy research through surrogate material studies.

Dr. Green highlighted the lab's management under Battelle Savannah River Alliance in partnership with institutions like Georgia Tech, the University of Georgia, South Carolina State, Clemson, and the University of South Carolina. He emphasized SRNL's commitment to scientific excellence, operational efficiency, and community engagement. Dr. Green expressed appreciation for the opportunity to engage with the community and their aim to serve as both an innovation beacon and a strong partner to the region.

Dr. Johney Green Q&A

Ms. Creech asked how effective is AI in supporting the lab's research and efforts?

Dr. Green shared that AI is still in its early stages at the lab, but it's showing promise. It is being used to streamline operations, enhance productivity, and reduce the frequency of procedures like ground sampling. For example, AI could analyze sensor data and reduce sampling from four times a year to once, using AI models to predict results for the remaining intervals, thereby cutting sampling efforts by 75%.

Ms. Jackson asked, how does fusion energy fit into the lab's innovation efforts?

Dr. Green explained that SRNL is a leading expert on tritium, a key component for fusion energy. The lab leverages its extensive experience with tritium to support fusion energy development, focusing on the tritium fuel cycle—how it is monitored, stored, transferred, and recycled during energy release. This ties back to the lab's longstanding work with Tritium for the National Nuclear Security Administration (NNSA)

F/H Lab Deactivation Project Update: Trey Gilland, SRNS

Mr. Trey Gilland provided a comprehensive update on the deactivation of the F&H Laboratory (F/H Lab). He explained the deactivation process, which transitions facilities from operational to a passive, stable state for long-term safe storage while reducing hazards and isolating services. This prepares the facility for eventual decommissioning or demolition. Historical context revealed that F/H Lab's operations were consolidated with Savannah River National Laboratory (SRNL) in 2018, and deactivation officially began in 2021.

Major milestones included shutting down building services (steam, water, diesel generators) to reduce costs by \$3-4 million annually, isolating hazardous materials (e.g., refrigerants like freon), deactivating radioactive containment units (glove boxes, radiological hoods), and completing extensive decontamination efforts. Ventilation systems were largely shut down, turning the site "cold and dark" by eliminating conditioned air, lighting, and unnecessary materials. The facility remains in zones for phased deactivation, with high-hazard zones prioritized first. Key next steps involve completing external electrical and mechanical isolations, sealing ventilation systems, managing rainwater intrusion, and implementing remote monitoring systems to allow future monitoring from offsite locations. The work has resulted in significant cost savings while paving the way for decommissioning and aligns with the long-term goals for safe facility closure.

F/H Lab Deactivation Project Update: Q&A

Mr. Priester asked who is involved in decision-making for changes during the deactivation process and what that process entails.

Mr. Gilland explained that the deactivation process follows a formal set of procedures outlined in a deactivation manual. Key stakeholders include engineering, safety-based personnel, and the Department of Energy, which must approve any proposed changes to the deactivation plan. Stakeholder collaboration ensures all modifications are reviewed and approved according to established guidelines.

Mr. Thomas asked Mr. Gilland, could he elaborate on the heavy water and asbestos analysis?

Mr. Gilland clarified that he is not a scientist but explained that industrial hygiene chemists conducted asbestos analyses throughout the complex during deactivation and decommissioning (D&D). Regarding heavy water, he admitted limited knowledge but confirmed it was a process handled by scientists and chemists.

Mr. Thomas then asked what was done with the refrigerant removed from the chillers?

Mr. Gilland stated that the refrigerant was collected in large canisters and remains accounted for, awaiting a final disposition process managed by the site. A vendor has removed it, and the site is working on a reclamation plan.

Mr. Thomas also asked what was the issue with reclaiming the refrigerant?

Mr. Gilland explained that the issue wasn't with the reclamation itself but with the need to recirculate chill water during the refrigeration evacuation to prevent coil rupture. Since the chillers were not maintained as rigorously in their final years and ran to failure, some leaks hindered the recirculation process. However, there were no issues with the actual evacuation.

Ms. Priester asked what would happen to the buildings after deactivation is complete.

Mr. Gilland explained that the buildings were being prepared for long-term safe storage and maintenance (SNM), with periodic monitoring of their condition. While the final disposition has not been fully determined, the 772-1F building would likely be demolished to grade, and the 772-F building is expected to undergo in-situ disposition, similar to the 235 building, and eventually be grouted. The buildings would then enter a queue for final disposition through the area completions project, which may occur around 2030 to 2032.

Ms. Creech asked if the diesel generators and fuel tanks, which are considered permanently closed by the state, could potentially be reopened.

Mr. Gilland clarified that the generators are officially documented as permanently closed. However, they were left intact rather than being removed as originally planned. If another party on-site wants to reuse them, they can take ownership and remove the generators at their own expense.

Nuclear Materials Recovery and H-Canyon: Tara Armstead, SRNS & Jeff Hasty, SRNS

The presentation, delivered by Ms. Tara Armstead and Mr. Jeff Hasty, focused on the transition from the Accelerated Basin Deinventory (ABD) program to a new initiative coined the "fuel mission." Under the previous ABD program, significant progress was made, including the dissolution of one metric ton of highly enriched uranium (HEU) and the disposition of half of it safely and securely. The new mission, referred to as the "fuel mission," aims to reintroduce uranium recovery processes to support clean and sustainable energy needs, particularly considering the growing energy demands from technological advancements such as AI. H Canyon will play a key role. With a long history of processing used nuclear fuel and recovering uranium, H Canyon will be revitalized to extract uranium from dissolved nuclear fuel for reuse. This involves restarting processes like solvent extraction, the use of evaporators, and operations such as "head-end" (a centrifuge process). Despite the facility being idled in recent years, efforts are underway to bring these processes back online, with a timeline set for the full recovery process to be operational by 2028. The recovered uranium will largely be blended down to produce High-Assay Low-Enriched Uranium (HALEU), which is critical for advanced reactors. HALEU has a concentration of 5% to 20%, providing higher efficiency, longer fuel cycles, and less waste compared to traditional nuclear fuel. This is expected to meet current and future energy demands while ensuring a safe and reliable domestic energy supply. SRS has already identified 3.1 metric tons of HALEU, with plans to process additional materials amounting to 19.7 metric tons. This supports environmental stewardship goals by reducing stored aluminum fuel inventory while repurposing it for energy production. The total 22.8 metric tons of HALEU from this initiative could significantly contribute to energy needs, such as powering small modular and microreactors, further reducing reliance on foreign energy sources. The project aligns with recent executive orders aimed at reinvigorating the nuclear energy base, ensuring a domestic supply of affordable, clean energy. It also supports advanced technologies like isotope recovery for medical applications and AI-driven processes that demand high energy. The team has outlined a clear timeline for revamping H Canyon and associated processes, aiming for a seamless supply of HALEU post-2028 with initial shipments expected by early 2028. This endeavor is not only critical for meeting energy demands but also for reducing dependence on coal and foreign uranium supplies while supporting environmental and national energy initiatives. Additionally, it is expected to create jobs, enhance energy infrastructure, and sustain the legacy of H Canyon in ongoing and future energy missions.

Nuclear Materials Recovery and H-Canyon Q&A

Mr. Priester asked about the environmental impact and cost differences between coal and nuclear energy.

Ms. Armstead emphasized that nuclear energy is significantly cleaner, with minimal carbon emissions compared to coal. However, both energy sources involve extracting materials from the ground, with the key difference lying in their utilization. Regarding costs, she highlighted that nuclear energy often incurs higher expenses due to the industry's stringent safety requirements, which are crucial to

avoiding accidents. She noted that cost comparisons aren't straightforward as the associated costs also depend on the management and use of byproducts, making it a more complex analysis.

John Thomas asked about the transportation of uranium from foreign sources.

Ms. Armstead explained that it is typically transported by ship over the ocean and then by rail.

Mr. Thomas then asked about the transport of materials to Oak Ridge.

Mr. Hasty described the use of LR230 containers, certified for handling liquid materials, with a capacity of 225 gallons. Each truck carries nine LR230 containers, similar to those used for transporting low-enriched uranium, although they won't be used for high-enriched uranium.

Ms. Armstead further emphasized the rigorous safety evaluations conducted for all transport modes—road, ocean, or rail—which include worst-case scenario planning to ensure public and environmental safety. Such evaluations are part of the licensing and approval processes before transport begins.

Wanda Jackson inquired about the program's annual budget.

Mr. Deshong responded and explained that while he would not provide specific figures, the current funding for the Accelerated Basin Deinventory (ABD) program has been analyzed to determine if it could support the pivot to the uranium recovery mission for HALEU. Through careful planning and partnership with SRNS, they determined that the existing funding would suffice without any increase for the next few fiscal years. However, he noted that future budget adjustments might be necessary, particularly for the HB Line, which could require additional staffing. For now, the funding for the transition from ABD to uranium recovery remains consistent.

Ms. Jackson then asked about the number of employees involved in the mission.

Ms. Armstead explained that the current staffing, including internal and external personnel, totals approximately 400, covering roles such as engineering, radiation control (radcon), maintenance, and oversight. She noted that they are increasing staffing slightly to support outside facilities, such as the A-line, which has not been operational for some time. This includes adding 10 operators, a few engineers, and subcontractors, which will also have a positive economic impact on the community. Additionally, she mentioned that staffing needs will significantly increase when work begins on the B-line, as its facility was entirely laid up and will require more extensive reactivation efforts.

Ms. Cooks asked whether H Canyon interacts with data centers as part of its new mission.

Ms. Armstead explained that H Canyon does not directly work with data centers. However, under the Department of Energy's Project Genesis, they have been asked to provide input regarding their operational needs. While H Canyon's focus is on producing materials for fuel and reactors that ultimately contribute to energy supply for industries, including data centers, their role is more indirect serving as a part of the larger supply chain rather than directly engaging with data centers.

Mr. Richards from the EPA inquired about the Oak Ridge facility planned for 2028.

Mr. Hasty responded that the facility is called TRISO-X and is currently under construction.

Ms. Creech asked about the security protocols and protections in place to ensure the use of ChatGPT or AI technologies does not compromise H Canyon's mission or plans.

Ms. Armstead explained that strong security measures are in place, including a governance board for software approvals to prevent adversarial exploits and restrictions on purchasing software from foreign entities. She noted that the site employs an AI platform called "ChatSRS," which operates behind a secure firewall without web access. This standalone system only utilizes controlled, internal information. While the platform is used for general inquiries, like researching container specifications, it adheres to strict protocols, avoiding sensitive or mission-critical data. Any specific information must go through a rigorous approval process before use. This controlled setup ensures the AI's utility without posing significant security risks to the mission.

Ms. Priester asked if there is sufficient material to sustain operations until the Oak Ridge facility begins receiving shipments in 2028.

Mr. Hasty confirmed that there is enough material currently in storage, although it has not yet been blended. The material will only be blended just prior to shipment once Oak Ridge is ready to receive it, which requires their plant to be completed, licensed, and operational.

Ms. Armstead elaborated that while there is material available and demand exists, shipments are on hold because Oak Ridge's facility is still under construction, having recently broken ground. She also noted that the demand for advanced reactor materials has grown significantly due to recent executive orders aimed at accelerating nuclear energy production and revitalizing the nuclear energy base in the country.

Ms. Fulmer asked if the Accelerated Basin Deinventory (ABD) program has fully concluded and about its wrap-up process.

Ms. Armstead explained that while ABD has transitioned into the next mission, half a metric ton of material from ABD remains in H Canyon. This material will be repurposed to produce High-Assay Low-Enriched Uranium (HALEU). She described the challenge of this transition due to reconfigured tanks and the need to modify flow paths using jumpers, showcasing the flexibility designed into the Canyon. Although the ABD mission has officially ended, its remaining material is being actively utilized as part of the new mission.

Liquid Waste Modeling: Incorporating Cost into the Model: Andrew Jung, SRMC

Mr. Andrew Jung, a system planning modeling lead at SRMC, presented an overview of liquid waste modeling and how costs are incorporated into lifecycle planning. His presentation covered the purpose of modeling, the liquid waste lifecycle model, cost types and controls, and future development steps.

Key Points:

1. Purpose of Modeling:

- Liquid waste modeling creates a “digital twin” of facility processes, consolidating subject matter expertise into a simulation.
- It evaluates system-wide behaviors and predicts issues (e.g., emergent behaviors) that only arise from interactions between components, akin to analyzing how a fully-built bicycle performs rather than its individual parts.

2. **Liquid Waste Lifecycle Model:**

- The model maps waste processing through a high-level flowchart, dividing waste into two streams — salt waste and sludge waste. Salt waste is decontaminated in the Salt Waste Processing Facility (SWPF), while sludge waste and radionuclides are processed in the Defense Waste Processing Facility (DWPF) for vitrification (storing waste in glass form).
- Outputs include decontaminated waste to Saltstone and solidified radioactive waste stored in canisters.

3. **Model Functionality:**

- Combines logistical, chemical, and process controls to optimize waste removal, engineering, tank prioritization, and operational strategies.
- Allows simulations to evaluate "what-if" scenarios for strategic decision-making, as the system's complexity can make intuitive decision-making unreliable.

4. **Cost Integration:**

- Costs are categorized as **recurring costs** (e.g., ongoing facility operations) and **intermittent costs** (e.g., waste tank closure activities).
- The model prioritizes recurring costs to ensure continuous processing and prevent system bottlenecks.
- A cyclical cost-decision process ensures waste reduction activities take precedence over less critical tasks, like tank closures, in alignment with obligations under agreements with SCDES and EPA.

5. **Outputs and Cost Implications:**

- The model produces timelines for waste tasks, reallocates costs dynamically, and ensures operational flexibility (e.g., rolling over unused funds to the next cycle).
- It provides a quantitative tool to assess the impact of budget changes, such as funding increases or reductions, on processing and lifecycle timelines.

6. **Future Enhancements:**

- **Preventative Maintenance:** Add detail to maintenance schedules to improve equipment performance modeling.
- **Probabilistic Modeling:** Transition from deterministic (fixed outcomes) to probabilistic (variable outcomes) systems, introducing probabilities and distribution curves to simulate real-world uncertainties.
- **Iterative Goal-Seeking:** Develop feedback models that adjust cost and operational strategies dynamically based on priorities. This requires more computational resources and enhanced processing capabilities.

Conclusion:

The liquid waste cost modeling system is a vital decision-making tool for SRMC, integrating external factors, operational strategies, and engineering improvements. By prioritizing waste reduction and aligning with regulatory agreements, the model ensures steady progress while maintaining safe operations. It also serves as a communication bridge, helping decision-makers understand the implications of budget changes on waste management timelines and outcomes.

Liquid Waste Modeling: Incorporating Cost into the Model Q&A

Mr. Thomas inquired about DBD mentioned on slide 5.

Mr. Jung explained that DBD is a small business with an office located in downtown Aiken. It is a teaming subcontractor to SRMC that specializes in simulation modeling for the nuclear industry.

Ms. Creech asked about the biggest challenges in meeting annual processing timelines.

Mr. Jung explained that a major challenge in the past was adapting to the significantly increased processing capacity of the Salt Waste Processing Facility (SWPF), which jumped from handling 1.8 million gallons of salt solution annually to 7–8 million gallons. This required ensuring that the supporting tank farm infrastructure and processes could keep up to avoid idle time for the SWPF. Currently, the focus is on maintaining and running facilities efficiently by prioritizing preventative maintenance and addressing equipment needs. He mentioned the "Drive to 65" initiative that aims to maintain facility availability at a high percentage while accounting for inevitable downtimes, like annual site steam outages, by ensuring contingency plans and resources are in place to sustain operations.

Ms. Creech also asked about the percentage of downtime during processes.

Mr. Jung explained that downtime is often the busiest period at the facility due to active maintenance work. When the facility is running smoothly, staff have more time for meetings and planning. The goal for the liquid waste operation is achieving 65% facility availability. While this may seem low, he explained that the probability of maintaining higher percentages across multiple facilities diminishes due to the compounding effects of potential downtimes. He mentioned the "Drive to 65" initiative as the target but noted that he would need to provide the exact downtime percentage later.

Drone Utilization at SRS: Troy Lorier, BSRA

Mr. Troy Lorier, the UAS Operations Manager for Savannah River National Laboratory (SRNL), provided an overview of the lab's drone program, which supports Department of Energy (DOE) Environmental Management, Legacy Management, and related stakeholders on the Savannah River Site (SRS). Established in 2017/2018, the program conducts aerial inspections, photography, videography, R&D, and environmental monitoring across the 310-square-mile site, delivering cost-effective and safer alternatives to traditional methods. Key applications include supporting site area completion projects, emergency response drills, environmental monitoring, and facility inspections. Drones have also been used in specialized projects like herbicide application on reactor buildings to prevent vegetation growth, air sampling, tracking ash removal progress, and gathering topographical data using LiDAR for waste monitoring and site surveys. The program's flexibility has led to significant cost savings (often 60-80%) and improved safety by reducing the need for equipment such as helicopters or personnel in hazardous areas. The drone fleet includes rotary and fixed-wing aircraft, and SRNL holds advanced FAA authorizations (COAs) to perform operations beyond standard Part 107 regulations, including night flights, high-altitude missions, and the use of specialized payloads. Future program advancements focus on extended research and development, exploring new environmental applications like stream sampling and innovative payloads to enhance capabilities while ensuring safety and efficiency.

Drone Utilization at SRS Q&A

Mr. Priester asked about the frequency of replacing drones and improving their efficiency.

Mr. Lorier explained that they replace drone batteries more frequently than the drones themselves. Since the program began in 2018 without established procedures, they developed custom implementation plans, safety checklists, and protocols for inspecting and maintaining airworthiness. Parts such as props are replaced as needed, such as when damaged. Drones are expensive, with units

costing \$20,000–\$25,000, so they aim to use them as long as possible unless a specific issue arises. Technology evolves quickly, and occasional software updates are necessary to keep the drones current. For custom-built drones, they also define their own specifications to ensure safety compliance. Before each flight, thorough inspections and checks are conducted to ensure the drones are airworthy and pilots are confident in their operation.

Mr. Thomas asked about the relevance of elevation in the photograph showing elevation data.

Mr. Lorier explained that they conduct LiDAR surveys to analyze waste units, and elevation data helps identify potential problem areas. By post-processing the imagery, including rotating it 365 degrees, they can closely examine and compare baseline and subsequent surveys over time. Significant elevation changes between surveys can reveal issues that are not visible to the naked eye. For example, in units near streams, they focus on slopes to detect erosion or other changes rather than treetops or higher elevations. This method provides a detailed and proactive approach to monitoring and managing waste units.

Mr. Matt Baker, DOE-SR, explained that for waste caps, such as geosynthetic caps or ash pile covers, concerns like subsidence or structural breaches are critical. Monitoring over time with layered data, as discussed by Mr. Lorier, helps identify issues like sinking, cracks, or cap penetrations that are otherwise invisible to the naked eye. These insights can guide maintenance or replacements, especially when visible clues like concrete cracks hint at underlying issues without full clarity.

Mr. Lorier added that waste units cover such large areas that visual inspections can miss problems, especially hidden by taller grass or ground-level obstructions. A recent inspection revealed an animal-dug hole beneath hog fencing around a waste unit—a critical issue that might have been overlooked without drone surveillance and the advanced camera technology used.

Mr. Thomas asked if there was a breach in the ash pile near a stream, would it be visible?

Mr. Lorier responded that yes, it would be visible by comparing overlaid images. The processing can highlight changes in intensity with color grading to pinpoint areas of concern, where more intense colors indicate greater changes.

Mr. Thomas then asked how long does it take to charge the batteries?

Mr. Lorier stated they use several sets of batteries to minimize downtime, allowing them to swap out quickly and resume flights. Charging a set of batteries typically takes 30 minutes to an hour, depending on their starting charge level.

Mr. Thomas also asked if a fixed-wing aircraft was considered a drone?

Mr. Lorier responded that yes, a fixed-wing aircraft is considered a drone because it is unmanned or uncrewed. The term "drone" broadly encompasses various unmanned systems, including ground robots in some cases.

Ms. Creech asked how accurate drones are in achieving target missions, especially considering weather, emergencies, and performance needs?

Mr. Lorier stated the accuracy of drones largely depends on the mission's scope and the payload used. For simple tasks like taking pictures, accuracy is sufficient since detailed measurements aren't required. For more precise missions, like those requiring LiDAR, the level of accuracy varies based on

the equipment. SRNL uses a Yellow Scan Mapper Plus LiDAR system, which provides mid-level accuracy and costs around \$65,000. More detailed systems offering millimeter-level accuracy can easily cost hundreds of thousands of dollars. For missions requiring precise detail, investing in higher-end equipment ensures optimal performance.

Ms. Priester asked how far can drones operate from the pilot?

Mr. Lorier stated the operating range depends on the drone and its settings. UAS systems often include geofencing capabilities, where a virtual boundary can be set to restrict flight range. If the drone reaches this boundary, it will either alert the pilot or automatically return home. Fixed-wing drones can travel farther distances since they consume less power while in flight and can cover miles at a time. However, their small size at a distance can make them harder to track visually. For most operations, such as rooftop inspections, flights remain close to the pilot. For large-area surveys, drones often fly autonomously along a programmed pattern within the geofence, ensuring safe operation with an automatic return-to-home feature if communications are disrupted.

Ms. Priester then asked if off-site customers like the Marines need to operate the drones themselves and know where to target?

Mr. Lorier responded by saying that yes, when off-site customers, such as the Marines, fly with SRNL, they must comply with the site's certificates of authorization (COA) and adhere to its requirements. If they pilot their own aircraft, the aviation manager ensures they have the necessary certifications and qualifications. While DoD agencies sometimes certify their own pilots rather than using Part 107 certifications, SRNL verifies they meet safety standards, such as having return-to-home features on their drones. Flight operations predominantly occur within site boundaries, but occasionally SRNL supports off-site projects; for example, last year they conducted a mission in West Virginia for an off-site customer using specialized payloads. Around 95% of their flights remain on-site.

Ms. Jackson asked if Centerra used drones, and if they used in the Centerra area in B area?

Mr. Lorier said that SRNL has flown drones for Centerra in the past because they currently do not have a UAS program. Centerra is in the process of establishing their program but has not yet started flying drones. They continue to rely on helicopters for their operations.

Ms. Jackson then asked who manufactures the drones used on-site?

Mr. Lorier said the drones do not have a single manufacturer. One type is the X2, made by Skydio, while another is made by DJI. However, SRNL no longer flies the DJI-manufactured drones.

Ms. Jackson also asked if there are warranties for the drones used?

Mr. Lorier said that he was unsure about whether the drones come with a warranty.

Mr. Thomas asked if drones were used for controlled burns?

Mr. Lorier said that SRNL recently flew a drone during a controlled burn for the first time. This required significant coordination with the forestry teams, as controlled burns are common around the site this time of year. The mission involved collaboration with the lab's atmospheric technologies group, which provided a meteorological sensor mounted on an Alta X drone. The drone flew through the smoke on a pre-programmed pattern to collect meteorological data. The drones used during such operations come equipped with both RGB and thermal cameras. In this instance, thermal imaging

was used to track the progression of the fire line. The thermal video clearly showed the advancing fire, which was ignited from the ground in a small test area. This smaller burn allowed for thorough testing of the drone's capabilities in monitoring fire behavior and gathering data.

Public Comments

No public comments.

Board Business:

Recommendation discussion:

Mr. Tanner provided an overview of the procedures for reviewing, editing, and voting on recommendations. The specific recommendations under discussion included:

- **Recommendation 385:** Completion of F/H Laboratory Deactivation and Initiation of Facility Decommissioning
- **Recommendation 386:** Expanded Use of Autonomous or Unmanned Technologies
- **Recommendation 387:** Reactivation of H-Canyon

Each recommendation was thoroughly reviewed, deliberated, and subsequently voted upon. All recommendations were approved.

Closing Remarks

Mr. Tanner expressed his gratitude to everyone for attending and extended his appreciation to the CAB support staff, AV team, and all participants for their contributions. He concluded by looking forward to seeing everyone at the next full board meeting in May.

Meeting adjourned at 2:00pm EST.