



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

June 21, 2018

List of Acronyms

AMWTP	Advanced Mixed Waste Treatment Project	LANL	Los Alamos National Laboratory
ARP	Accelerated Retrieval Project	LINE	Leadership in Nuclear Energy
CAB	Citizens Advisory Board	NEPA	National Environmental Policy Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act, also referred to as superfund	NRC	Nuclear Regulatory Commission
CRR	Carbon Reduction Reformer	NWTRB	Nuclear Waste Technical Review Board
DDFO	Deputy Designated Federal Officer	ORPS	Occurrence Reporting and Processing System
DEQ	Department of Environmental Quality	RCRA	Resource Conservation and Recovery Act
DMR	Denitration Mineralization Reformer	ROD	Record of Decision
DOE	Department of Energy	RWMC	Radioactive Waste Management Complex
EM	Office of Environmental Management	SDA	Subsurface Disposal Area
EPA	Environmental Protection Agency	TAN	Test Area North
ET	Evapotranspiration	TCE	Trichloroethylene
HEPA	High Efficiency Particulate Air	TRU	Transuranic waste
ICP	Idaho Cleanup Project	VOC	Volatile Organic Compound
INL	Idaho National Laboratory	WAC	Waste Acceptance Criteria
ISA	Idaho Settlement Agreement	WIPP	Waste Isolation Pilot Plant
IWTU	Integrated Waste Treatment Unit	WIR	Waste Incidental to Reprocessing

The Idaho Cleanup Project (ICP) Citizens Advisory Board (CAB) held its quarterly meeting on Thursday, June 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

Jackie Agenbroad
Josh Bartlome
Keith Branter
Brad Christensen
Teri Ehresman
Marvin Fielding
Brandon Leatham
Talia Martin
Trilby McAfee
Cathy Roemer
Larry Schoen

Members Not Present

John Sigler

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, Deputy DDFO, DOE-ID
Brad Bugger, Federal Coordinator, DOE-ID
Fred Hughes, Program Manager, Fluor Idaho
Susan Burke, State of Idaho
Daryl Koch, Idaho Department of Environmental Quality (DEQ)
Rod Lobos, Environmental Protection Agency (EPA)

Others Present

Gregory Hall, DEQ
Mary Gretsinger, DEQ
Neil Flegel, DEQ
Erik Simpson, Fluor Idaho
Beatrice Brailsford, Snake River Alliance
Nicole Badrov, DOE-ID
Dave Parmelee, DEQ
Mark Brown, DOE-ID
Kerry Martin, DEQ
Doug Pruitt, DOE-ID
Sheyna Martin, Shoshone-Bannock Tribes
Lori Howell, Shoshone-Bannock Tribes
Pete Christenson, Shoshone-Bannock Tribes
Michael Rodd, Fluor Idaho
Andrea Gumm, ICP CAB Facilitator
Kelly Green, ICP CAB Support Staff

Nolan Jensen, DOE-ID
Tami Thatcher
Ann Riedesel, Fluor Idaho
Mark Hutchison
Brandt Meagher, Fluor Idaho
Rich Abitz, Fluor Idaho
Susie Barna, Moxie Endeavors
Kelly Galloway, Moxie Endeavors
Eric Schweinsberg, SN3
Danielle Miller, DOE-ID
Kathryn Hitch, Office of Senator Crapo
Kevin O'Neill, DOE-ID
Nathan Brown
Amy Taylor, Office of Senator Risch
Kate Meehan
Jordan Davies, ICP CAB Support 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 10:30 a.m. and 2:00 p.m. She reminded attendees of the process for public comments during the meeting, time permitting, or via question cards.

Keith Branter (CAB Chair) reported that the CAB had a busy week prior to the meeting. On Tuesday, June 19, new board members participated in an orientation, which went very well, and on Wednesday, June 20, the CAB toured facilities at the Site. Branter commented that the tour was superb and a worthwhile precursor to the day's meeting. CAB members obtained a lot of information, and the presenters were especially helpful in answering all of their questions. He added that the CAB members were able to see everything they wanted to see during the tour.

Jack Zimmerman (DOE-ID Deputy Manager and CAB DDFO) commented that DOE had a lot of information to share with the CAB during the day's meeting, and said he would like to discuss the CAB's direction toward the end of the day.

Susan Burke (State of Idaho) announced that after more than 30 years with the State and 11 years in her current position, she would be availing herself of retirement in July. She commented that she has enjoyed her time with the CAB, and thanked the members for the opportunity to work alongside them.

Daryl Koch (DEQ) commented that he represents the State on Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) matters tied to the Idaho National Laboratory (INL) and that he is at times asked to present to the CAB on matters related to the Resource Conservation and Recovery Act (RCRA). He said he would plan to attend the tour next year.

Rod Lobos (EPA) thanked the organizers of the tour, which enabled him to see facilities he'd never before seen. He added that the CAB's questions spurred a lot of good discussion.

Fred Hughes (Fluor Idaho) commented that he was glad everyone enjoyed the facilities tour. He said Fluor Idaho had faced some challenges since the last CAB meeting, which Zimmerman would cover during his overview presentation.

New Member Introductions

Jackie Agenbroad (CAB Member) introduced herself as a retired nurse practitioner, Air Force veteran, and widow. She has three children and three grandchildren and lives in Boise. She said she is honored to join the CAB and learned a lot during the orientation and facilities tour.

Teri Ehresman (CAB Member) commented that she and her husband live in Jackson, Wyoming, where they have had a business for the last 20 years. She worked in the Public Affairs organization at INL for 25 years, and led the INL Employees Association during that time. Prior to her employment at the Lab, Ehresman worked for 15 years as a reporter and editor at the *Post Register*. She has a Bachelor's Degree in Communications and is an active and former national president of the National Federation of Press Women. While she and her husband reside in Jackson, they visit their cabin in Island Park quite often, so they still have the Idaho connection. She has three children and seven grandsons. She said she has enjoyed learning this week and meeting the CAB members, and looks forward to working with everyone.

Brandon Leatham (CAB Member) introduced himself as a Sheet Metal Workers Union Business Representative who has resided in Idaho Falls for the last 40 years. Former CAB member Bob Bodell recommended Leatham to the Board. Leatham said he has worked construction on many of the facilities at the site, and commented that it is neat to see the facilities he worked on 10 to 15 years ago now in process. He looks forward to working with the other CAB members and seeing future cleanup at the Site.

Brad Bugger (DOE-ID, CAB Federal Coordinator) commented that John Sigler, the CAB's fourth new member, was unable to attend the meeting as he and his wife were touring Canada and Alaska. Bugger said he met with Sigler several weeks previously and thought he would be an excellent addition to the Board.

Sigler was raised in Logan Utah and graduated from Logan High School as one of the first Baby Boomer classes. He attended Utah State University and received a Bachelor of Science and a Master of Science from what is now the College of Natural Resources in Fisheries Biology and Water Quality. In 1980, Sigler received his PhD in Fisheries Biology and Management from the University of Idaho. He went on to work for a variety of consultant firms across the western United States, primarily in land management and water acquisition, management environmental studies, and National Environmental Policy Act (NEPA) compliance projects. He has been involved in environmental issues for over 50 years.

Recent Public Outreach Activities

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

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>.

Branter asked Zimmerman to go over the eight Occurrence Reporting and Processing System (ORPS) incidents. Zimmerman responded that there will be a more detailed briefing later in the presentation.

Ehresman commented that eight ORPS sounds like a lot and asked if it is common to have so many. Zimmerman responded no, eight is more than normal. That said, the fact that these are ORPS is not necessarily a negative thing, as ORPS is designed to help workers learn.

Larry Schoen (CAB Member) thanked DOE for the tour, one of the great advantages of which was the opportunity to meet some of the employees and see firsthand their working conditions. He asked Zimmerman to describe Fluor Idaho's health and wellness program. Hughes responded that Fluor Idaho brought in a physical therapist to conduct classes for the entire company and explain what happens when the body ages and how to exercise to minimize those effects. Fluor Idaho also has an I-Stretch program, and employees are encouraged to participate in various sessions every morning. Site crews typically participate in I-Stretch before they begin work. Pulls and strains are increasing, so Fluor Idaho has employed a physical therapist to go into the field and work with employees individually and design specialized programs for each participating employee.

Zimmerman added that the worker population is averaging in the mid-50s. The effects of an aging workforce must be considered.

Schoen remarked on the vapor extraction setup the CAB saw during the tour, as well as a chart showing the decline of vapor in the ground. He asked how long the vapor extraction activity must occur, and if there is a point at which it will cease. Nolan Jensen (DOE-ID) replied that they hope a rebound test will show they have met the criteria and the facility can be closed when the cap is installed over the Subsurface Disposal Area (SDA). As the rebound test is not in Fluor Idaho's scope, the current assumption is that it will be performed early on in the next contract period. If the rebound test shows the criteria have been met, vapor extraction will conclude by 2028. If the criteria has not been met, they will install a new system and continue until they meet the criteria.

Talia Martin (CAB Member) referred to Slide 19 of Zimmerman's presentation and asked what the methodology is for treating roaster oxides and how it will impact the timeline for the Accelerated Retrieval Project (ARP) IX facility. Zimmerman responded treatment of the roaster oxides will not impact the timeline for ARP IX. The process began in March and will be complete by September. As for the

methodology, drums in various conditions retrieved from storage are opened and the contents are dumped into a tray. Using large equipment, workers rake through the material in order to allow the roaster oxides to react. This facility has the engineered controls to deal with any potential material.

Schoen said he was confused by the roaster oxide treatment process. Zimmerman responded that roaster oxide material does not meet the waste acceptance criteria (WAC) for any disposal site, so treatment involves exposing the roaster oxides to air, raking through the waste, and looking to see if there are any residuals left to react. The hope is that the roaster oxides will fully react inside the facilities where the controls are in place. Schoen asked what happens to the fumes. Hughes responded that the ARPs have High Efficiency Particulate Air (HEPA) filtration, which keeps the contamination from the environment. Zimmerman added that roaster oxides make up only a very small portion of waste within these drums.

Branter asked what kinds of sources are represented in the picture on Slide 26. Zimmerman responded he did not know, but told Branter he would find out.

Beatrice Brailsford, Snake River Alliance, Pocatello, asked how many gloveboxes there are at the Advanced Mixed Waste Treatment Project (AMWTP), where the boxes are in the process, and how much material goes through them. Hughes responded that there is only one glovebox at AMWTP. It contains the supercompactor. All drums that need to be compacted go through that glovebox. Once a waste type campaign is finished, workers must clean the glovebox in order to stay within criticality control limits. That is what they were doing when the puncture event occurred. The other gloveboxes at the Site are associated with the ARPs, where workers sort through waste looking for prohibited items that cannot go to the Waste Isolation Pilot Plant (WIPP).

Brailsford noted that the deadline for exhuming buried waste laid out in the Record of Decision (ROD) is 2023. She asked if there is a deadline for shipping that material out of the state. Zimmerman responded that it should be shipped within one year of exhumation.

Tami Thatcher, Idaho Falls, commented that Bret Leslie from the Nuclear Waste Technical Review Board (NWTRB) presented on issues with dry fuel storage at the last CAB meeting. She asked if DOE is actively looking at the NWTRB's comments and if the CAB might receive a little more detail than was presented. Zimmerman responded that DOE-ID and DOE Headquarters are evaluating the report and looking at what they can do to address the aging management.

Radioactive Waste Management Complex (RWMC) Cap Design Update

Nolan Jensen (DOE-ID) provided an update on the design of the RWMC cap. The presentation is available on the ICP CAB website: <https://energy.gov/em/icpcab>.

Josh Bartlome (CAB Member) observed that the SDA has been exposed to infiltration for many years. He asked if a cap-as-you-go option was considered during the evaluation of alternatives. Jensen responded that he did not think that would have been a practical approach, and did not think it was considered.

Cathy Roemer (CAB Member) asked what has been the greatest challenge for the design team. Jensen responded that the Evapotranspiration (ET) cover is a simple concept, so the real challenge is that AMWTP will be shipping waste for an extended period of time. Integrating those operations within the SDA with construction of the cap will be difficult.

Schoen asked if the spreading areas and the borrow areas are the same thing. Jensen responded yes. They are officially termed the spreading areas because of their historic use to spread overflow from the Big Lost River.

Branter asked if the cap design includes vegetation. Jensen responded yes.

Trilby McAfee (CAB Member) commented that there is a Butte near the proposed cap area. She asked if that will be an issue. Jensen responded that the cap will not reach the Butte. Current concern surrounds routing water that comes off the cap away from the site so it does not pond.

Martin recalled seeing real-time video during the tour of large equipment crushing a drum at ARP V or ARP VII. She asked if the drum would go back into the pit and be buried under the cap. Jensen responded that none of the waste goes back into the pit. The drums will be shipped away as low-level waste and the waste itself will be sent to WIPP as transuranic (TRU) waste.

Schoen asked if DOE and Fluor Idaho will be involving reseeding experts. He commented that he observed crested wheatgrass, a non-native plant, on the site during the tour, and expressed his concern that all 150 acres of the SDA cap might end up covered in weeds. Jensen responded that Daniel B. Stevens, DOE's contractor to build the cap, is a world renowned expert on ET covers and has built them across the globe. They will consult their reseeding experts.

Branter asked if the cap design team has a plan for abandoning the well heads and casings prior to installation of the cover. Jensen responded that DOE will follow the Idaho Department of Water Resources' protocol for abandoning surface penetrations in order to ensure they do not create a preferential pathway for contaminants to get into the subsurface.

Bartlome asked how they will monitor the vapor extraction wells once the cap is installed. Jensen responded that DOE hopes a rebound test will show they have met the criteria and the vapor extraction wells can be closed when the cap is installed. As the rebound test is not in Fluor Idaho's scope, the current assumption is that it will be performed early on in the next contract period. If the rebound test shows the criteria have been met, vapor extraction will conclude by 2028. If not, they will discuss approaches for continued monitoring approaches, such as side drilling into the cap. Jensen commented that he expects the rebound test results will show they have met the criteria.

Marvin Fielding (CAB member) commented that the CAB learned during the tour that the basalt is only about 36 feet below the surface. He asked if there is perched water there. Zimmerman responded that the cap should stop water from going down through the waste, which could carry it to the aquifer. The waste itself is above the perched water and groundwater. As long as the groundwater level doesn't rise significantly and come into contact with the waste, then the cap should be effective and the perched water should not be an issue. Jensen added that the first intermittent perched water layer is 100 feet below the waste.

Thatcher asked how DOE squares the loss of institutional control with the need to maintain the surface of the cap annually or every several years. Jensen responded that the cap will be designed to last into perpetuity. Koch said the Federal Facility Agreement and Consent Order between the three agencies asserts there is no end point. The mandate is on the federal agency, in this case DOE, to pay for someone to monitor this site indefinitely.

Bugger remarked that the questions from the CAB concerning the cap were very good and suggested they consider writing a recommendation to capture concerns pertaining to the SDA cover. Jensen said it would be best if they could have the CAB's input by November.

Update on the Accelerated Retrieval Project (ARP) V Drum Event

Doug Pruitt (DOE-ID) provided an update on the ARP V Drum Event. The presentation is available on the ICP CAB website: <https://energy.gov/em/icpcab>.

Branter reiterated that the drums had already been processed, and were staged for transport. He asked if it was only by chance that they had not yet been moved out of the facility. Pruitt responded yes, the drums had been packaged earlier the day of the event and were waiting to be transported the following day.

Martin asked if it is standard to take samples of all air filters in a recovery event such as this one. Pruitt responded that the accident and recovery plan is activated anytime something abnormal happens within the facility. In addition, Fluor Idaho collected a sample from each of the air filters and sent them for analysis.

Branter referred to Pruitt's earlier comment that they were putting 40 drums through treatment a week, and asked if they were all the same kind of waste. Pruitt said yes. Branter then asked where the drums that have already been treated are stored. Pruitt responded that they have all been analyzed and some are in storage. Hughes added that immediately following the incident, they put controls in place to monitor all the volatile organics, temperature increases, etc. of the waste so they would get an indication if something was happening within any of the drums in storage. What they have found is that if a drum does not react within a day or two, it is not going to. Right now the drums are in a safe configuration.

Ehresman asked if anyone was in the room during the event and if all four drums ruptured at once. Hughes answered that the fire department responded to the alarm. Dressed in respirators, they entered the facility, which was unmanned, to address the incident. Over the next several hours, there were indications that other drums were involved.

Bartlome referred to Hughes' comment that the waste should volatilize within a day or two and asked if they are considering longer hold times. Hughes responded yes, they are looking at having the waste sit in the trays for a period of time before it goes into the drum repackaging facility, and then having it sit for another period of time before leaving that facility.

Brad Christensen (CAB Member) asked if there are any long-term repercussions with regard to shipments to WIPP. Pruitt responded that until the results are in, they will not know what they have to do to make it compliant. Zimmerman added that the drums in question had not yet completed the treatment process and therefore had not been certified to ship. Opening the drums was the first step.

Burke asked how many drums of this type (SD-176) had been processed through ARP V and how many remained. Hughes responded that about 8,000 or 9,000 sludge drums had been processed total, and 2,000 drums remain. Of the SD-176 waste stream, 1,800 had been processed and approximately 500 remain.

Burke asked if SD-176 is the last type of sludge to be processed. Pruitt responded no. There are two or three more types.

Leatham asked if the workers at ARP V will be retrained before returning to work. Pruitt responded yes, every person involved in the process will be affected by updated procedures, so they will all be retrained. Zimmerman added that everyone at the site has the right, by policy, to pause or stop work if they see anything that strays from procedure or makes them uncomfortable.

Schoen commented that he was confused as to why the drums are considered to have just started the treatment process when they were already repackaged and heading to the storage area. Hughes responded that each drum undergoes initial characterization before it is sent to ARP V, where it is opened and its contents visually examined in order to identify the waste stream. The material is then put back in the drum and sent to storage, where a very detailed review of the waste is performed in consultation with experts at Los Alamos National Laboratory (LANL).

Schoen asked whether the drums in question contained anything that might have indicated the need for re-inspection. Pruitt responded that the procedure was followed, and everything the visual examiners and operators saw indicated it was ready to be drummed and head for the next phase.

Schoen pointed out that he and DOE have a communication gap surrounding the term treatment. It means something very different to him than simply opening a drum, visually inspecting the waste, and then repackaging it.

Bartlome asked if the storage buildings are under negative pressure, too. He wondered if the contaminants would be contained and filtered out if an accident were to occur there. Pruitt responded no.

Brailsford asked if SD-176 is an unusual waste stream complex-wide, or if it is specific to Idaho. Pruitt replied that the waste Idaho received came predominately from Rocky Flats, but that there were other shippers. For that reason, it is not always clear what the waste is, where it came from, or where it was disposed. In many cases, what is in the drums is a bit of an unknown.

Brailsford asked if WIPP is involved in discussing further steps for this particular population of waste. Pruitt responded that LANL has a team of PhD physicists, scientists, and chemists who are involved in looking at the waste Idaho ships. They are the ones who perform the review.

Brailsford asked if there will be a special protocol for these drums. Zimmerman responded there is an investigation underway and the results from that analysis will determine next steps.

Brailsford recalled hearing at the April CAB meeting that the contents of the SD-176 drums were being manipulated more because they might be pyrophoric. Hughes responded that they rake through the contents of all drums, primarily looking for prohibited items. Zimmerman added that there is an element of encouraging that reaction while the waste is in the tray. Pruitt commented that they are doing something similar at ARP IX, where they rake through the pyrophoric waste excessively in order to initiate a reaction.

Brailsford agreed with Schoen that DOE's usage of the term treatment can be confusing.

Koch responded to Schoen's and Brailsford's confusion about the term "treatment." The waste being handled at ARP V is a RCRA regulated and permitted waste. Treatment under a permit can mean just about anything, including repackaging and visual examination. It does not always mean that chemicals are added. He encouraged the CAB members to discard the traditional definition of treatment.

Burke added that the Idaho Settlement Agreement (ISA) contains definitions of key terms. It defines treatment as: Shall be defined as applied to a waste or spent fuel as any method, technique, or process, designed to change the physical or chemical character of the waste or fuel to render it less hazardous, safer to transport, store, dispose of, or reduce in volume. Burke commented that there is a broad application applied to the word treatment.

Burke asked if any of the SD-176 waste that Pruitt discussed has been shipped to WIPP. Pruitt replied no.

Leatham asked if these are the only four drums in which there has been a breach or a rupture. Pruitt responded yes.

Public Comment Session #1

Thatcher said she had been following the news coverage of the drum rupture event at ARP V. She remarked that the ambiguity surrounding the number of drums involved is interesting in retrospect as all four drums were over pressurized within hours of being packed. She said it was concerning to hear that it was merely by chance that workers were not present and that a serious inhalation event was avoided. Thatcher commented that she is surprised DOE does not know more about which chemicals, radionuclides, and combinations caused the event. She wondered if the ARP V drum event report would be made public.

Thatcher went on to say that RWMC and AMWTP air emissions of plutonium and americium are significant each year. While she is thrilled these facilities are confinement buildings equipped with HEPA filters, she said it is deliberately vague of DOE to say there is no release. She commented that she would like the environmental reporting to be more accurate.

Thatcher reiterated that it is very concerning that workers were relying on luck, and that DOE and Fluor Idaho were assuming there would not be a problem and there was. Had workers been involved, DOE would

have needed to conduct an official accident investigation, but due to the fortuitous low consequences, this mattered is being handled internally.

Integrated Waste Treatment Unit (IWTU) Update

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

Bartlome asked how much coal is needed to power IWTU. O'Neill responded that the Denitration Mineralization Reformer (DMR) requires sixty pounds an hour in normal operations. (The DMR burned about 190 pounds per hour of calcined coal during the recent simulation run.) He added that the Carbon Reduction Reformer (CRR) requires quite a bit more in petcoke (about 125 pounds per hour), but that it combusts more completely. It takes a lot of coal to generate that much temperature.

Branter referred to Slide 4 of O'Neill's presentation and asked if he could put dates on it. O'Neill responded that he would broadly go over anticipated schedule toward the end of his presentation.

Agenbroad asked if there is a facility like IWTU anywhere else. O'Neill responded that there is no other facility exactly like this so it is, in a sense, a first-of-a-kind facility.

Agenbroad asked about the simulant's composition. O'Neill responded it is mostly nitric acid combined with other minerals that simulate the waste.

Schoen asked if other liquid waste had been calcined, and if there are other calcined wastes on site. O'Neill responded yes, the Calciner treated 8 million gallons in the past. That treated waste is stored in the bin sets. Schoen asked if the 900,000 gallons of sodium-bearing waste now destined for IWTU was originally going to be processed through the Calciner. O'Neill responded yes, but as the Calciner worked through the 8 million gallons, the sodium increased in the tanks that were handling the high-level waste, and the process became less effective.

Schoen asked what O'Neill would call the finished product once the liquid sodium-bearing waste is processed. O'Neill said he would call it sodium-bearing waste. While it is currently classified as high-level waste, it is far lower in activity. He said he believes it is actually a TRU waste in a carbonate form. DOE had originally planned to ship it to WIPP, but that isn't allowed by statute at this point.

Schoen said a better term for the finished product might then be solidified sodium-bearing waste. He commented that there are negative connotations associated with the calcination process, and re-termining the end product might help with the communications aspect.

Branter asked if DOE would begin processing waste in April 2019, provided they could get through Phase 4 as projected. Zimmerman responded that they will follow the process, without shortcuts. Every time there is a tweak to the facility, they must verify it worked.

Report from the EM SSAB Chairs Meeting

Branter said that he, McAfee, Flohr, and Bugger went to New Mexico in May for the Spring Environmental Management (EM) Site Specific Advisory Board (SSAB) Meeting. The meeting involved a tour of WIPP, which was a worthwhile and very interesting experience. McAfee, Branter and Flohr shared their impressions of the tour.

Branter commented that at each of their meetings, the EM SSAB Chairs attempt to produce a recommendation to DOE Headquarters. He put forth the draft recommendation the Chairs prepared in May for consideration by the ICP CAB. Branter explained that the Energy Community Alliance (ECA) sponsored a report examining the potential impacts of DOE re-characterizing waste. The ECA proposes that characterization should be about each waste's chemical constituents rather than where it came from. This ties into Secretary of Energy Rick Perry's initiative to rollback rules and regulations.

As characterization currently stands, anything that has touched high-level waste is classified as high-level waste. Characterization based on chemical constituents would change the way a lot of waste is treated and ultimately amount to huge savings. For example, the 900,000 gallons of waste at the tank farm and intended for treatment at IWTU could, if re-characterization is enacted, be treated as mixed waste or mixed low-level waste and be disposed of differently.

Branter asked if the ICP CAB could agree with this recommendation.

Schoen said the ECA's report is very interesting. He asked Branter to explain who is involved in the ECA. Branter responded that he did not know who comprises the ECA, but said the report was prepared by a PhD.

Leatham said the volume of waste would decrease significantly if it were characterized by chemical constituent and asked if characterization was presented as a budget or space issue. Zimmerman responded that it is not just a cost savings, but a risk reduction opportunity. It would give a disposition path for this waste that would get it into safe disposal and out of Idaho faster. It has space, cost, and risk benefits.

Ehresman asked if DOE could safely remove waste from Idaho sooner if they could re-characterize the waste. Branter responded yes.

Martin commented that she has read many of the ECA's assessments in the past. They compile information and make it more accessible to the public. She added that recommendations to come out of the EM SSAB are generally pretty thorough. She asked Branter if there was any opposition to this recommendation during the Chairs meeting. Branter said no. Martin commented that it has been promoted widely in the Leadership in Nuclear Energy (LINE) Commission, too. She encouraged the CAB to ask themselves what the opposition might be.

Bartlome commented that they are working toward a risk-based approach in the solid waste industry as well. High-level wastes are reduced by looking at the characteristics. He said it is a common sense approach.

Schoen said he generally supports this recommendation for the reasons Branter and Bartlome have stated. He added, however, that he takes Martin's point about being open to potential consequences.

Roemer seconded Larry's comments.

The ICP CAB reached consensus on the EM SSAB recommendation regarding DOE's consideration of waste re-characterization.

Following the lunch break, when several members of the public voiced concerns over the Board's support of the EM SSAB recommendation, the CAB revisited the discussion to ensure they all understood what they were recommending DOE Headquarters do.

Bugger clarified that the four recommendations were that DOE-EM:

1. Undertake a comprehensive analysis of the ECA report;
2. Evaluate the site-specific impacts of implementing those recommended changes;
3. Address, at a minimum, the questions developed by the chairs, set forth in the recommendation's attachment;
4. Provide a timeline for performing the analysis and brief its results on an ongoing basis to the Chairs.

Schoen stated that he did not believe that CAB needed to discuss the recommendation further. He added that one of the concerns expressed to him during the break was that the CAB had reached consensus on reclassifying contaminated waste.

Martin added that the CAB is not recommending policy changes, but that DOE perform an assessment to either prove or disprove the ECA's findings. The Board is simply asking for more information.

Gumm asked the CAB if they were okay with putting their name on the EM SSAB recommendation. The ICP CAB again reached consensus on sending this recommendation to DOE.

Public Comment Session #2

Brailsford commented on the EM SSAB ECA report recommendation. She said she had not read the report or fully taken in the EM SSAB recommendation, but noted that the idea of reclassification has been kicked around for a long time. In 1999, DOE attempted to redefine high-level waste as incidental waste. That attempt, and all subsequent attempts, have been aimed at lessening DOE's cleanup burden. In 2003, the Natural Resources Defense Council, Snake River Alliance, Shoshone-Bannock Tribes, and Yakama Nation sued DOE over that attempt and the Idaho District Court ruled in their favor.

Brailsford recounted that in 2004, Congress changed the rules so that high-level waste became Waste Incidental to Reprocessing (WIR) in South Carolina and Idaho, while the State of Washington refused to go along with that lessening of DOE's responsibilities. Right now, Savannah River and INL can have WIR until that waste hits the border of the state, and then it goes back to high-level waste. After Congress made that attempt, the National Academy of Sciences conducted a study and roundly criticized DOE for its efforts to respond more to budget and scheduling pressures than protection of the environment.

Brailsford maintained that DOE is still eager to redefine high-level waste to lessen its responsibilities. She observed that DOE refers to the 900,000 gallons of waste in the tanks as "sodium-bearing waste" while the State still calls it "high-level waste." An eagerness to embrace a different definition of what is in those tanks overlooks the fact that the waste may never come out of those tanks if the public takes its eye off that issue. Brailsford asserted that Idaho should not be so confident that a change in the definition would mean easier disposal. It might in fact mean that the waste does not leave the state at all. Brailsford added that WIPP is not only prohibited from taking high-level waste, but any waste that has been in a tank. Reclassification will not ensure a slam dunk deal, especially as it pertains to a waste with so many environmental and political impacts.

Thatcher commented that she heard the same phrase, "We classify waste based on what it has come into contact with" at the recent LINE Commission meeting. She said that was not a true characterization and clarified that it is, and always has been, based more on origin. Thatcher stated that the LINE Commission is actively pursuing declassification of the 8 million gallons of liquid waste that has already been calcined into solid waste so it is no longer high-level waste. While it sounds good to treat the sodium-bearing waste and send it to WIPP, it is very unclear what would happen to the calcined waste if it were not high-level waste. The laws would not require a geologic repository, the waste would not qualify for WIPP and it would not be sent to Clive, Utah.

Thatcher went on to say that DOE created something called Low Activity Waste (LAW), but not even the Nuclear Regulatory Commission (NRC) could find that to be a technically adequate definition. Nevertheless, the LAW classification has been adopted at the Hanford and Savannah River sites and has resulted in high-level waste being grouted in tanks and left in the ground. She added that Brad Little, the chairman of the LINE Commission, said there is not enough money to repackage the calcine, and there is nowhere to send it. The calcine waste is very high toxicity, long-lived waste and it should be a concern.

Thatcher added that concurrently, the NRC allows various uranium waste to be buried at RCRA landfills, a regulation Idaho embraces at the U.S. ecology sites on the western side of the state. The NRC is even looking at allowing radioactive waste disposal in ordinary municipal dumps that are unlined and unmonitored, while the United States is looking to strip the NEPA process. She encouraged the CAB to ask themselves what will happen after EM studies this issue. Whether they make a new DOE regulation or if Congress has

to change laws, EM has not done a good job of developing classification systems for waste. That DOE has embraced the LAW classification is evidence of that.

History and Current Status of Test Area North (TAN) Cleanup

Nicole Badrov (DOE-ID) provided a history and status of the groundwater cleanup work at TAN. The presentation is available on the ICP CAB website: <https://energy.gov/em/icpcab>.

Bartlome asked if they inject one specific microbe, or a consortium of microbes that take on different types and then die over time. Badrov responded that what they inject is similar to a protein shake. It is a whey/lactate food source and it feeds the naturally occurring microbes, which are already there. Those microbes degrade the volatile organic compounds (VOCs).

Martin asked Badrov to clarify the conflict between the radionuclides and the food source that mobilizes the microbes. Badrov responded that sodium competes with radionuclides for sorption sites on the subsurface, thereby allowing those radionuclides to be more mobile in the aquifer and the concentrations to increase. Martin asked what DOE will do when they receive the results of the rebound test. Badrov responded hopefully nothing. If they need to resume injections, however, they could use a different formula to address the competition issue.

Schoen referred to Badrov's statement that radionuclide concentrations are declining. He asked if that is in each of the three zones or just in the distill zone. Badrov responded that the radionuclides of concern are found mostly in the source zone, which is the hot spot. She added that they are not very mobile, so they are not migrating out into the other zones in higher concentrations.

Schoen asked what is causing the concentrations of radionuclides to decline. Badrov responded they are declining because they stopped injecting the amendment, which contained constituent sodium that competed with those radionuclides for sorption sites in the subsurface. Schoen thought the amendment was to deliver a food source to the microbes to breakdown the VOCs. Badrov said the amendment interfered with the absorption of the radionuclides into the soil substrate, which is fractured basalt at 305 feet depth.

Badrov added that 2095 was used in the ROD as the remedial action date because that is the amount of time they were willing to assume the land would be under government control. For that reason, it is used in a lot of RODs as the date when remedial action objectives must be met. Jensen clarified that we do not know how long the government will be in control, but we are willing to assume that it will last at least 100 years.

Roemer said she was interested in the process that was taken to determine that the injections were not having the intended effect or that the effects were beginning to reverse themselves. Badrov responded that they decided to stop injections because they had been successful. They needed to evaluate the effectiveness of the treatment and whether those concentrations would rebound. She added that the radionuclides had very little to do with that. The issue was a consequence of the sodium in the amendment competing with the sorption sites and making the nuclides more mobile. Those concentrations are declining now that amendment injections have stopped. Badrov commented that they have a very extensive monitoring program and make decisions based on analyses of that data.

Branter referred to Badrov's assertion that they have pumped and treated 700,000 gallons of water since 2001. He asked why the plume is growing. Badrov responded that all plumes expand. They measure the plume expansion at the 5 microgram/liter contour line. They are pumping and treating, but the plume is expected to expand, which the ROD allows up to 30 percent.

Branter asked why they do not install another pump and treat system in order to shrink the plume, rather than allowing it to grow. Mike Rodd (Fluor Idaho) responded that the current system is treating the medial zone, and the plume is expanding in the distill zone. The capture zone from the pump and treat system does not reach that far down gradient to prevent plume expansion. When concentrations are as low as they are, it is not cost effective to install and operate another pump and treat system. Branter asked why it is acceptable

to allow the plume to expand. Rodd responded that it is still within the institutional controls zone and there are no receptors there. Ultimately it will expand a little longer, and then it will begin to contract.

Schoen recounted that the CAB received a presentation on the groundwater monitoring system last October. One of the things they learned was that water moves vertically as well as horizontally in fractured basalt. He wondered how the vertical movement was being monitored. Badrov responded that they have over 40 monitoring wells in the plume, and they are at varying depths. They are screened at different intervals for different constituents so they can capture what is going on in the layers. Rodd added that over time, the vertical profile of the contamination has been examined through the fluke system wells. They have examined from the surface of the water table all the way down to the QR inner bed in order to monitor vertical contamination. He added that some monitoring locations have changed as sampling needs and evaluation of the remedy changes. It is not a hard/fast monitoring network, but one that evolves over time to meeting present needs.

Schoen added that he wanted to ensure DOE was not looking at the plume at one depth. Contamination could potentially move to a deeper, more transmissive level. Rodd responded that they have looked at that in the past. For example, when they installed the new well at TAN-2312, they sampled the vertical profile from the water table down to a depth of almost 500 feet to see if they could identify any zones with higher trichloroethylene (TCE) concentrations. Historically that has been done at several wells throughout the length of the plume.

Martin asked Badrov if the groundwater monitoring team has an idea of where the residual source is coming from. Badrov referred to the map on Slide 9 to show where they think the residual source is.

Roemer referred to Slide 12 of Badrov's presentation and asked how the plume would know that it cannot exceed 30 percent. She asked if Badrov and her team are that confident in their remedial efforts that they believe they can control the plume if it begins to reach that marker. Badrov responded that the plume contour lines are based on sampling and analysis and modeling data. Based on the new monitoring data, they think the plume has expanded. They then extrapolate that out to estimate where it might be at any given time. It is monitoring, sampling, and analysis. Jensen added that the new well (TAN-2312), which was drilled to better monitor the boundary of the plume, is clean.

Schoen asked what the depth of TAN-2312 is. Rodd responded that the monitoring depth is 339 feet.

Brailsford thanked Badrov for her presentation and asked her to define the term degraded, particularly as it pertains to TCE. Badrov replied that TCE degrades into several different compounds prior to turning into a substance that is no longer harmful. Brailsford asked if there is a half-life chart for that. Rodd responded that during ISP injections, degradation occurs rapidly, oftentimes within days or a few weeks. In the distill zone, however, it is much slower. While the rate hasn't been quantified there, they look at the overall TCE half-life which has been quantified using different methods. In the distill zone, the half-life was around 13.2 years. Brailsford asked if there was a plume map for strontium. Badrov responded no, the radionuclides are limited to the source zone and are not very mobile.

Thatcher asked why there is not a cap over the area. Badrov responded that it does not make sense to install a cap when they are still monitoring and pumping and treating the area. She added that there is not, as far as she knows, a risk of the recharge driving contamination further into the aquifer.

Thatcher asked if they are performing any deep monitoring other than at TAN-2312. Badrov answered that they have over 40 monitoring wells which are screened at different intervals to try to capture the contamination at different depths of the aquifer. She referred to slide 13 to show which wells they have monitored and said the results show there is no indication that the plume is migrating outside the institutional control area.

Thatcher wondered if they are doing anything to analyze the gross alpha. Rodd responded that they monitored the deep wells in the source area, where the strontium-90 was. Most of it was confined to the upper intervals. As far as the plume goes, that is very well defined. It runs from TS-05 to TAN-29. Rodd commented that the cesium plume is right in the source area, and the TCE plume is monitored via wells at various depths throughout the length of the plume.

Thatcher asked how the contamination is not moving. Badrov responded that one of the reasons the ROD selected monitored natural attenuation is that the nuclides tend to adsorb and stay and decay. They are not mobile. Strontium migrates a little, but cesium is primarily confined to the source zone.

Board Discussion of Draft Recommendation on FY 20 Budget Proposals

The ICP CAB discussed a draft recommendation regarding Fiscal Year 2020 budget proposals. The final recommendation is available on the CAB website: energy.gov/em/icpcab/listings/recommendations.

Branter commented that the draft recommendation regarding FY 20 budget proposals follows Flohr's April presentation to the CAB. Essentially, it recommends that DOE Headquarters fund the Idaho Cleanup Project at the level requested by DOE-ID. Branter asked if the CAB members would like to make any changes to the draft letter.

Flohr referred to the table at the bottom of the first page, which was included in the presentation she delivered in April, and clarified that nothing on that table speaks to the FY 20 request. She recommended that the CAB remove the table from the recommendation.

Bugger encouraged the CAB to focus on whether DOE-ID's priorities are appropriate, and allow the Department and Congress to decide what level of funding those tasks require.

The CAB decided to remove the table.

Schoen asked for clarification of the difference between the overarching priorities and the five-year focus priorities lists. Branter responded that the first list is intended to include larger priorities, and the second list is the action items to achieve the overarching priorities. The CAB decided to add some language to show the relationship between the two lists.

Koch referred to the first bullet of the five-year focus priorities list and commented that the Remedial Action Report will not be available by 2023. Bugger commented that it is the Department's goal to complete buried waste two years ahead of schedule. Koch said that as long as the CAB understands, it would be fine to include that deadline, but the language in the recommendation should be clarified to say "Phase-I Remedial Action Report." The CAB agreed and included Koch's suggested phrase.

Schoen recommended that they add ongoing environmental monitoring in addition to the two aforementioned lists of priorities. The CAB agreed.

The CAB reached consensus on the recommendation.

Board Discussion of AMWTP Future Mission

The ICP CAB revisited the AMWTP future mission debate and ultimately submitted both a recommendation and a dissenting opinion to DOE Headquarters, both of which are available on the CAB website: energy.gov/em/icpcab/listings/recommendations.

Following the Budget discussion, Branter broached the potential of reopening the discussion surrounding AMWTP future mission and proposed submitting another recommendation to DOE.

After the CAB members expressed interest in continuing that conversation, McAfee commented that she did not wish to see AMWTP demolished. The workforce is vital and exemplary at AMWTP and the facility is one-of-a-kind.

Leatham added that the concentrated and highly specialized workforce at AMWTP has decades of experience and training and is, in many cases, able to anticipate, prevent, or respond to potential safety hazards in a way a new workforce, at a new facility, would be unable to. He asserted that DOE will be unable to replace the workforce at a duplicate facility in Hanford several years from now. It is a safety issue. Cost also plays a factor: The new facility would cost almost \$1.5 billion, and the costs and risks associated with training a new workforce are on top of that initial expense. It does not make sense.

Christensen stated that the CAB cannot submit [Draft Recommendation #1](#) from their discussion in March, as it too closely resembles the letter they actually sent. He recommended they prepare something new to say that they are no longer simply requesting information, but are recommending that DOE proceed with using AMWTP as a complex-wide resource for every financial, safety, and timeframe reason.

Keith responded that the timeframe for another AMWTP recommendation is incredibly tight. Dr. Anne White, the new Assistant Secretary for Environmental Management, has a background working in the field and probably supports a continuing mission. However, the CAB cannot wait until its October meeting to submit a recommendation. He stated that the CAB must decide today if they want to send something or not.

Schoen asked who would be ready to ship waste to Idaho for treatment at AMWTP if the decision was made to extend AMWTP. Branter responded that the CAB's recommendation would be in support of a continuing mission, and would not involve working through the logistics of doing so. Hughes added that he sent a small team to Hanford to talk about those logistics. They are aiming to have a plan in place, and the ability to transport waste to AMWTP in the early 2019 timeframe.

Schoen commented that Paragraph 4 of Draft Recommendation #1 says, "We acknowledge that issues which must be addressed include..." He asked how the author of that draft interprets that phrase. Christensen responded that the same clause was included in the [recommendation that was actually sent in March](#), with even more caveats. It is intended to mean that the CAB recognizes DOE cannot plow forward without thinking about these logistical items, so the Board has listed them in its recommendation to demonstrate an understanding of their importance.

Bartlome commented that the snag for him is where the waste will go. There are 44,000 drums awaiting shipment at AMWTP. He said that while he was very impressed with the facility, the question of where that waste will go still remains. He encouraged the Board members to ask themselves if they are comfortable with keeping the waste onsite.

McAfee added that a recommendation in support of continuing AMWTP's mission does not change the rules of the game. It is up to the State, EPA, and DOE to ensure the rules are followed. That responsibility does not fall on the CAB.

Martin said she thought the facility was impressive and recognized its contributions to the economy and to the community. However, she commented that she is contractually and morally obligated to listen to her employer's and her Tribes' position on accepting passage of this kind of material through the reservation. She stated that she would be against a recommendation in support of a continuing mission if it were to come to a vote. She added that it is important to her that she be consistent in what she stands for as it relates to the Tribe.

Schoen commented that it may not be the place of an Idaho citizens advisory board to weigh in on a national cleanup mission. He said he was extraordinarily impressed by what he saw at AMWTP during the tour, and agrees wholeheartedly with Leatham that the workforce and the facility are irreplaceable. However, he

stated that he, like Bartlome, cannot avoid the complications of meeting the terms of the ISA, and the potential implication of keeping waste in Idaho.

Branter called for a vote to vote on a recommendation regarding AMWTP future mission. Per the CAB's operating procedures, the CAB strives to reach consensus. When it becomes apparent that the CAB is unable to reach consensus on an issue, however, the facilitator (Gumm) or any Board member can call for a vote to go outside the consensus operation. Should the majority of CAB members vote to vote, the next vote would be on a motion.

Bartlome asked if the CAB is allowed to discuss AMWTP as it is not published on the meeting agenda. After consulting the Designated Federal Officer for the EM SSAB, Bugger replied yes, the agenda is only a draft.

Bugger reported that a CAB member had requested to vote by secret ballot. Schoen responded that he strenuously opposes any secret or private ballot. He stated that if a CAB member does not have the convictions to voice their vote, then they do not, in his opinion, belong on the Board.

The board then voted unanimously to vote.

CAB members voted, 7 to 4, to write a recommendation in support of a future mission of AMWTP. Agenbroad, Branter, Christensen, Ehresman, Fielding, Leatham, and McAfee voted in favor of a continuing mission for the facility. Bartlome, Martin, Roemer, and Schoen voted against it.

The CAB broke into two teams, those who were in support of a future mission and those who were opposed, to prepare a draft recommendation and a draft dissenting opinion for consideration by the Board.

After 15 minutes of collaborative drafting, the CAB reviewed the draft recommendation and dissenting opinion and voted to send both to DOE Headquarters.

Conclusion

Flohr concluded the meeting.

Keith Branter, Chair
Idaho Cleanup Project Citizens Advisory Board