



IDAHO CLEANUP PROJECT

C I T I Z E N S A D V I S O R Y B O A R D

Meeting Minutes

February 21, 2018

List of Acronyms

AMWTP	Advanced Mixed Waste Treatment Project	EPA	Environmental Protection Agency
AOA	Analysis of Alternatives	HIP	Hot Isostatic Pressing
ARP	Accelerated Retrieval Project	ICP	Idaho Cleanup Project
ATR	Advanced Test Reactor Complex	INL	Idaho National Laboratory
BEA	Batelle Energy Alliance	ISA	Idaho Settlement Agreement
CAB	Citizens Advisory Board	IWTU	Integrated Waste Treatment Unit
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act, also referred to as superfund	NAS	National Academy of Sciences
CRR	Carbon Reduction Reformer	NWTRB	Nuclear Waste Technical Review Board
D&D	Decommissioning and Dismantlement	PC	Performance Category
DDFO	Deputy Designated Federal Officer	PCE	Tetrachloroethylene
DEQ	Department of Environmental Quality	ROD	Record of Decision
DMR	Denitration Mineralization Reformer	RCRA	Resource Conservation and Recovery Act
DOE	Department of Energy	SDA	Subsurface Disposal Area
EIS	Environmental Impact Statement	SNF	Spent Nuclear Fuel
EM	Office of Environmental Management	TRU	Transuranic waste
EM SSAB	Environmental Management Site Specific Advisory Board	WCS	Waste Controls Specialists
		WIPP	Waste Isolation Pilot Plant

The Idaho Cleanup Project (ICP) Citizens Advisory Board (CAB) held its quarterly meeting on Wednesday, February 21, 2018, at the Residence Inn Marriott in Idaho Falls, Idaho. An audio recording of the meeting was created and may be reviewed by calling CAB Support Staff at 208-557-7886.

Members Present

Josh Bartlome
Bob Bodell
Keith Branter
Brad Christensen
Marvin Fielding
Jim Huston
Kristen Jensen
Talia Martin
Trilby McAfee
Betsy McBride
Cathy Roemer
Larry Schoen

Members Not Present

Deputy Designated Federal Officer (DDFO), Federal Coordinator, and Liaisons Present

Jack Zimmerman, DDFO, U.S. Department of Energy Idaho Operations Office (DOE-ID)
Connie Flohr, Acting DDFO, DOE-ID
Brad Bugger, Federal Coordinator, DOE-ID
Fred Hughes, Program Manager, Fluor Idaho
Daryl Koch, Idaho Department of Environmental Quality (DEQ)

Others Present

Erik Simpson, Fluor Idaho
Beatrice Brailsford, Snake River Alliance
Mark Shaw, DOE-ID
Ed Schneider, DOE-ID
Kelly Gallows
Brian Novah
Dave Parmeler
Brandon Leatham
Mark Hutchison, NRF
Monte Sanford
Curtis Roth, DOE-ID
Chris Henvit, NRF
Brenna Summers, U.S. Congressman Mike Simpson
Joel Case, DOE-ID
Scott Lee, BEA
Rebecca Casper, Idaho Falls Mayor
Andrea Gumm, Facilitator
Kelly Green, Staff

Mark Brown, DOE-ID
Dana Kirkham, REDI
Melan Steele, U.S. Senator James Risch
Amy Taylor, U.S. Senator James Risch
Jim Malmo, DOE-ID
Kevin O'Neill, DOE-ID
Clark Jones
Susie Barna
Tami Thatcher
Neil Flegel
Eric Schweinsberg, SN3
Ann Riedesel, Fluor Idaho
Karen Bass, Staff
Danielle Miller, DOE-ID
Theresa Perkins, DOE-ID
Kathryn Hitch, U.S. Senator Crapo
Preston Abbott
Jordan Davies, Staff

Opening Remarks

Facilitator Andrea Gumm began the meeting at 8:00 a.m. She reviewed the agenda and noted that the public comment periods would be held at 10:15 a.m. and 1:30 p.m. She reminded attendees of the process for public comments during the meeting, time permitting, or via question cards.

Keith Branter (CAB Chair) welcomed everyone to the first meeting of 2018. He stated that there were many interesting presentations on the agenda and indicated that the Board would be discussing potential recommendations on some of the topics covered.

Jack Zimmerman (DOE-ID Deputy Manager and CAB DDFO) apologized for his absence from past meetings and said he wanted to be at this meeting to deliver the ICP Overview presentation and express his appreciation for the direction the Board is heading in, especially as it pertains to a potential future mission for the Advanced Mixed Waste Treatment Project (AMWTP), and future treatment of high-level waste. Zimmerman said it is an exciting time for the CAB as DOE-ID wraps up some of the cleanup missions and moves toward final cleanup.

Daryl Koch (DEQ) introduced himself as being the representative who typically speaks about Comprehensive Environmental Recovery, Compensation, and Liability Act (CERCLA) related work at Idaho National Laboratory (INL). He stated that for this meeting he had been charged with speaking about Resource Conservation and Recovery Act (RCRA) work, particularly as it pertains to AMWTP.

Koch provided an update of site activities since the October 26 meeting:

- Buried Waste Retrieval at the Accelerated Retrieval Project (ARP)
 - As of February 1, retrieval of buried waste at ARP VIII was 88 percent complete
 - Construction of ARP IX is complete, but retrieval will not begin until ARP VIII is done
 - Although the Remedial Action Report for all buried waste retrieval is due December 31, 2023, DOE hopes to complete ARP IX by 2020
- Targeted buried waste retrieval milestone
 - A CERCLA milestone requires that all targeted buried waste retrieved before December 31, 2017 and currently stored at INL (approximately 14,000 drums) should be removed by December 31, 2018
 - Koch said he does not expect this milestone will be met as the Waste Isolation Pilot Plant (WIPP) is unable to accept that many shipments
 - The penalties for missing this milestone under the Idaho Settlement Agreement (ISA) and the CERCLA agreement are the same, so there would not be an additional penalty
 - Anything generated after December 31, 2017 must leave the state by December 31, 2018.
- Evapotranspiration (ET) cover system for the Subsurface Disposal Area (SDA)
 - Fluor Idaho submitted the 30 percent design for the ET cover on February 15
 - Following the review cycle, a 90 percent design will be produced
 - A design is expected to be finalized by September 2019 so workers can move directly from retrieval to cap construction upon completion of ARP IX

Fred Hughes (Fluor Idaho) reported that ICP workers have:

- Made 108 shipments to WIPP since it reopened

- Exhumed 4.8 of 5.69 acres, and have about 0.2 acres left in ARP VIII. Fluor Idaho will start the roaster oxides in two weeks.
- Completed 22,607 entries into high contamination areas without an incident in the last year
- Processed almost 3,600 cubic meters at AMWTP to date

During the last CAB meeting, Hughes indicated that Fluor Idaho had some trouble with its safety performance. He commented that they have focused on safety and compliance since then and their recordable rate is now 0.8 (down from 1.41) and their day away case is 0.25 (down from 0.61). Hughes added that there has been a recent hiccup with accidents that they are working through but expect to maintain their current level of performance and continue to improve.

Recent Public Outreach Activities

Zimmerman reviewed recent public outreach activities. The presentation is available on the ICP CAB website: <https://energy.gov/em/icpcab>.

Talia Martin (CAB Member) asked the reason for the National Academy of Sciences (NAS) tour. Connie Flohr (DOE-ID) responded that NAS is assessing all EM sites to see if there are technologies that could be implemented to address specific issues at each site. NAS typically makes recommendations to the DOE Office of Science so the Department can make use of the labs, and the Office of Science activities can be brought to bear on EM activities.

Larry Schoen (CAB Member) asked for information about the Nuclear Waste Technical Review Board (NWTRB). Zimmerman responded that it is a group established by legislation to provide oversight on nuclear waste transportation. They look at high-level waste and spent nuclear fuel (SNF). Over the last year and a half they conducted a complex-wide study and developed a report around December 2017. The study has implications and recommendations tied to Idaho, so the NWTRB reached out about giving a report and highlighting those recommendations at the next CAB meeting.

Idaho Cleanup Project Overview

Jack Zimmerman (DOE-ID) provided a presentation on the status of cleanup at the Idaho Site. The presentation is available on the ICP CAB website: <https://energy.gov/em/icpcab>.

Betsy McBride (CAB Member) asked Zimmerman to provide more information about the different kinds of fire and asked if pyrophoric fires are common. Zimmerman responded no, pyrophoric fires are not common. As a metal fine is exposed to air, it reacts naturally in an exothermic way and releases heat, which starts a fire until the fuel source is extinguished. Oxygen causes this reaction and ignition. These metal fines are sealed in drums, where there is no oxygen. Reactions occur when the drums are opened. He added that DOE is looking at using ARP IX to treat material that is pyrophoric.

Koch commented that depleted uraniums were machine lathed at the Rocky Flats Plant in Colorado, which produced fines or scrapings. These fines and scrapings were roasted there, but some were missed and included in shipments to Idaho. He added that the reaction is desired in a controlled environment so workers can add dirt, let it smolder until there is no more reaction, segregate, and package it. Following that process, it will likely be shipped off-site. McBride asked where the fines and scrapings came from originally. Koch stated that almost all the waste in Idaho came from Rocky Flats.

Schoen referred to the photos on Slide 5 of the presentation. He asked Zimmerman to explain how there are no releases to the environment from a fire of material that is contaminated. Zimmerman stated that this fire took place inside the boxline tray at AMWTP. The boxline area is filtered by high-efficiency particulate filters that capture any potential contamination so it is not released outside this space. The boxline was

temporarily shut down following the incident and examined. No unreacted material remained. Workers packed the material in a 55 gallon drum with inert material to provide a blanket in case of additional reaction. Overall, the facility performed well.

Zimmerman continued to say that Fluor Idaho will conduct a detailed evaluation of how to deal with drums with pyrophoric characteristics moving forward. For example, they are considering having dirt or other material pre-staged so workers can react to these fires more quickly.

Jim Huston (CAB Member) asked if the new BROKK retrieval arm was shown on Slide 10. Huston commented that the CAB has spent a lot of time discussing the arm and asked if Zimmerman has any assessment of the arm's safety and usability versus promises made on the design. Zimmerman responded that it has performed better than expected. A year ago it was getting 30 to 40 percent increased productivity because of improved design features and reliability compared to the older model. There are also fewer maintenance entries.

Hughes stated that productivity has improved 40 to 50 percent and that the operators say using the new arm is much more ergonomic. He added that the new arms appear to crack in a certain location, and they have been working with the vendor to see if there is a design flaw, or if they need to fix something operationally. Overall it is better and there is significantly less maintenance downtime.

McBride asked about treating roaster oxides in ARP IX, specifically what is involved in treatment and if there will be extra contaminated dirt. Zimmerman responded that the dirt is contaminated in the ARPs to begin with. The treatment process allows the roaster oxides to react with the oxygen until the fires burn out. This process occurs inside the ARPs, which are engineered structures with no potential release to the environment. Zimmerman added that inert material will be staged so workers can control the reaction rate.

Hughes commented that disposal sites in Nevada are preferred for roaster oxides.

Cathy Roemer (CAB Member) asked Zimmerman to discuss WIPP maintenance. Zimmerman responded that it was simply routine maintenance. WIPP stopped receiving shipments for about two weeks during that time. Jim Malmo (DOE-ID) added that they were performing routine, annual maintenance on the hoist.

Schoen referred to Slide 13 of the presentation and asked for clarification on schedule. Zimmerman said that treatment is on track, but shipment has been stalled and is out of DOE-ID's control.

Marvin Fielding (CAB Member) asked Zimmerman to review which waste streams end up going through AMWTP. Zimmerman responded that the waste that goes through AMWTP is stored transuranic (TRU) waste. Workers completed retrieval of all stored waste last February and are now processing the material that was retrieved from the stored area. Buried waste is treated within the ARPs.

Schoen asked Zimmerman to clarify the process for SNF. Zimmerman responded that the only active project is the transfer of fuel from wet to dry storage. Disposal of fuel relies on a geologic repository, originally planned for Yucca Mountain. Disposal was put on hold or canceled by the previous administration.

Schoen asked why Zimmerman stated during his presentation that SNF is not considered a waste. Zimmerman stated that it is fuel until it is declared a waste. The idea for now is to move the remaining fuel into dry storage, and then dispose of it in the future, when there is a geologic repository and defined criteria for packaging.

Beatrice Brailsford (Snake River Alliance, Pocatello) asked why DOE will put asphalt over the Tank Farm and the ET cap over the buried waste. Zimmerman responded that the asphalt will serve as an interim cap while the tank farm is still active. Both asphalt and ET covers are effective, however the ET cap will be more effective in the long run. ET covers use natural vegetation to balance any potential for infiltration, while asphalt degrades over time.

Brailsford asked how many barrels are staged to go to WIPP and if they are showing signs of degradation. Zimmerman responded that a small population of drums which were staged for shipment to WIPP were degraded. They were primarily sludge drums containing acid sludge waste. However, these drums are certified to ship and are the ones DOE has been sending to WIPP since its reopening. Degrading drums are high priority and only a couple remain. Zimmerman added that the degrading drums were correlated with higher acid content. The sludge drums that remain on site are not showing that degradation, and all sludge drums should leave Idaho by June.

Brailsford asked if they will remove the asphalt cap over the Tank Farm before applying the ET cover. Zimmerman said the ET cover will go over the asphalt.

Koch added that the asphalt, which is road mixed and compacted to a high density to shed water, is an interim cap over the western two thirds of the Tank Farm. When the Integrated Waste Treatment Unit (IWTU) has processed the remaining 900 thousand gallons of sodium-bearing waste currently housed in three tanks, those tanks will be filled with concrete, and asphalt will be applied to the eastern third of the Tank Farm. Once the Idaho Nuclear Technology and Engineering Center (INTEC) is completely closed, the ET cover will be constructed over the entire SDA.

Integrated Waste Treatment Unit (IWTU) Update

Kevin O'Neill (DOE-ID) provided an update on the IWTU project. The presentation is available on the ICP CAB website: <https://energy.gov/em/icpcab>.

Branter referred to Slide 4 of the presentation and asked for the timeframes of Phases 2, 3, and 4. O'Neill stated that successful completion of Phase 2, allows progression to Phase 3. While they are currently planning for Phase 3, they are behind schedule as they discovered problems with the Denitration Mineralization Reformer (DMR). O'Neill concluded that they do not have a timeline for Phases 3 and 4.

Huston referred to the two 80-day demonstration runs and asked if those have begun. O'Neill responded that the two runs total 80 days, a 30 day and a 50 day run. Huston asked if they have a schedule for these activities. O'Neill stated they have a schedule for Phase 2, but not for Phases 3 and 4. Huston asked how they are performing progress evaluations on their engineering, design, and testing work with no set end point. O'Neill said they are looking at progress against the current plan for Phase 2. Without successful completion of Phase 2, work cannot begin on Phase 3.

Zimmerman commented that the end point goal was six years ago. The two demonstrations will prove whether or not the solutions implemented during the technology development phase work, and once they know that the facility will perform, they can clearly define the path through Phases 3 and 4. Zimmerman added that they have been operating a quarter scale pilot plant with various modifications to the DMR mockup inside it. The last run lasted 30 days and continuously processed 10,000 to 11,000 gallons of waste, and proved that the modifications were effective in the pilot plant. The next step is proving the improvements will work full scale. Once full scale operations are proven, they are past technology development and can move forward with Phases 3 and 4.

Schoen asked O'Neill to explain the difference between the DMR and the Carbon Reduction Reformer (CRR). O'Neill responded that the DMR is where liquid waste is treated and made to look like sand. Solids come out the bottom of the DMR and are ultimately put in canisters. The off-gas that comes off the top of the DMR is filtered and then goes to the CRR, where it is polished and treated. O'Neill summarized by saying that the DMR treats liquid waste, the CRR treats off-gas.

McBride asked how many IWTU operators there are and what they have been doing while pilot testing has been being conducted for the last year. O'Neill responded that at least 33 IWTU workers have been working around the clock performing full-time maintenance activities. They have been training, writing procedures, ensuring all instrument labels are correct, and walking the plant so they know what has changed.

Roemer asked if Fluor Idaho's first simulant run a year ago was a success. O'Neill characterized it a success because they learned a lot: The ring-header needed to be replaced and the DMR needed to be redesigned in order to achieve success, which meant going into technology development mode.

Roemer asked what Fluor brought to the table that was not previously there. O'Neill responded that the previous contractor was very good at decommissioning and dismantlement (D&D), but designing, building, and operating a new, first-of-a-kind facility was not their specialty. They brought in proven technology, but this specific plant for this waste was not yet proven. They did not perform the pilot plant work, and did not prove all the elements of the design. Fluor Idaho provides a broad group of workers who offer a broad range of experience. They were not involved in the initial design, so they can evaluate it objectively.

Kristen Jensen (CAB member) commented that she has followed this project for many years, and thanked O'Neill and his team for working so hard to figure it out.

Zimmerman added that the previous contractor had been addressing mechanical issues for much of the delay. They were unable to sustain operations long enough to realize the DMR was not going to work until their final simulant run before Fluor took over the contract. They were focused on getting the mechanical systems operating so they could run the simulant and see what the plant could do. Zimmerman concluded that the other contractor was good at working through those mechanical issues, but would have benefited greatly from the current pilot plant testing and technology development before constructing the facility. They did not know and prove that until just months before the contract transition.

Brad Christensen (CAB Member) asked for the anticipated volume of the second and third simulant runs. O'Neill responded that it comes close to 200,000 gallons.

EM Budget Priorities

Connie Flohr provided an update on the EM budget priorities. The presentation is available on the ICP CAB website: <https://energy.gov/em/icpcab>.

Brad Bugger (DOE-ID) stated that the Environmental Management Site Specific Advisory Board (EM SSAB) two years ago wrote a letter to the Assistant Secretary for Environmental Management (EM) which stated that the individual boards would like to have more input in the budget process. Since then, DOE-ID has provided presentations to the ICP CAB about its budget priorities and requested the Board's input. Bugger said DOE would be glad to hear the CAB's thoughts on the budget priorities laid out in Flohr's presentation, if they are interested in continuing that process.

Branter asked if DOE-ID has an idea of how much money will be allocated to Idaho. Bugger responded not at this time, which is why the priorities discussed are high-level. The idea is to agree on the projects to spend the money on, whatever the amount.

McBride asked how soon DOE needs the Board's response. Flohr responded that there is not yet an official schedule, but said DOE-HQ will likely ask for the initial detailed information from the Idaho Operations Office in the mid-to-late-April timeframe. In April or May, DOE-ID will issue their funding request to DOE-HQ, Zimmerman will likely brief Headquarters on that request, in September a formal presentation will be made to the Office of Management and Budget, and in December or January Headquarters will approve a final budget. At any time during that process, the CAB has the ability to make revisions.

McBride commented that several projects are over budget and asked if the CAB should recommend protection of those projects. Flohr responded that there is never enough money, and DOE-ID has a list of projects toward which they could put any additional funding they do receive. She added that the projects are not technically over budget, as DOE-ID spends the money it receives. While they may be spending more on some activities than they originally planned in the baseline, they have only spent the money they have

received. Flohr concluded that Congressman Mike Simpson has done a tremendous job of ensuring DOE-ID is adequately funded.

Schoen asked Flohr to explain waste certification. Flohr responded that certification means the waste is prepared to be shipped. Schoen asked how calcine and liquid sodium-bearing waste are related. Flohr responded that calcine was run through the Calciner, which was shut down years ago leaving 900,000 gallons of waste remaining in the three tanks at the Tank Farm. IWTU was built to process those last 900,000 gallons. The calcine material, of which there are 4,400 cubic meters, is a similar texture to the granular product that will ultimately come out of IWTU.

Schoen asked what is being asked of the CAB in terms of a budget priorities recommendation. What are the criteria of prioritizing? Flohr responded that when preparing the priorities, DOE factors in safety, surveillance, and maintenance, but to some degree, the milestones with the state drive what needs to be done, and when. Flohr said she hopes the CAB will review what she presented for the 2020 budget and consider if there is something DOE should do differently.

Koch added that the regulatory agencies have priorities as well. He encouraged the CAB to think ahead, but understand that DEQ bends, too.

Flohr encouraged the Board to consider the priorities, without thinking about the financial aspect. Regardless of how much money DOE-ID receives for Fiscal Year 2020, the Board knows what they'd like to see get done and in what order.

Public Comment Session #1

Tammy Thatcher, Idaho Falls, referred to a potential future mission for AMWTP. She said she has read that DOE believes the ISA must be modified to allow non-INL waste to be treated. The ISA already allows that. Thatcher commented that she does not understand why DOE does not think the 6-months in/6-months out aspect of the agreement is acceptable. She said she is concerned that the process of relocating calcine to a seismically sound bin appears to be coming to a halt.

Thatcher asked about Advanced Test Reactor (ATR) fuel going from wet to dry storage. She said she thought DOE planned to send the ATR high-enriched uranium fuel to Savannah River and asked if that plan had been nixed.

Thatcher commented that Idaho Falls public drinking water periodically has high levels of gross alpha that is not attributed to uranium. She asked if the state knows what the contributors are and if they are trying to figure out what is in the water.

Thatcher stated that EPA's website shows that Idaho Falls has high airborne carbon tet. She asked if the state associates the many pounds of carbon tet from the site with the air quality in Idaho Falls, and if not why? She asked if members of the public should have any confidence the state and/or DOE will control and monitor contamination from the soon-to-be running IWTU.

Update on Status of AMWTP Future Mission Study

Jim Malmo (DOE-ID) provided an update on the status of the AMWTP future mission study. The presentation is available on the ICP CAB website: <https://energy.gov/em/icpcab>.

McBride commented that DOE should talk to the stakeholders before they discuss a potential future mission for AMWTP with the generator sites. Malmo responded that DOE is merely looking at the feasibility of an extended mission for AMWTP and what the priority is for treating TRU waste complex-wide. He said it is difficult to talk to the stakeholders before they know the answers to these basic questions. McBride said it is never too early to talk to the stakeholders. If the issue, for example, is the ISA, and DOE's ability to treat

waste and get it out, then understanding what the regulators, politicians, and stakeholders feel about that could render this conversation mute. Malmo responded that Jamie Joyce (DOE-HQ) discussed this with the CAB in October 2015 as a way of informing the public that DOE was looking at this.

McBride commented that she disagrees with the idea that DOE can decide what beneficial means without conversations with the state regulators and stakeholders. She said the decision will be as much about politics as it is about life-cycle cost. The sooner the questions start bubbling up and the public conversation about it goes beyond press releases, the more fulsome DOE's idea of what constitutes beneficial will be. McBride stated that DOE is waiting too long to talk to those other people.

Flohr commented that she thinks stakeholder involvement and evaluation of feasibility is happening concurrently, rather than sequentially. The generator sites, ICP CAB, DOE-ID and DOE-HQ are all trying to work on their pieces of this conversation. There is a lot of effort going on at the same time. It isn't sequential.

Christensen said his concern is the opposite of McBride's. Many stakeholders already know where they'd like to be on this issue. He commented that indecision is a decision. It has been determined to be beneficial, and it is time to move forward. Christensen added that after writing a newsletter article on the topic of AMWTP, he feels the Board has been stuck in neutral for far too long.

Branter commented that the CAB already sent a recommendation to DOE-HQ stating its support for a future mission for AMWTP. He asked if DOE has completed its study and just not made a decision, or if they are still working on the study. Malmo responded that they have completed the study and asked for additional information, which is being provided. There are various issues they are trying to work through. Branter asked if it would be beneficial for the CAB to provide another recommendation. Malmo responded that the Board's input should be part of the process going forward.

Flohr added that there are many issues, such as transportation, that must be resolved beyond the desire to keep it running.

Trilby McAfee (CAB Member) asked if the new administration is discussing use of Yucca Mountain and if it could be a potential disposal site for TRU waste from other sites treated at AMWTP. Malmo responded that Yucca Mountain, if opened, would accept SNF, not TRU, waste, but confirmed that the current administration is considering it for SNF waste disposal.

Schoen brought up funding for a future mission. He asked if this is a system-wide issue, or an every-state/facility-for-itself situation. Who gets funded and who has to pay for treatment of the TRU waste is a question that goes to the heart of the overarching goal. Schoen also asked if DOE has a settlement agreement with Washington, too. Flohr responded that Washington has the Tri-Party Agreement. Schoen asked if they are making the same investments as Idaho is in meeting the terms of their agreement. Flohr said yes, but they must address other things of greater priority before they begin treating their stored TRU waste. They do have money slated in their planning profile for treatment of TRU waste decades from now. On an annual budget basis, DOE must prioritize across the complex as EM only gets so much money.

Flohr added that within EM's planning profile, each state has their own profile. If AMWTP shuts down, there could be a dip in Idaho's funding that year. Idaho is likely to receive a wedge of funding in the next five to six years, when AMWTP could potentially be processing waste for Hanford. The question is if DOE-ID should ask for money to keep the facility going in order to do good for the complex.

Schoen asked if the wedge of funding Flohr referred to could be repurposed. Malmo said yes, DOE-ID would put the money toward the next priority or project, such as doing more with calcine or spent fuel.

Schoen said the ICP CAB recommended an extended mission for AMWTP in 2014. He asked if that advice came in the form of a recommendation. Gumm responded that it was sent as a letter.

Huston commented that the federal government budgets without a budget. It has an annual appropriation and it funds long-term projects by either using contracts or other instruments. However, there is no way to fund a program on absolute dollars year after year, so there is a continuing resolution. Huston commented that the CAB wants to see the people in Southeast Idaho keep their jobs and the site to keep its employment base. If Idaho loses the budget and funding, it will lose its jobs.

Malmo clarified that if DOE-ID maintains its funding level, that funding will be applied to other priorities and other projects. AMWTP is coming to the end of its mission. If the decision is made to extend that mission, and bring in waste from other sites for treatment, it will go on another three to five years. At some point, though, even the extended mission will end. Holistically, the funding will maintain the same number of jobs, but those jobs may not be the same kind or in the same area.

Christensen said preservation of these jobs is not necessarily the only consideration. He looks at it from the point of a taxpayer, and the most efficient way to process TRU waste complex-wide is to bring it to Idaho's AMWTP for treatment and then ship it on for disposal. Malmo said that DOE will have to pay to treat Hanford's waste sooner or later, so it might make sense to send it to Idaho, where there is already a system in place.

Branter asked how much it costs a year to run AMWTP. Malmo responded about \$100 million, but the treatment portion is \$60 to \$70 million. Branter asked what DOE-ID will use that \$100 million on if AMWTP were shut down. Malmo said they will likely put it toward either calcine or an increased buried waste effort. Branter commented that from an ICP CAB standpoint, moving that money to other areas may be advantageous. Malmo said they could put money into deconstructing the ARPs and potentially put the caps on earlier.

Flohr encouraged the CAB to consider the benefits of an extended mission. It would benefit Idaho. The workforce would remain and be able to demonstrate to the country the value of this great facility for the entire complex. It is also right for the taxpayer. Flohr added Washington wins because they can start moving waste sooner, and Fluor Idaho wins because they have employees who are worried about their jobs, which is affecting morale. Flohr said she and Zimmerman have been trying to show DOE-HQ that there are cost savings associated with a future mission as well as the aforementioned benefits.

Josh Bartlome (CAB Member) asked what the guarantee is that DOE-ID's budget would stay the same if AMWTP were to go away. Flohr stated that EM has a planning profile for each site which is used every year as a starting point for budget requests. There are no guarantees. For now, however, there is a commitment that the funding would stay level.

Flohr continued to say that a \$20 to \$30 million cut to DOE EM's budget would not be a lot of money, but the same cut to Idaho's budget would be significant. Malmo added that DOE-ID's budget was cut in 2012, and the ARPs consequently sat idle.

Schoen referred to Slide 5 of the presentation and the assertion that a blanket exception or removal of the 6-month in/6-month out requirement in the ISA would be required. He said it is one of the large overhangs when discussing benefits. Malmo responded that there is nowhere to ship the waste because WIPP is constipated. Shipping it somewhere else for temporary storage is not monetarily efficient. Additionally, shipping it out of the state in place of Idaho waste that is already staged and waiting to go does not make sense. Backlogs of waste and reduced weekly shipments to WIPP create this issues.

Branter commented that he read the ICP proposed budget request was \$30 million less than expected. He asked what DOE-ID will do if they do not get that money. Flohr responded that they will wait to see what they actually get. Malmo added that if they do indeed cut the budget by \$30 million, DOE-ID will go through their priorities and move something down the list to be addressed later.

Christensen said he was trying to come up with a timeline, and asked when a decision needs to be made. Malmo responded that a future mission is not in the Fluor Idaho contract as DOE had not yet made a decision when they signed the contract. Fluor Idaho's current contract is to finish treating the waste this calendar year and go into RCRA closure. The contract can be changed. Hughes has been working on what to do with that workforce.

Christensen asked if AMWTP is the only place in the country where workers can remote-handle treat contact-handled TRU waste. Malmo said yes. Workers go in and manually open the boxes at other sites, whereas AMWTP utilizes a large glovebox to treat the boxes remotely. Christensen commented that safety is also an issue, then. Malmo responded that using the boxline is clearly the safest way to treat the waste. The Los Alamos National Laboratory (LANL) sent their boxes to Idaho for treatment rather than deal with them there by hand.

Roemer asked if the boxes are certified. Malmo responded yes. Roemer asked if transportation of the waste poses an increased risk of accident. Malmo confirmed, but said the waste is put in a Type B Container as an additional safety measure. They are considering how best to transport the waste, i.e., rail versus truck. Malmo said the safest option is to put it all on a train and send it at once, but DOE would be unable to treat it all in six months.

McBride asked if Idaho could process the waste and then send it to an interim facility, maybe in Utah or Nevada. She asked if it wouldn't be better to send it to an interim facility than open up the ISA. Malmo responded that no one is volunteering to be the interim facility. Idaho could treat the waste and send it back to Hanford, but that does make sense.

McBride said it makes sense to send the treated waste back to Hanford if DOE-ID is trying to protect the ISA. Malmo said the only adjustment to the ISA would be to remove the logistical 6-months in/6-months out piece. The only location that has accepted DOE waste for interim storage was Waste Control Specialists (WCS) in Texas. Treated waste from LANL was sent there, and it was incredibly expensive. Following the incident at WIPP, other sites are nervous to accept DOE waste.

Flohr commented that in the short-term it does not make sense to pay to store the waste at WCS, but said she agrees that in the long-term it does. Malmo added that they have looked at sending waste off site, but said it comes down to the efficiency and feasibility question. It costs to ship it to an interim place, and then it costs to ship it from the interim location to WIPP. Flohr asked the Board to consider if there is still an overarching benefit to an AMWTP future mission if the costs of utilizing an interim storage facility erode some of the cost savings.

Schoen asked what the timelines are for removal of TRU waste at other sites. Malmo said Hanford has decades. LANL had an agreement with their governor to remove 3,700 cubic meters. They have a deadline but they missed it because of the incident at WIPP. It varies site to site.

Schoen asked if Idaho should be helping other sites solve their own waste problems, and how this waste would be stored on an interim basis at the Idaho site. Malmo responded that RCRA Type 2 storage modules have already been built at the site and any waste would be stored inside those facilities. He added that the waste at Hanford is currently stored outside on concrete pads.

Fielding observed that Hanford only has 7,000 cubic meters of waste (as opposed to Idaho's original 65,000 cubic meters), so there is plenty of room for storage. He asked if Hanford has allotments to WIPP. Malmo responded yes, but they do not begin until 2025.

Idaho High-Level Waste

Mark Shaw (DOE-ID) provided a presentation on Idaho's high-level waste. The presentation is available on the ICP CAB website: <https://energy.gov/em/icpcab>.

Schoen asked how deep the concrete vaults are. Shaw responded that the bins in Bin set 1 are 20 feet tall, with 40 foot vaults, while the bins in Bin Set 6 are 68 feet tall. He added that Bin set 1 is entirely underground.

Joel Case (DOE-ID) commented that nitric oxide and mercury were released from the stack, which was functioning under an interim status permit. It would have been a major upgrade to obtain a permit. This was one of the main drivers to shut down the facility.

McBride asked if the bins could go critical. Shaw said no.

Schoen asked if the bins generate heat. Shaw responded yes, they are thermally hot because of radioactive decay but have cooled significantly over time. Schoen asked when the completion date is. Shaw responded that the ISA requires shipment out of Idaho by 2035.

Flohr asked if Bin set 1 meets the same seismic requirements as the others. Shaw said Bin set 1 was built first and meets performance category 2 (PC2) requirements. PC4 is the strongest. All other bin sets were built to PC3.

Schoen said he thought calcine was fairly stable. He asked how the calcine material was created given all these unknowns. Shaw responded that he wasn't sure about the background. Reprocessing began in 1952. Bin set 1 was filled in 1963.

Bodell asked if the IWTU waste will resemble the calcine waste once treated. Shaw said it will be similar physically (a dry granular powder), but different chemically.

Bodell asked how they plan to retrieve the waste from Bin set 1. Shaw said they think they might be able to drill through and retrieve the core. They are in the process of building a full scale mockup of the system to train operators and test ways of attaching a riser pipe to the top.

Bodell observed that they have come a long way on calcine, and asked if it is true that they are considering discontinuing funding for the project. Flohr responded that since the milestone for calcine is so far out, some people think it should be a lower priority.

Bodell asked about the condition of the bins. Shaw said they are in really good condition. He added that they do not want to wait until they have a repository to figure out how to retrieve the waste from the bin set. Flohr commented that the objective of moving the waste from wet to dry storage is to have it in a safer mode while it is in storage. Shaw said they are doing everything they can do without a set repository to move toward the 2035 milestone.

McBride asked if moving the waste from one bin set to another would make it safer. She also asked what other sites have done with their liquid waste. Case responded that Savannah River, Hanford, West Valley, and some international locations reprocessed their waste. They all used a treatment technology called vitrification. Idaho, on the other hand, calcined from the 1960s on and only built 11 tanks with the belief that the calcine would eventually go somewhere.

McBride asked if a decision about the process might drive the need for a DOE repository. Shaw said he would rather do it the other way: Get the requirements of the final repository and then work toward those requirements. McBride asked if we should follow the other sites and try vitrification. Shaw responded that building a vitrification plant is a gamble. He added that no one is calling the structural integrity of Bin set 1 into question. There have been some studies questioning temperature's effect on concrete strength. The bins were built with a 500 year corrosion allowance, and it is now suggested that the bins might last 1,300 years.

Fielding asked what the annual budget for this project is. Shaw responded that their work on the retrieval piece this year will be about \$2.5 million. The transfer from Bin set 1 to Bin set 6 will be in the \$40 million range. The completed project will end up between \$1.5 and \$2 billion.

Schoen asked if this architecture is the model for long-term storage of radioactive waste at facilities across the country. Shaw said it depends on the waste, climate, and distance from groundwater.

Requirements for Idaho High-Level Radioactive Waste Treatment and Disposal

Joel Case and Teresa Perkins (DOE-ID) provided a presentation on the requirements of Idaho high-level radioactive waste treatment and disposal. The presentation is available on the ICP CAB website: <https://energy.gov/em/icpcab>.

McAffee commented that 2035 may seem far off, but if DOE submitted the permit application in 2012 and they still do not have a permit, she is concerned about the pace. Perkins said they normally obtain a permit for a new facility that is ready for construction in one or two years, but in this case they are not ready to begin construction and still have many questions left to answer related to a repository. DOE is not driving the state at all at this point. McAfee said their presentation stated they had to procure a contract for construction by next year. Perkins responded that some milestones will have to be renegotiated.

Brailsford referred to the analysis of alternatives (AOAs), and asked how many are going forward in the DOE complex. What kind of projects are they reevaluating, and how are those decisions made? Case said they set the standard for AOAs in 2014. He added that the report outlines what they looked at. Brailsford asked if the AOA is a decision making document. Case responded that the AOA states the project should be broken into two subprojects, which is why they are proceeding with demonstration of the transfer. Retrieval is a major project in itself.

Brailsford commented that she has heard hot isostatic pressing (HIP) is being reevaluated. Case said DOE is not formally reevaluating HIP and is not moving forward with technology development. HIP was selected in the Record of Decision (ROD) and is the baseline.

Thatcher commented that nitrate, sulfuric acid, iodine, and other contaminants got into the aquifer from INTEC. She asked where the deep injection wells at INTEC were connected in the diagram on Slide 2 of Shaw's presentation. Shaw responded that he did not know how they were connected and said he didn't know of any liquid releases from these facilities.

Thatcher said she worked at the site as a seismic risk assessment expert and that she walked around the plant with seismic experts. Each tank was designed to seismic risk standards appropriate at the time, but they were inadequately seismically designed. The analysts were very concerned about the bin sets' seismicity standards. She suggested Shaw look at the seismic studies and bin set analysis and the reasonableness of relying on the concrete.

Public Comment Session #2

Dana Kirkham (Regional Economic Development for Eastern Idaho) said the CAB was doing important work to protect the people of Southeast Idaho, the environment, and the economy. The Idaho Settlement Agreement needs to be adjusted, or AMWTP will be mothballed, resulting in loss of jobs and waste of taxpayer dollars. With AMWTP close to the end of its mission, she asked the Board to exercise their influence and power to set clear and distinct recommendations. She asked that they put forth a recommendation in support of a continued mission for AMWTP. Kirkham commented that Zimmerman, Flohr, and Bugger are all great at DOE-ID, but said DOE-HQ needs some accountability. She asked that the CAB send specific recommendations with distinct timelines for when they need information.

Kirkham added that the ISA needs to be addressed, and encouraged the CAB to make a clear recommendation to DOE-HQ that allows the Idaho Operations Office to meet with Idaho's Attorney General, who says he is ready to engage in this discussion but needs permission to work with DOE-ID.

Kirkham concluded by saying that DOE needs to consider a Plan B for WIPP. Will it get an extension, or will there be a different facility? She said the clock is ticking, and until DOE-HQ shows some leadership and acts, Idaho is stuck in indecision, which may lead to an unfavorable decision.

Thatcher expressed concern about the decision to delay calcine treatment. She said it is good DOE will move forward with examination of retrieval methods, but now it appears the decision to use the HIP process is up in the air. She encouraged DOE to not delay the decision between HIP and vitrification until a repository has been named. Thatcher said DOE did not have criteria for a repository when they made their Environmental Impact Statement (EIS) decision, so they should not use that as an excuse to do nothing.

Thatcher referred to the AMWTP presentation and said it stated that DOE will have to use substandard packaging requirements and store the waste in Idaho for a long time. A future mission requires elimination of all ISA requirements regarding how long outside waste remains in the state. She advised that it would be very unwise to make that change to the ISA. Thatcher said the CAB does not receive much information about risk, but reminded them that a single barrel contaminated WIPP. She said she sympathizes with people losing their jobs, and hopes they get better jobs, but what is being proposed is very unwise. The waste blows in the wind and it lasts forever.

Brailsford commented that she strongly supports testing the movement of calcine from one bin set to another. DOE typically wants to have a final solution, but testing the calcine project in a step-by-step way is a wise decision.

Brailsford said that sodium-bearing waste is high-level waste, and that Idaho does have a high-level waste problem. DOE-ID has brought in waste to be treated at AMWTP from other sites, but it was done under ISA guidelines, in and out in a year. The ISA has protected Idaho from being home to more stranded waste. Idahoans are proud of the ISA. The site is receiving very radioactive waste now and DOE is thinking about bringing in the most long-lived waste. It will be stranded.

Brailsford encouraged the CAB to think about this very carefully. She commented that the funding discussion was surreal. If DOE-ID is funded at about the same level as it is now, whether AMWTP operates or not, there will still be money to tackle other issues. She said she heard that workers who might lose their jobs at AMWTP will get other jobs at the site. If the life of AMWTP is not extended, the only missed opportunity is living with high-level waste for decades. Brailsford said she does not think WIPP is ever going to recover all the way, and said the severity of that problem is not being acknowledged.

Board Discussion of Potential Recommendations

Martin implored the CAB to listen to frustrations from the public about the timeline and strategy used for decision making. It seems DOE has been conducting this evaluation for six years and the CAB has not received very many updates on how they are making the decision. Martin said she expects to see more of the feasibility study. She commented that she understands the ISA is a driver sometimes, but said some groups were not represented, particularly as it pertains to transportation. She said she disagrees that public outreach has been going on simultaneously. The Tribes and local governments were not represented, and there has been no government to government consultation on this issue. During DOE's evaluation, it would be good to see some type of input that was provided to them from the community. She asked that the CAB ask for the strategy or timeline for community outreach in the recommendation.

Koch commented that a state RCRA program was started in the 1980s. AMWTP's permit was issued 10 years ago, and was last modified in 2016. Every building at AMWTP is RCRA permitted. In February 2017, the last drum was moved out of the facility, a milestone to address the last of the non-compliant storage (it had no secondary containment, which RCRA requires).

Koch said there is plenty of storage space for TRU and/or mixed low-level waste. The issue is that there is a lot of waste waiting to leave Idaho. All DOE sites have to have a site treatment plan to tell them how they are going to deal with their TRU and mixed low-level waste.

Koch stated that the State of Idaho is taking a neutral stance on the question of whether or not to extend AMWTP's mission. The state will not decide what DOE should do. DEQ monitors the permits, performs inspections, and fields modifications. If there is new technology that must be permitted, Koch said he is sure DOE would apply to the State of Idaho, and they would go through the process. He said the technologies at AMWTP seem to be working. If DOE wants to extend the life of the facility, why not?

Koch said the state would help ensure that any hazardous waste is treated, stored, and disposed of in an environmentally safe manner. Next year, the quantity of waste laid out in the ISA will be fully packaged and ready to ship. Koch commented that he has heard that the 6-months in/6-months out guideline is not a hard line in the sand anymore. Everyone understands there is a WIPP backlog. However, the state does not support an extension of AMWTP that takes precedence over DOE-ID's current projects. The State of Idaho is giving a little regulatory relief, but they will not make the decision.

Flohr clarified that the AOA did not say HIPing is dead. The AOA is merely an analysis document, a factor in decision making. HIPing is still the baseline and DOE-ID's ultimate decision until determined otherwise.

McBride asked Koch to clarify the one year timeframe for bringing waste into the state and shipping it out. She asked if DOE could send the Hanford waste out in place of Idaho waste. Koch responded that he did not think the State of Idaho would have an issue with that. Their primary concern is that resources not be taken away from the current mission.

Schoen asked Koch to clarify the state's position on the ISA's 6-month in/6-month out requirement. Koch responded the state would allow DOE a whole year to ship the waste back out of the state.

The Board decided to draft a recommendation requesting DOE's study of AMWTP, and convene for a conference call in March to vote on the drafted letter in hopes of having the study in hand prior to the April meeting.

Conclusion

Flohr concluded the meeting.

Keith Branter, Chair
Idaho Cleanup Project Citizens Advisory Board