Former Badger Army Ammunition Plant
Restoration Advisory Board (RAB) Meeting Minutes

April 10, 2025

Time: 6:00 PM

Place: Conducted virtually using Microsoft Teams due to US Army travel restrictions.

Attendees:

Virtually attending RAB members: Michele Hopp (RAB Community Co-Chair, Village of Merrimac), Luke Lampo (Wisconsin Department of Natural Resources), Jeremiah Yee (Wisconsin Department of Health Services), Randy Poelma (Ho-Chunk Nation), Michael Gleason (Lake Wisconsin Alliance), Chris Hanson (at large member), Seth Reedy (U.S. Army Corp of Engineers), Laura Olah (Citizens for Safe Water Around Badger), Valerie McAuliffe (Sauk County Board), Krystal Velasco (WDHS), Adam Weiss (Town of Prairie du Sac), Doug Gjertson (Town of Sumpter).

Additional virtual attendees: Joel Janssen (Army Contractor, SpecPro), Quang Nguyen (USAEC), James Ashley (Army Contractor, Cherokee Federal), Jelena Banks (Army Contractor, SpecPro), Joe Block (Star News), Jason Lowery (DNR), Brian Mastin (AECOM), Jessica Parrott (DHS), Rick Eilertson, Alison Bitel (AECOM), Lally Laksbergs (USAEC Public Affairs Officer), Nancy (last name not indicated).

Welcome and Opening Remarks (Quang Nguyen):

Quang Nguyen, USAEC Team Lead for the Midwest and Central America Division introduced himself and thanked all present for their attendance and flexibility for adjusting to an alternate meeting date based on RAB member votes, and also for having the meeting virtually because of government-imposed travel restrictions. Quang outlined an agenda for the meeting, which includes presentations on 1) Site-Wide Groundwater Proposed Plan Updates, 2) Settling Ponds Expanded Site Inspection, 3) Gruber's Grove Bay Data Gap Investigation, and 4) PFAS Remedial Investigation. He noted that both Scott Benson, USAEC Environmental Support Manager and RAB Army Co-Chair, and Cathy Kropp, Environmental Public Affairs Officer with USAEC accepted the Deferred Resignation Program offer and are no longer with USAEC. Lally Laksbergs (USAEC) will replace Cathy as Public Affairs Officer. Also, there is currently a hiring freeze in place, so Quang will remain the primary point of contact for Badger Army Ammunition Plant (BAAP). Quang thanked the RAB members for their continued engagement with cleanup progress at BAAP.

The meeting presentation slides were circulated in advance of this meeting to RAB membership, and will be available on the Army's website (https://aec.army.mil/baap/rab.

There were no comments on the January 2025 meeting minutes, so they were finalized and will be placed on the public website. There has been interest from other groups in new members joining the RAB, for which there needs to be a membership vote. However, none of those expressing interest were present in the meeting for the vote so this action was deferred to future meetings.

Site-Wide Groundwater Proposed Plan Updates

The Army is currently reviewing comments received during the December 16, 2024 to February 28, 2025 public comment period. Based on the feedback, the Army is considering conducting a pilot scale test of the proposed remedy. The Record of Decision will be delayed until the pilot test is completed. A response to the public comments will be drafted in matrix format by the Army and SpecPro in the interim.

Questions and Answers

Q: Will the plan for the pilot scale test be made available to the RAB and to the DNR for comment before it's initiated?

A: Yes.It needs to be contracted out first with a work plan developed before it can be submitted to the RAB and regulators for review (Quang Nguyen, AEC).

Q: Are the comments going to be sent out to the general public in terms of the responses? Because that's normally done with a Record of Decision. Is that going to be a whole separate public affairs thing to distribute that?

A: Quang. Army intention is to consolidate all of those questions into a spreadsheet and distribute it to the RAB members and any other person who contributed to the comments.

Settling Pond Expanded Site Inspection

Joel Janssen with SpecPro Professional Services, LLC is the Army's onsite remediation contractor handling characterization, monitoring and remediation planning. Joel presented high level findings from the Settling Pond Site Inspection, for which the DNR has been provided with a summary. This inspection included Final Creek, Settling Ponds 1 and 3, and Spoils Disposal Areas I, II, III, IV, and V. A future full site inspection report will include all of the information. The inspection is intended to determine whether a Contaminant of Concern (COC) is present, not to determine its full extent as with a Remedial Investigation (RI).

Wastewater from BAAP operations entered Final Creek and moved through all of the settling ponds to discharge into Gruber's Grove Bay. Sediment accumulated within the ponds. There are also spoils disposal deposits located near the ponds that were

assessed in this inspection. 186 soil samples were collected representing 64 different locations from the surface to a depth of five feet (with limited sampling to as much as 11 feet deep in spoils deposit areas) throughout these zones. The analytical results did not show any EPA Regional Screening Level (RSL) exceedances for volatile organic compounds or nitrocellulose in soil. There were RSL exceedances for 2,4-DNT, 2,6-DNT in 27 locations (mostly at shallow depths) representing deposits along the Final Creek and Settling Pond 1 flow path, with limited exceedances in Settling Pond 3 and Spoils Disposal Areas II and III.

Questions and Answers

Q: Is the screening based on industrial or recreation/conservation use?

A: The initial screening uses the generic table industrial values throughout the area (Joel Janssen, SpecPro).

Q: I am concerned about using the EPA sediment screening levels because they don't address groundwater. Also why are we screening for only two DNT isomers when the standard has been to include all six elsewhere at BAAP? Also the RSLs don't look at terrestrial and aquatic receptors. The RAB member also expressed concern over the presence of newly identified contaminants at the site, and requested that asbestos, ethyl ether and PFAS be included.

A: Joel. Ethyl ether is included in a volatile organic compound (VOC) scan. Asbestos and PFAS were not included. Terrestrial and risk factors relating to any wetlands would have to be determined in the next phase of assessment. The RSLs are not cleanup standards. COC-specific cleanup standards would be determined in a Remedial Investigation/Feasibility Study (RI/FS) process.

Q: So will Army be doing testing for all the DNT isomers then?

A: For now we are not asking that all six isomers be tested for, in part because there are no RSLs for the minor isomers. We are having discussion on sampling for all six isomers as part of the next phase of work (Luke Lampo, Wisconsin Department of Natural Resources).

Joel continues the presentation: There were 2,4-DNT and 2,6-DNT RSL exceedances found co-located with an exceedance of benzene in Settling Pond 2 in 2022. We did not find benzene above the RSL this time around, but it is worth pointing out. For nitroglycerine RSL exceedances, three locations were found in Settling Pond 1 and nowhere else.

The state of Wisconsin typically has a naturally occurring background concentration of 10 mg/kg for arsenic. There were 49 sample locations throughout the area that saw

arsenic concentrations at or above the EPA's 3 mg/kg RSL, which includes most of the area except for Spoils Disposal Areas IV and V, with a maximum value of 43 mg/kg in Settling Pond 3, and only eight of the samples exceeding 10 mg/kg.

Joel discussed smokeless propellant grains manufactured at BAAP for rocket and gun propellant. These have been identified at Final Creek and Settling Pond 1 to a depth of 1.5 feet as a wastewater deposit and are largely co-located with DNT isomer RSL exceedance locations. A photograph of waster propellant grains visible on the ground surface was presented.

Questions and Answers

Q: Are the propellant grains a hazardous waste?

A: Joel. You cannot dispose of it normally.

Q: How are we going to keep people out of there? People are going in at the little farmer roads and taking their dogs and hiking and this stuff is on the surface — nobody's even got to dig to get to it. What did you do with the stuff you found, did you scoop it up?

A: Joel. No; it has to be left on the surface. We talked with some unexploded ordnance experts, and we're not allowed to store it because you have to be careful if it dries out.

Q: My comment is that some quick steps should be in place to address this.

A: Joel. We've been working with the DNR on the language for some signage to be put throughout the areas where the grains are found.

Q: What about the wildlife that is in there or crops grown in there or grazing cattle? Are you going to teach them how to read the signs so they don't eat the stuff?

A: Joel. No; the USDA does not farm anywhere where the grains have been located. We have talked to hunters that we've encountered out there.

A brief discussion took place on the subject of propellant grains: RAB members provided feedbacks that in addition to signage, the area should also be physically restricted to minimize human contacts, and that further survey should be performed at other areas of BAAP. There were also concerns regarding previous methodology and work performed at these areas that had not identified these findings. A RAB member questioned if the previous fire at Settling Pond 2 is due to the propellant grains, and seeks assurance that these grains will be isolated.

WDNR is the property owner of these areas and closure of the area will be up to them. Previous sampling efforts at the settling ponds were more focused with less sampling

locations. Installing the signage will just be the first step that the Army is conducting, with additional actions under evaluation.

Resuming the presentation, Joel explained that Settling Pond 4 would have additional soil samples collected before a full site inspection report would be prepared (still anticipated for 2025). Work will continue with the property owners, including the town-run Bluffview Sanitary District and USDA farmers, with more conversations anticipated as farming season approaches. Signage will be prepared, as discussed, and CERCLA-related actions to advance toward a RI/FS with risk assessment phases. Additional sampling is anticipated to define vertical and horizontal extent with possible additional areas depending on what is found.

Gruber's Grove Bay Data Gap Investigation

Brian Mastin with AECOM outlined Gruber's Grove Bay Progress Summary for the Data Gap Investigation & Treatability Study. Alison Bitel of AECOM provided a summary of the results of the study (referred to as DGI). The main purpose of the 2024 DGI was to both confirm and better delineate the vertical and horizontal extent of mercury impact in bay sediments based on data gaps identified in a desktop supplemental RI. An additional purpose was to conduct bench scale treatability testing of sediments to determine the best ways to remove and process them.

DGI sediment core samples were collected at 11 locations (GGB 100 - GGB 110). While most were positioned along the edges of the bay to help define that horizontal extent of the plume, a few locations were in the center of the bay to help with our vertical data gaps. A total of 44 sediment samples were analyzed for mercury and used to refine models and assist in the mapping of the mercury plume.

Post-DGI modeling results show a better-defined plume than in pre-DGI modeling, with mercury plume extent removed from the shoreline in most areas. The thickest portion of the plume volume is approximately 3.5 feet (in the southeast bay area), with an impacted sediment volume estimate of 12,498 cubic yards. The vertical delineation was conducted in 1-foot increments. Alison emphasized that the final dredging prism volume may be larger than that estimated for the mercury plume alone, with possible additional volume in the northwest corner of the bay, even for the mercury plume.

Brian then presented the results of the treatability study, which addressed a high-moisture content, gelatinous and mercury-containing surface material collected from the site. Several dredging and dewatering strategies were explored, including 1) mechanical dredging, 2) hydraulic dredging, 3) hydraulic pumping, 4) mechanical dredging with subsequent slurrying of sediment, and 5) filter cake generated from passive dewatering. The strategies anticipate removing the material and likely processing it by various methods near the shoreline before it can be disposed of offsite. Test results will be useful for refining FS assumptions, mass balance calculations and remedial designs.

The DGI report has been submitted to WDNR for review and comment following review and comment from USAEC and USACE. AECOM is currently working on a FS that screens and assesses the various alternatives with respect to cost and effectiveness and includes recommendations.

Questions and Answers

Q. Mercury is one of the contaminants of concern, and that's why it's on the impaired waters list. But there's also metals and PCBs. The thinking was that when implemented the cleanup would address everything because it was believed to be co-located. But now with all the activity in there, we don't know if that's the case. So how are we going to sort that out?

A. When we did the supplemental investigation, we did look at co-located materials that previous investigators also had identified, with mercury as the driver for risk, both human health as well as ecological. But the evaluation on the end of the project is going to recommend to the Army, and I'm sure WDNR for most of their remediation projects has a confirmatory process that once the construction has been completed will confirm that all contaminants have been removed. And the recommendation will be that not only mercury be sampled as a part of that confirmatory sampling, but also anything that was co-located or driving risk at the time (Brian Mastin, AECOM)

Q. That's going to be a hard sell here because what happened with the two previous cleanups is that's how it was designed. And at the end the contractors that did the work said it's all clean. And because it was on the impaired waters list, DNR went out and did some sampling. And by then it was too late. And that's what happened the second time. So that's a tough sell to the community because that's what we relied on. Is there something that can be done in terms of sampling, I know you've conducted a lot of mercury sampling, but couldn't we go out there and kind of establish what's out there right now and where things are relative to each other? I hesitate to move forward with a full scale project until we know that it's going to be successful at the end.

A. Brian. It's really an Army and DNR question for them to answer; not quite in our scope. But I think one of the things that we have to look at is where is the soft sediment — muck sediment seems to be where the mercury is located, based on our modeling. Basically, from our models, some of the soft sediment still remains in Gruber Grove Bay. Anywhere that the model hasn't delineated vertically or horizontally it's pretty much a hard-bottom, consolidated material. So we'll have to take a look and see if there's a recommendation for that type of sampling. I agree with your other comments about the confirmatory sampling. There'll have to be some recommendations that occur. We'll have some, of course. The Wisconsin DNR's remediation folks are really good about tightening the grid associated with those samples and how they're evaluated both discretely as well as compositing or not. And so there definitely will be a lot of negotiation and discussions on how that confirmatory sampling is occurring. It's

encouraging that the amount of material that's being delineated as greater than the background concentration is a lot smaller (by an order of magnitude) than in previous sampling events, and seems to be trending in the right direction. The technology that's available for removing soft sediments has improved a lot over the last decade and knowing that may have been the missed previously there'll be recommendations on how we can do a better, more efficient job if dredging is selected.

Q. Okay. I would say because this affects people's property (it's a small bay and people's houses are close to the water) that some communication should happen early on. The Army has names and addresses for all the homeowners. A letter could go out and have some sort of public meeting early on again to give people feedback. You have a much better chance of getting public support if you need additional resources if the public's on board. That can help. I've heard a lot from people lately who are very discouraged to find out about things happening at Badger after the fact and after they've had an opportunity to have their input. So that's kind of the lay of the land here as the consultants before you didn't do you any favors. So you're going to have to prove yourself. We've been let down two times and each time it cost $6 million.

A. Brian. I apologize that I haven't attended the RAB meetings previously and been a part of these discussions, but my understanding is that the Army is listening and definitely Wisconsin DNR is so I think that everybody's on the same page moving forward.

Q. I noticed that there were test studies completed and I am just curious.
I know that you've probably submitted all of your results to the DNR and eventually we'll be able to see that document. But is there something that was really a surprise to you that you found as a result of your test studies?

A. Brian. I think that the surprise based on the historical investigations is in the positive. We expect in this kind of steep-sloped embayment that the sediment would be depositing in the deeper sections of the bowl. That's the sink based on the bathymetry of the site. And so not finding concentrations that you know exceed that background concentration from DNR only focused in that deeper section [was a surprise]. And also that there's not a lot of those contaminated fines remaining compared to previous investigations that we're trending in the right way. I would say that those surprises that we are trending in the right way gives me optimism from a source control perspective.

Q. When I looked at the previous investigations, I noticed the sampling intervals were geared towards the top half foot and then the half foot and below. And so there was a misconception that the contaminants may be a little bit deeper. The results of this investigation surprised me by showing after about one foot mercury concentrations completely dropped off. I was really excited and a little surprised by that result.

A. Brian. Yes, but again trending in the right direction, right? If we found contamination at four feet and everything above it was clean then it's a different discussion about how we mitigate risk for material that's there. So it's a lot different discussion when it comes to the feasibility side of things.

Q. The oil and gas industry developed over 20 years ago what they called MWD technology, which is Monitor/Measurement While Drilling. Is there anything similar to what you would do now with the technology for hydraulic dredging to where you can actually geolocate where that thing is on the bottom and literally watch it so that you're not just disturbing things and guessing?

A. Brian. Yes, 100%. So I think that's one of their best innovations here is that once we've defined the dredge prism, the place that needs to be removed (the material), your dredging is very surgical nowadays because coordination is right at the cutter head. If it's hydraulic, it's right at the pump head or right at the cutter head where the actual contact between the sediment and the machine is occurring. If we're mechanically dredging, which I don't think we're going to be recommending here, but you never know, same thing: The bucket has got GPS locators on all corners of the bucket when it's open and closed, so that the operator knows exactly where they are in time and space in relation to the bottom, and it's almost like dredging by numbers by color that you can input your dredge prism into a monitor so that that GPS coordinates are actually a certain color. Say the contaminated material is purple and the operator can see that they are removing all of the purple and it's turning green because they're getting to the spot where they need to be and they can actually see that real time and so can everybody else. We can see that real time as they're removing the material. I think also where the innovation has really changed is in the energy that's required. This material is very fine or high organic high moisture content and any energy from a cutter head or a dredge bucket will displace and move that material around really easily. So I think where the innovation is really going to help this particular project moving forward is we're going to do more vacuuming and again that helps that we're only taking off literally the top half foot to a foot of material. There's a couple hot spots that are a little bit deeper. But we're really going to be able to vacuum that material up and we're not going to have to use high energy equipment, which was used in the past, which actually causes what we call fall back. So it actually moves and displaces the material that's in front of it, re-suspends it and pushes it out of the way. And I think that's one of the challenges that's occurred. And again, I think because of what's left there and what we detected and measured, I think that will really help us. So there'll be recommendations and we'll have to go through and look at the advantages and disadvantages from an efficiency perspective, but a lot of it is going to be more geared towards that type of operation. And again, because we're looking at 12,000 to 15,000 cubic yards of material, this isn't a project that's going to take a long time, even if we have to slow things down by vacuuming versus using a cutter head here.

Q. Thank you. Yes, I think you're headed the right direction there and moving away from mechanical towards hydraulic.

A. Brian. Yes. And in the use of mechanical dredging in these soft, high moisture content materials we find that there's a lot of displacement. There's a lot of fall back and there's also a lot of spill that even with the use of mechanical buckets, etc., there's leakage out of the bucket as you're pulling it up through the water column and the transfer into a barge and then transfer from the barge to the ex-situ sediment management transloading area. So we definitely think that doing this probably hydraulically is still going to be the way to go based on some of our initial evaluations. So we minimize environmental as well as occupational exposure by doing everything in a like application. So just a preview of what's coming up; hopefully soon.

A. Quang. To follow on to Laura's questions about getting the neighborhood's input, as the project move forward with this process and the public's always welcome to participate in our quarterly RAB meetings, plus doing the proposed plan phase that we would have a public comment period for those kind of inputs.

PFAS Remedial Investigation

Quang provided PFAS update, explaining that a PFAS RI contract acquisition was completed. This involved the Army's going out to the site late last year to do a site visit with the the bidding contractors, receiving the proposals from those contractors and doing technical evaluations of those proposals to the point where a contractor was identified. This RI was initially for the one Area Of Potential Concern (AOPC) Propellant Burning Ground based on the PASI. Inputs and recommendations from the WDNR on additional areas include the Oleum Landfill, Deterrent Burning Ground, and Landfills #2, #4, and #5, as illustrated on the Slide 23 of the presentation. The contract incorporates an option to investigate or collect some data to make sure that those areas are being properly looked at. As of right now, the RI contract is ready to be awarded and the Army is just waiting on funding availability to initiate the RI phase. The Office of Secretary of Defense policy back in January of 2025 added three additional compounds to the PFAS list, which are the TFSI, the PFPra and the PFDA compounds. The policy and most recent DoD policy can be found on the web link presented on Slide 23.

A RAB member appreciated that there would be some PFAS testing in the northeast corner of the Badger AAP property.

Questions and Answers

Q. Is there any expectation of decreased funding for the Environmental Command or any proposed rescission of existing funds?

A. Quang. Since the passage of the Continuing Resolution on March 14th, the Army is awaiting additional appropriation for the remainder of fiscal year. Additionally there likely wont be a plus-up as anticipated. From current understanding, FY26 budget is anticipated to be more limited.

Q. Given that you have many projects across the country that are similar in some way or another to Badger, where do we sit in terms of the overall pecking order for funding?

A. Quang. The understanding is that priority is going to be more towards projects where there are existing decision documents or regulatory statutory requirements like long term monitoring, which Badger has with annual quarterly groundwater monitoring currently performed by SpecPro. So that is going to be a priority. Any new RI work is farther down the priority list, including PFAS. The Army is continuing to move forward until otherwise.

The meeting ended with a review of future RAB meeting dates, currently scheduled for 17 July, 2025, 16 October, 2025, 15 January 2026, and 16 April 2026, with the hope that meetings can meet in person once again. The last slide showed the QR scans for the the websites for the Army and BAAP, and members are invited to email with comments or questions.

The RAB meeting was adjourned at 7:53 PM.