



Nevada Site Specific Advisory Board (NSSAB)

Full Board Meeting Molasky Corporate Center Las Vegas, Nevada

4:00 p.m. – July 19, 2023

- Members Present:** Erik Anderson, Joycelyn Austin-Mabe, Lisa Blandi, John Cole, Gary Elgort, Anthony Graham (Chair), Mark Hilton (Vice-Chair), Janice Six, Kevin Trainor, Favil West, Eddie Williams
- Members Absent:** William DeWitt, William Dolan, Bruce Jabbour, Dan Peterson
- Liaisons Present:** Christine Andres (State of Nevada Division of Environmental Protection [NDEP]), Richard Arnold (Consolidated Group of Tribes and Organizations [CGTO]), Frank Carbone (Nye County Commission), Richard Friese (National Park Service), John Klenke (Nye County Natural Resources and Federal Facilities Office [NRFFO]), Phil Klevorick (Clark County), Scott Lewis, Frank Bonesteel, and Patrick Lazenby (Nye County Emergency Management [NCEM])
- Liaisons Absent:** Varlin Higbee (Lincoln County Commission)
- Department of Energy (DOE):** **Environmental Management (EM) Nevada Program:** Robert Boehlecke (Deputy Designated Federal Officer [DDFO]), Tiffany Gamero (Alternate DDFO), Catherine Hampton, John Myers
National Nuclear Security Administration/Nevada Field Office (NNSA/NFO): John Daniels, Kathryn Gladden
- Government Contractors:** **Navarro Research and Engineering, Inc. (Navarro):** Sydney Doyle, Grant Johnson, Glenn Puit, Ken Rehfeldt, Ari Rosenberg, Barbara Ulmer
Desert Research Institute (DRI): Chuck Russell
U.S. Geological Survey (USGS): Jeff Sanders
- Members of the Public:** Susan Coleman, Christopher Hicks, Steve Rosenbaum, John Stang, Sonia Thangavelu

Open Meeting

Chair Anthony Graham welcomed everyone to the meeting. He thanked members who have been active between meetings attending various national conferences, workshops, and facility evaluations of waste generators. In particular, he noted that the NSSAB's written update on the Devils Hole Workshop was well presented and very informative. Member Kevin Trainor moved to approve the draft agenda. The motion was seconded and passed unanimously.

Public Comment

Steve Rosenbaum provided the following public comment:

Greetings, all. I was a board member from 2014 to 2020 in the Chair and Vice-Chair. I'm here today to talk to you about and I'm gonna be off the beaten path a bit, but it does relate to the EM Program. I'm talking about the Rover Company and their attempt to do more with you and Ash Meadows and how it may affect the endangered species there. Currently, Bureau of Land Management (BLM) did place it on hold, but possible effects of the drilling that alter how the ground flow in the water reacts around there and that would certainly affect your water flow modelings from the site coming down. So, something to keep on your radar and look at maybe do an amicus thing with BLM on it to look at it, but it is something that does affect it. You all know from my time here that I have a special affinity for the pupfish, so that's why I'm here. Just to let you know on it and make sure that the board is heard through BLM and the environmental comment commentary. Thank you.

Liaison Updates

DDFO Robert Boehlecke recognized Phil Klevorick for his service to the NSSAB as a liaison for the past 13 years, as he is retiring from Clark County this week. He thanked Mr. Klevorick for his commitment, time, energy, and passion he has provided in serving this Board and other aspects of the EM Nevada Program and the Department as a whole. He has been a very valuable source of information, support, and advice. NSSAB members, liaisons, and staff provided Liaison Klevorick with best wishes on his retirement.

Clark County (*Phil Klevorick*)

Liaison Phil Klevorick thanked DDFO Boehlecke for his comments. In the past six weeks, Clark County has participated in several meetings, including the Energy Communities Alliance meeting in Paducah, KY, and the National Transportation Stakeholders Forum (NTSF) in St. Louis, MO. Liaison Klevorick shared that Gene Smith, Clark County's volcanologist, passed away the end of June. He was a long-term professor at the University of Nevada, Las Vegas, (UNLV) and was involved with proceedings with the Nevada Test Site, as well. Elizabeth Vibert, Clark County's District Attorney, passed away also in June. Liaison Klevorick concluded that he has enjoyed working with the NSSAB and the EM Nevada Program staff. He thanked everyone for their time and to keep up the good effort.

CGTO (*Richard Arnold*)

Liaison Richard Arnold reported that the CGTO has been involved in the State and Tribal Government Working Group (STGWG) that works closely with EM on a national level and on a local level with cleanup activities at EM sites across the DOE Complex. STGWG recently hosted various Tribal teleconferences that have been very informative to keep communications open.

STGWG held its spring meeting in May 2023, during which the Federal Preservation Officer acknowledged the Tribal Revegetation Project at the 92-Acre Area on the Nevada National Security Sites (NNSS) and the positive collaboration between DOE and the Tribes on issues of mutual interest.

Liaison Arnold continued that DOE will be working on a Supplemental Analysis to the Site-Wide Environmental Impact Statement. An American Indian Writer Subgroup, a group of Tribal people from culturally affiliated Tribes to the NNSS, will be developing text for the document. He attended the RadWaste Summit that included a variety of workshop and sessions. He mentioned one session, *Establishing & Maintaining Valuable Engagement with Tribes, and Local Communities*, that included a diverse panel that shared their respective ideas and thoughts. During this session, NNSS received honorable mentions on the important work being done at the site. The CGTO is preparing for the next Tribal Radioactive Materials Transportation Committee (TRMTC) meeting in January 2024. The next NTSF will be held on June 4-6, 2024, in Denver, CO, with TRMTC as the host organization. NTSF focuses on DOE shipments of all waste stream types across the DOE Complex.

Nye County Commission (*Frank Carbone*)

Liaison Frank Carbone had nothing new to report.

NCEM (*Scott Lewis*)

Liaison Scott Lewis stated that the Nye County Board of County Commissioners is closely involved with and monitoring the various boring projects, including the one mentioned during public comment. The Low-Level Waste (LLW) Stakeholders Forum will be held on August 9th and the Local Emergency Planning Committee on August 3rd at the NCEM Offices in Pahrump, NV. Frank Bonesteel added that the NNSS, DRI, and the Atomic Museum were featured in early June 2023 in a Wall Street Journal article that can be accessed [here](#).

NRFFO (*John Klenke*)

Liaison John Klenke shared the results of the 2022 Nye County Tritium Sampling and Monitoring Program (TSaMP), an eleven-year program funded by a DOE grant that is currently in its eighth year. Under the TSaMP, wells and springs downgradient from the NNSS in the areas of Beatty, Amargosa Valley, and Lathrop Wells, NV, were sampled in November and December 2022. Ten core wells (nine wells and one spring) and ten new locations (eight wells and two springs) were sampled under the 2022 TSaMP. Samples were taken from two Nye County early warning detection program wells, three Nye County groundwater evaluation wells, three NNSS wells, five community wells, four private wells, and three springs. Samples were analyzed by a radiation safety engineering company in Chandler, AZ using the net concentration of either 341 or 348 picocuries per liter (pCi/L). The Safe Drinking Water Act's (SDWA) limit for tritium is 20,000 pCi/L, and the TSaMP samples down to a detection limit of 1.5 percent of the SDWA. In addition, three blank and four duplicate samples were analyzed to meet Quality Assurance/Quality Control (QA/QC) requirements. All twenty samples and seven QA/QC samples came back as nondetects for tritium.

NDEP (*Christine Andres*)

Liaison Christine Andres introduced herself as the Bureau Chief for the Bureau of Federal Facilities. NDEP's mission includes the regulation and oversight of the EM Nevada Program remediation actions, but also permitting and oversight for some NNSA/NFO activities. NDEP completed its annual solid waste landfill inspections at the NNSS over the past several months.

NDEP is working with Mission Support and Test Services, LLC (MSTS), the NNSA/NFO contractor, to update a solid waste permit, the last of four permits to be updated. Liaison Andres noted that NSSAB members will be accompanying the Radioactive Waste Acceptance Program (RWAP) staff to observe facility evaluations of waste generators next month. She also attended this year's RadWaste Summit, along with the Federal Facilities Task Force, and the STGWG annual spring meetings as a representative of the state of Nevada. NDEP, along with the Office of Legacy Management, conducted an annual inspection of ten sites on the Tonopah Test Range that currently have post-closure monitoring. Liaison Andres concluded that NDEP continues to meet with the EM Nevada Program on the progress of Pahute Mesa's movement to the model evaluation phase of the Federal Facility Agreement and Consent Order (FFACO).

NPS (*Richard Friese*)

Liaison Frank Carbone had nothing new to report.

NNSA/NFO Update (*John Daniels and Kathryn Gladden, NNSA/NFO*)

John Daniels, detailed to NNSA/HQ Intergovernmental Affairs, thanked Liaison Klevorick for being a staunch advocate for Clark County. Kathryn Gladden, NNSA/NFO Program Liaison to EM, expressed that is beneficial to be a part of the meetings to hear the perspectives and opinions of the NSSAB.

U.S. DOE Update (*Robert Boehlecke, DOE*)

DDFO Robert Boehlecke reported on the following DOE EM Nevada Program updates:

- **TCC Demolition:**
The Industrial Sites team has made significant progress in the demolition of infrastructure at the Test Cell C facility at the NNS. DDFO Boehlecke provided photos showing the progress.
- **Jackie Petrello Onboarding:**
Jackie Petrello has joined the EM Nevada Program federal staff. Her role is the activity lead for the Industrial Sites team.
- **EM-3 Status:**
In early May 2023, Nicole Nelson-Jean, EM's Associate Principal Deputy Assistant Secretary for Field Operations, a position commonly referred to as EM-3, was named the new Associate Administrator for Infrastructure for the NNSA. The EM Nevada Program wishes her the best and thanks her for all the support offered to the Program.
- **STEM Grant Update:**
In May 2023, EM Nevada Program representatives visited the Walter Bracken STEAM Academy in Las Vegas to witness the benefits of a recent STEM grant awarded to the school by EM Nevada contractor Navarro. The children at Walter Bracken demonstrated how they are learning to program and code robots thanks to the \$3,000 grant aimed at promoting education in science, technology, engineering, and math (STEM) in communities near the NNS. Three 2022 grant recipients were selected from a pool of applications through a blind-scoring process that evaluated total benefit to student learning. Upon close examination of the top three finalists, all three were funded for a combined total of \$8,000. The Navarro Community Commitment STEM Grant is open to public, private, and charter schools in the counties of Clark, Elko, Esmeralda, Lincoln, Nye, and White Pine in Nevada. The grant application window for 2024 will open in the fall 2023.

- **RadWaste Summit:**
Mark Hilton and Eddie Williams joined several EM Nevada Program representatives at the RadWaste Summit in Las Vegas in early June 2023.
- **Public Comment:**
DDFO Boehlecke thanked Steve Rosenbaum for his public comment.
- **Dr. Sonia Thangavelu:**
DDFO Boehlecke introduced Dr. Sonia Thangavelu who is with the Defense Nuclear Facilities Safety Board, an independent organization within the executive branch and the U.S. government chartered with the responsibility of providing recommendations and advice to the President and the Secretary of Energy regarding public health and safety issues at DOE defense nuclear facilities.

Roberts Rules of Order Refresher *(Frank Bonesteel, NCEM)*

Frank Bonesteel, NCEM Liaison, conducted a refresher with handouts and answered NSSAB questions regarding Roberts Rules of Order.

Other NSSAB Business *(Anthony Graham, Chair)*

EM Site-Specific Advisory Board (SSAB) National Chairs' Meeting – Development of Round Robin

The EM SSAB National Chairs' Meeting will be held October 3-5, 2023, at the Oak Ridge Site in Tennessee. The meeting on October 4th will be a full day including the round robin topics from each of the eight EM advisory boards to EM Headquarters Senior Management, highlighting the top interest/concerns and accomplishments of each of the boards. Representing the NSSAB, Chair Graham and Vice-Chair Mark Hilton will participate with the other EM SSAB leadership.

Chair Graham facilitated brainstorming of potential topics for the NSSAB's round robin:

NSSAB accomplishments:

1. Association with revegetation effort at the NNSS and its success
2. In addition to attendance at Full Board meetings, exceptional Board interest and participation in volunteer activities (national conferences, workshops, educational sessions, facility evaluations of waste generators, LLW Stakeholders Forum, Groundwater Open House, etc.)

NSSAB concerns:

3. Continued community participation and input after the NSSAB is no longer active
4. Impact of climate change on previously closed locations on the NNSS (risk to public and the environment)

Member Eddie Williams made a motion to adopt the round robin topic #1 listed above for the EM SSAB National Chairs' Meeting. The motion was seconded and passed unanimously. Member Kevin Trainor made a motion to adopt the round robin topic #2 listed above for the EM SSAB National Chairs' Meeting. The motion was seconded and passed unanimously. Member Gary Elgort made a motion to adopt the round robin topic #3 listed above for the EM SSAB National

Chairs' Meeting. The motion was seconded and passed unanimously. Member Erik Anderson made a motion to adopt the round robin topic #4 listed above for the EM SSAB National Chairs' Meeting. The motion was seconded and passed with a majority.

Chair Graham thanked the NSSAB for their input on topics for the round robin.

NSSAB Update on RadWaste Summit

Vice-Chair Hilton shared items of interest from his and Member Williams' attendance at the RadWaste Summit held on June 6 - 8, 2023, in Las Vegas. His update included an informative PowerPoint presentation with photos that he had taken during the conference. On behalf of the NSSAB, Chair Graham thanked them for the presentation.

NSSAB Update on LLW Stakeholders Forum

Member Lisa Blandi shared items of interest from her attendance at the LLW Stakeholders Forum held on May 16, 2023, in Las Vegas. Chair Graham thanked Member Blandi for her update and for her written report to the NSSAB.

Notification of Chair/Vice-Chair Elections for Fiscal Year (FY) 2024

Chair Graham announced that elections will be held for the NSSAB Chair and Vice-Chair positions at the September 20th Full Board meeting. A list outlining the responsibilities for both positions was provided to the Board, and members were encouraged to consider running for a leadership position. Interested members are asked to notify the NSSAB Office to be placed on the ballot by September 1, 2023.

Follow-up to Revegetation of EM Sites (Work Plan Item #5) (Tiffany Gamero, DOE)

During the April 19th NSSAB meeting, Tiffany Gamero, Regulatory/FFACO Lead, briefed on work plan item #5. The NSSAB was asked to provide a recommendation, from a community perspective, on improvements or enhancements to revegetation of EM sites. During the April meeting, the NSSAB provided a recommendation to investigate using transplants of desert plant species from BLM lands to revegetate EM sites that was formally responded to by the EM Nevada Program in July 2023. Prior to the meeting, the NSSAB was provided the recording of the briefing to familiarize themselves with the topic to come prepared to have meaningful discussion with Chair Graham on recommendations for this work plan item. The Board was also provided with a white paper of questions and answers resulting from the April 19th NSSAB meeting and those documented in the formal minutes of the meeting.

In response to Board questions, the following clarifications were provided:

- The number of inches of precipitation is used to determine the amount of supplemental irrigation applied to the revegetated sites that duplicates a good growing season.
- The revegetated area on the 92-Acre Area requiring irrigation is around 50 acres.
- Once the plant community becomes established in the revegetated areas, NNSS biologists maintain that the invasive plant species will be overcome naturally.

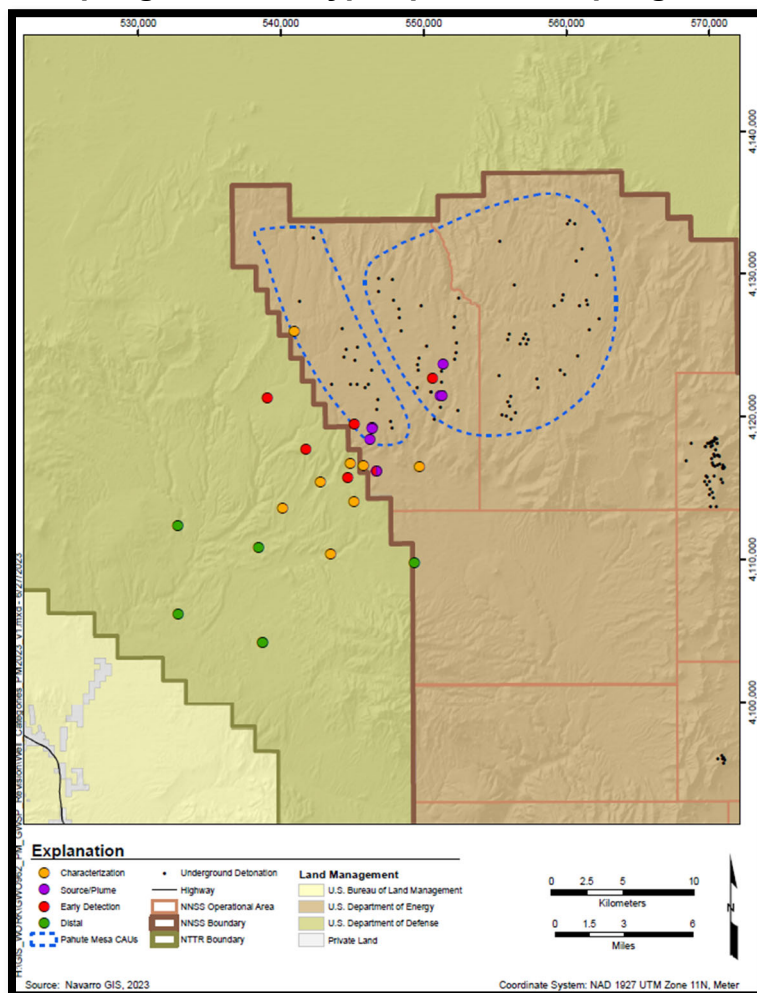
Chair Graham led NSSAB discussion for any additional recommendations for work plan #5. At the April 19th NSSAB meeting, a potential recommendation was tabled for the EM Nevada Program to investigate different water sources for irrigation, such as gray reclaimed water to revegetate EM sites. This potential recommendation was addressed in the white paper question #3: no, there is no water treatment or reclamation on the NNSS. The Board determined that this answered the potential recommendation and decided not to follow-up with a formal recommendation. After further deliberation, the NSSAB did not have any further recommendations and thanked Ms. Gamero for her time in providing the white paper and answering additional questions.

Sampling Plan for Pahute Mesa Groundwater Corrective Action Units (Work Plan Item #4)

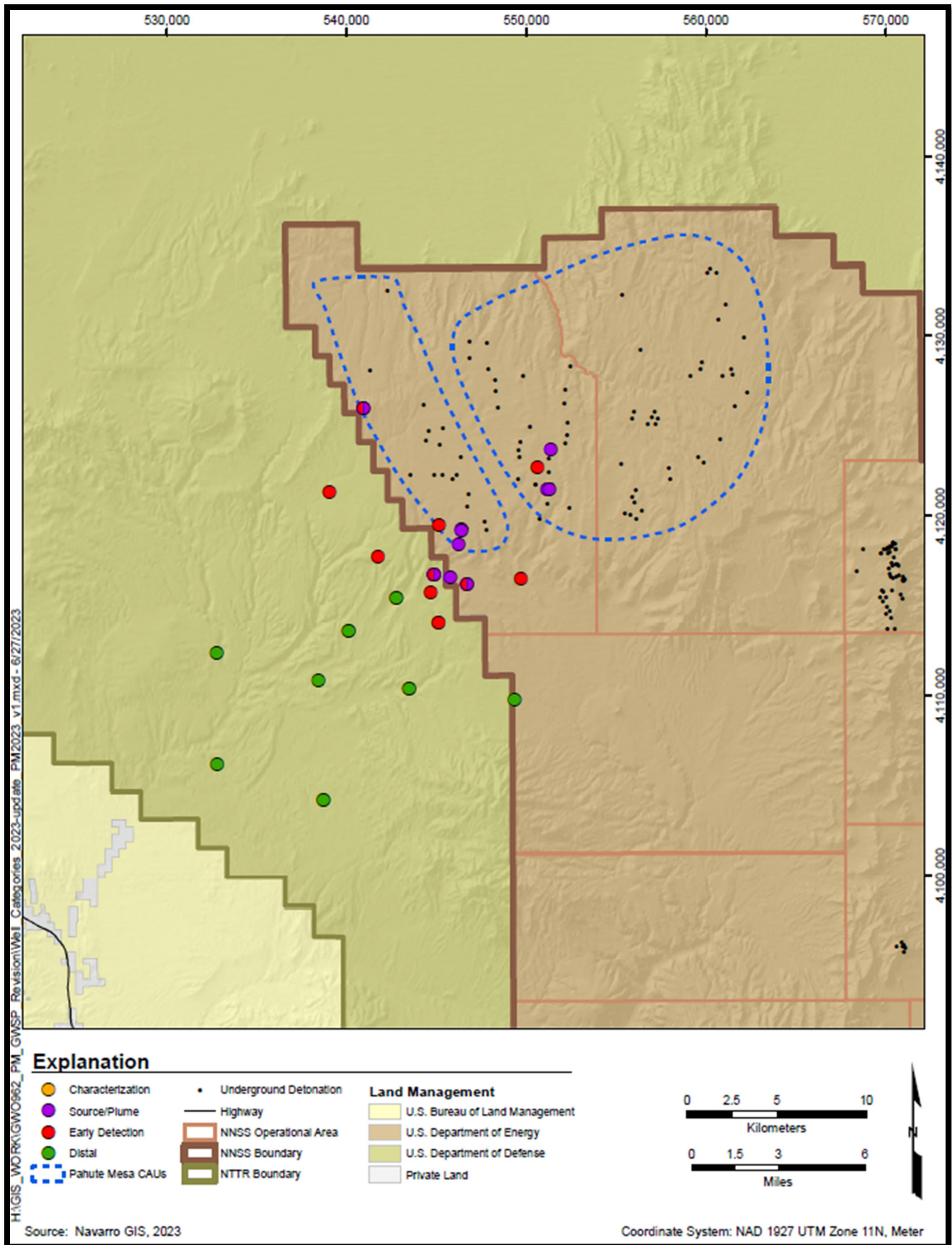
(Ken Rehfeldt, Navarro)

- **NSSAB – Work Plan Item #4**
 - From a community perspective, the NSSAB will provide a recommendation on improvement and/or refinement for the Pahute Mesa Groundwater Sampling Plan
 - NSSAB recommendation is due in September 2023
- **Discussion Topics**
 - Background on the NNSS' Pahute Mesa Corrective Action Unites (CAUs)
 - Methods of sample collection
 - Sampling results
 - The Pahute Mesa Sampling Plan (November 2020)
 - Background
 - Description
 - Recent changes
 - Future
- **NNSS Closed Groundwater CAUs**
 - Closure achieved at Frenchman Flat, Yucca Flat and Rainier Mesa/Shoshone Mountain CAUs
 - Sampling defined in the respective Closure Reports
 - Defines location, frequency, radionuclides
 - Regulatory commitment
- **NNSS Pahute Mesa Groundwater CAUs**
 - Pahute Mesa CAUs are currently in Corrective Action Decision Document/Corrective Action Plan (CADD/CAP) stage
 - Sampling in support of Model Evaluation
 - Pahute Mesa Sampling Plan guides sampling
 - Location, frequency, analytes (chemical and radiologic)
 - Provides flexibility – not a commitment
- **Sampling Methods: Electric Submersible Pump**
 - Advantages
 - Higher flow rates (~25 gallons per minute)
 - Purge large amount of water from the well before sampling
 - Integrated sample across the open interval
 - Disadvantages
 - Water disposal (1,000s of gallons)
 - Requires generator, pump, controllers, manifold, etc.
- **Sampling Methods: Insert Rod Pump**
 - Advantages
 - Pump smaller diameter wells
 - Integrated sample
 - Disadvantages

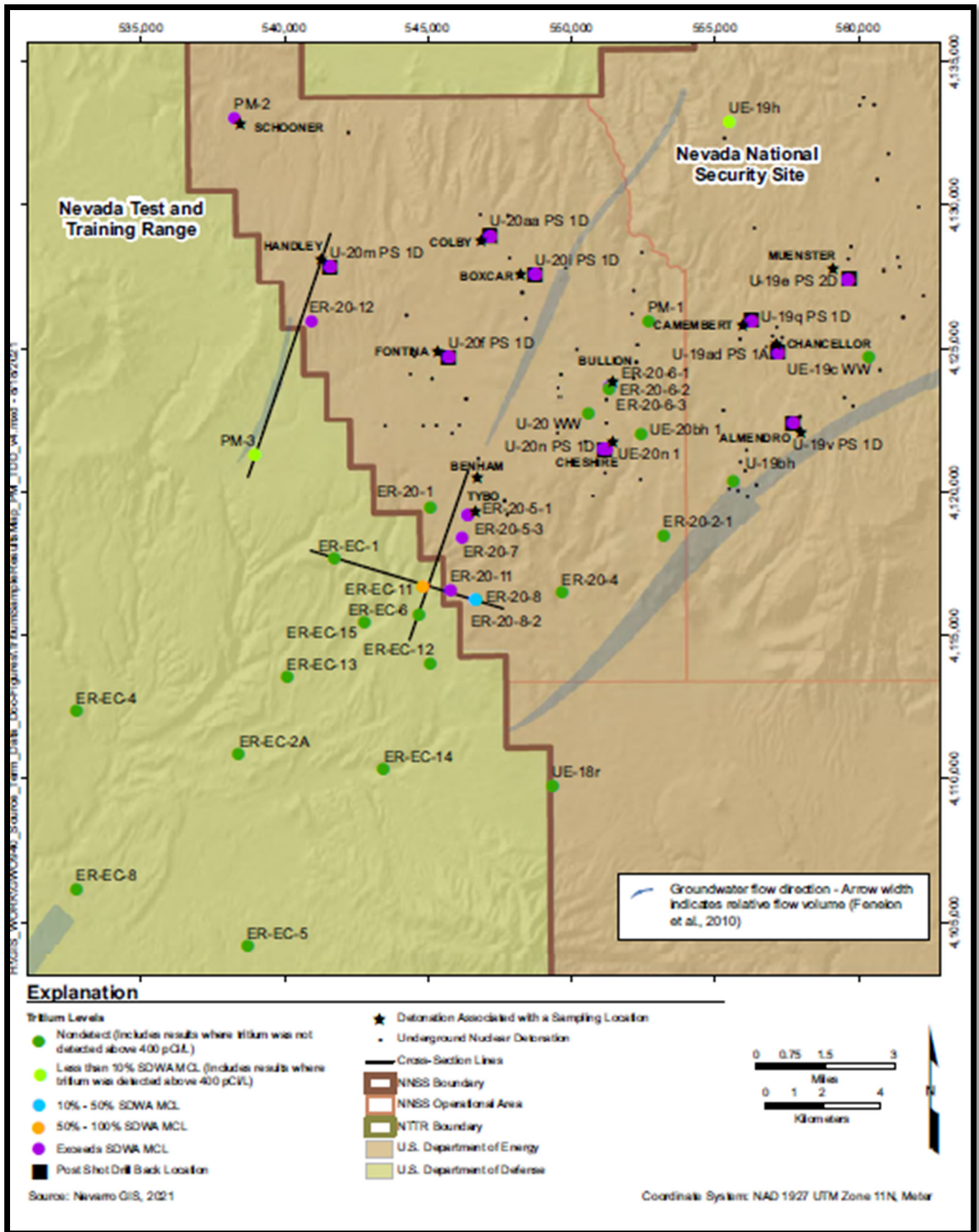
- Low flow rate – takes a long time to purge the well
 - Pump installation and removal can be costly
- **Sampling Methods: Depth Discrete Bailer**
 - Advantages
 - Simpler, less equipment
 - Disadvantages
 - Little to no purging
 - Samples one discrete zone.
- **Sample Location Types**
 - Characterization – used for groundwater flow system characterization or model evaluation that is typically assigned to a different type after 3 sets of samples are available – sampled every 3 years including a larger list of constituents
 - Source/Plume – for locations with test-related contamination present (defined as tritium above 1,000 picocuries per liter [pCi/L]) – constituents are tritium, carbon-14, and iodine-129 – sampled every 4 years
 - Early Detection – locations downgradient or near known contamination that may show detectable contamination in the future – constituents are low-level tritium to ensure early detection of contaminants – sampled every 5 years
 - Distal – beyond early detection locations – constituent is standard tritium (detection limit of 1,000 pCi/L) – sampled every 5 years
- **Pahute Mesa Sampling Location Types per the Sampling Plan**



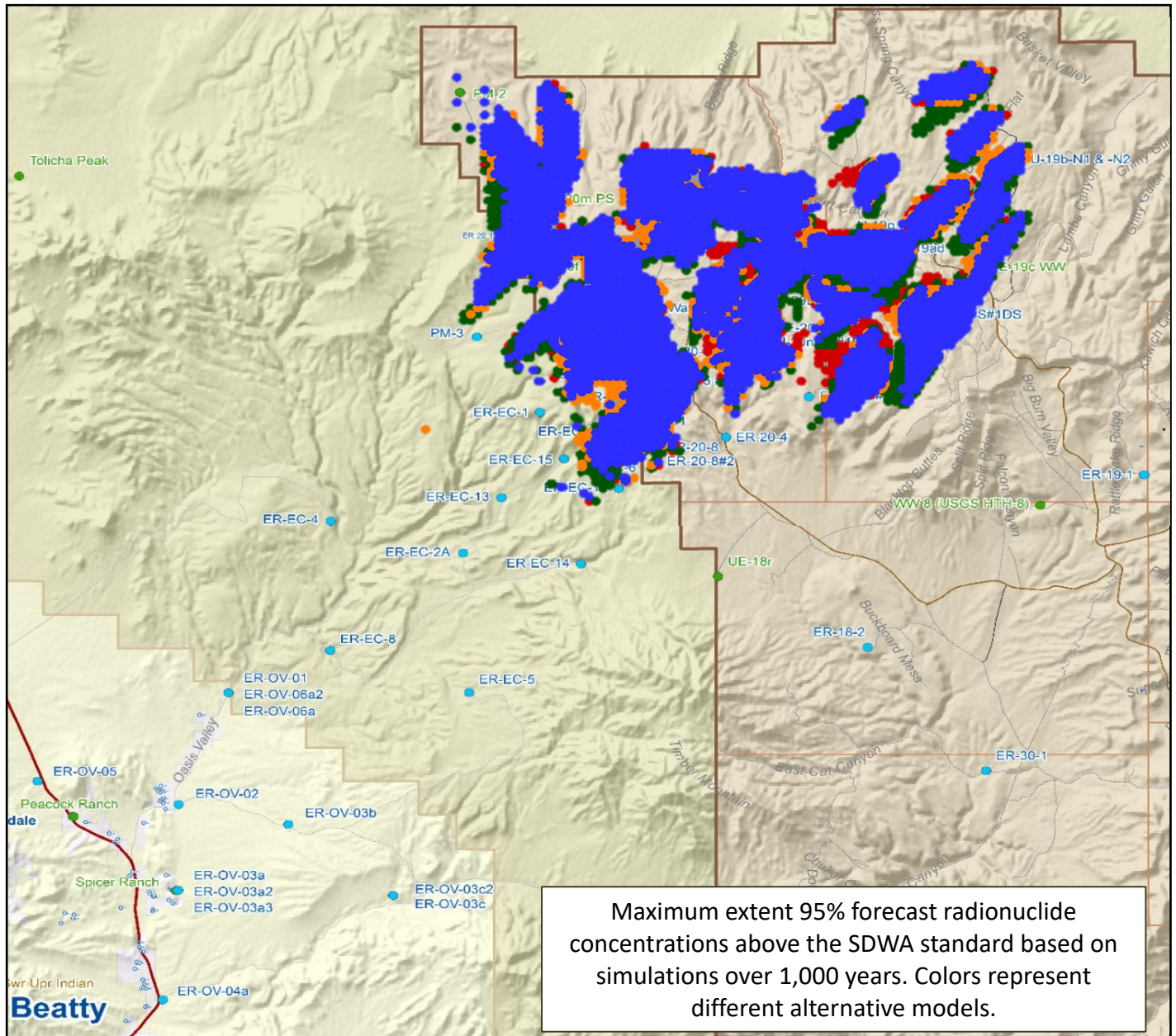
- Pahute Mesa Sampling Location Types Recategorized



- Pahute Mesa Sampling Results



- **Radionuclide Migration from Pahute Mesa Model Forecast Maximum Extent**
 - Radionuclides above the Safe Drinking Water Act (SDWA) standard are forecast to migrate onto the Nevada Test and Training Range (NTTR) in the near future
 - Maximum extent nearly two miles onto NTTR
 - Groundwater use restrictions are likely in the contaminated area on federally-controlled land
 - No additional restrictions to public water supplies expected



- **Pahute Mesa Sampling Plan**
 - Describes the approach for collecting and analyzing groundwater samples from Pahute Mesa to meet Underground Test Area (UGTA) objectives
 - Comprises sample collection and analysis for assessing the extent of groundwater contamination from underground nuclear testing during the Corrective Action Investigation and CADD/CAP stages of the Federal Facility Agreement and Consent Order

- **Disposition of the Pahute Mesa Sampling Plan**
 - Sample location types are several years old and would be ready for an update after FY 2023 to include most recent samples and changes to location type
 - The Sampling Plan will guide Model Evaluation Sampling in FY 2025
 - Plan for future
 - Sampling through FY 2025 will provide the baseline for development of the Closure Report for Pahute Mesa
 - Sampling after closure will be defined in the Closure Report
 - Retire the Pahute Mesa Sampling Plan after the approval of the Pahute Mesa Closure Report
- **Key Messages**
 - Sampling was very useful during characterization to ensure adequate samples were collected to support modeling
 - Sampling based on the plan will continue into FY 2025 for model evaluation
 - Some location types are ready to be updated from characterization to one of the other types
 - Is it important to update the Sampling Plan as it is expected to be retired when Pahute Mesa transitions into closure?

In response to Board questions, the following clarifications were provided:

- To verify the validity of a sample using the bailer method, there are several things that the UGTA Team put in place to the extent possible. The bailer is lowered into the region of the screen based on drilling and logs collected during drilling. When there is flow through the screen, there is aquifer water coming into the screen that then moves on out the other side of the screen, resulting in a constant flushing within the aquifer zone. If care is taken where the bailer is placed and opened so that samples are collected through the flowing regions in the screen, the UGTA Team is reasonably certain that a good sample of aquifer water is collected. In many cases, bailing is the only option available for sampling due to the piezometers in the well. The UGTA team considers the sample results and where the samples were collected, understanding the level of uncertainty that might be in the results.
- The current design of the new wells includes one pumpable completion with a 5 ½ inch diameter casing with an electric submersible pump designed for the deepest aquifer that will be encountered at the drill sites. As shallower aquifers are encountered in the drilling process, the UGTA team will insert 2 7/8 inch piezometers with screens pumpable with a rod pump. The new wells will be pumpable either with an electric submersible pump or a rod pump. There are no current plans to use piezometers that would limit sampling to a bailer.
- The rod pump forces a couple of gallons per minute to the surface; therefore, it can take up to four hours because it is producing small amounts of water. The electric submersible pumps that use large generators can typically pump up to 25 gallons per minute, so it can take an hour or less to cover the 2,000 feet to the surface.
- When sampling a well with historical data, the UGTA team recognizes from experience what to expect as concentrations change slowly over time and takes the appropriate precautions. When drilling a new well, the expectation is that contamination will be encountered and safety requirements for workers are implemented. Radiological-control technicians are available at the well site to oversee the drilling. A liquid simulation counter (LSU) is available at the drill site to conduct a tritium analysis on water discharge from the well. Within 30 minutes, the UGTA team is aware of tritium concentrations.

- The Pahute Mesa External Peer Review (EPR) provided about 42 recommendations in its report to enhance the model, although in their expert opinion implementing these recommendations would increase confidence in the model but would not change the results. The UGTA team has identified 15 of these recommendations that will be investigated as part of model evaluation activities during the CADD/CAP phase. These recommendations have been presented to the EM Nevada Program and accepted by NDEP. The EPR suggested that the Program continue to collect groundwater samples, although did not have specific questions or recommendations on the Pahute Mesa Groundwater Sampling Plan.

Chair Graham led Board discussion on work plan item #4 with potential recommendation(s) provided by members during the meeting on improvements and/or refinement for the Pahute Mesa Groundwater Plan, as follows:

- Potential recommendation: DOE EM Nevada Program ‘stay the course’ with the current sampling plan for Pahute Mesa CAUs.

Member Gary Elgort made a motion that the potential recommendation above be approved for work plan item #4. The motion was seconded and passed unanimously. After further Board deliberations, there were no additional proposed recommendations.

The Board thanked Mr. Rehfeldt for his presentation, for answering questions, and the opportunity to review the Pahute Mesa Groundwater Sampling Plan prior to the meeting. The NSSAB Office will draft the NSSAB recommendation letter and submit it to the EM Nevada Program for its consideration and response.

Meeting Wrap-Up and Adjournment

Upcoming calendar of events:

- Facility Evaluation of AMWTP – Idaho Falls, ID – August 7-10, 2023 (Member John Cole to attend)
- LLW Stakeholders Forum – Pahrump, NV – August 9, 2023 (Member William DeWitt to attend)
- Facility Evaluation of Perma-Fix – DSSI in Kingston, TN – August 14-17, 2023 (Member Joycelyn Austin-Mabe to attend)
- EM Cleanup Workshop – Arlington, VA – September 11-13, 2023 (Vice-Chair Hilton to attend)
- NSSAB Intergovernmental Liaisons meeting – Molasky Corporate Center, Las Vegas, NV at 3 p.m.– September 20, 2023 (Chair Graham and Vice-Chair Hilton to attend)
- NSSAB Full Board meeting – Molasky Corporate Center, Las Vegas, NV at 4 p.m. – September 20, 2023
- EM SSAB National Chairs Meeting – Oak Ridge, TN – October 3-5, 2023 (Chair Graham and Vice-Chair Hilton to attend)
- NSSAB Annual Work Plan Tour of the NNSS – October 18, 2023

Member Janice Six made a motion to adjourn the meeting. The motion was seconded and passed unanimously. The meeting was adjourned at 7:53 p.m.