



Nevada Site Specific Advisory Board (NSSAB)

Administrative Virtual Meeting

4:00 p.m. – May 20, 2020

- Members Present:** Frank Bonesteel (Chair), William DeWitt, Karen Eastman, Pennie Edmond, Charles Fullen, Dick Gardner (Vice-Chair), Anthony Graham, Tanya Henderson, Donald Neill, Janice Six, Richard Stephans, Richard Twiddy, Dina Williamson-Erdag
- Members Absent:** Amina Anderson, Steve Rosenbaum
- Liaisons Present:** Phil Klevatorick (Clark County), Richard Arnold (Consolidated Group of Tribes and Organizations [CGTO]), Leo Blundo (Nye County Commission), John Klenke and Darrell Lacy (Nye County Nuclear Waste Repository Project Office [NWRPO]), Chris Andres (State of Nevada Division of Environmental Protection [NDEP])
- Liaisons Absent:** Delon Winsor (Esmeralda County Commission), Jared Brackenbury (Lincoln County Commission), Scott Lewis (Nye County Emergency Management [NCEM])
- Department of Energy (DOE):** **Environmental Management (EM) Nevada Program:** Pamela Bailey, Robert Boehlecke, Catherine Hampton, Kelly Snyder (Deputy Designated Federal Officer [DDFO]), and Bill Wilborn; **National Nuclear Security Administration/Nevada Field Office (NNSA/NFO):** Darwin Morgan and Scott Wade; **Office of Legacy Management (LM):** Heather Cates, Rick Findlay, Patty Gallo, Ken Kreie, Greg Kuntz, and Jackie Petrello
- Government Contractors:** Michelle French, Dona Merritt, Christy Morris, Patty Neese, Ari Rosenberg, and Barbara Ulmer (Navarro), Patty Hardesty (Mission Support and Test Services, Inc. [MSTS])
- Public:** Gail Alexander

Open Meeting/Chair's Opening Remarks

Chair Frank Bonesteel welcomed everyone to the meeting. Since this was an administrative meeting, DDFO Kelly Snyder approved the agenda prior to the meeting. The NSSAB received updates and briefings, but there were no recommendations developed during the meeting.

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

Mr. Robert Boehlecke opened with a status of EM Nevada Program mission activities. After nine weeks of maximum telework with limited field activities, the EM Nevada Program is beginning a safe and deliberate approach to a phased remobilization of operations. In the next couple of days, the EM Nevada Program will complete the necessary preparations (i.e. employee training and procurement of safety supplies) for proceeding with an orderly ramp up. The health and safety of the workforce is a top priority, and the Program is implementing enhanced health and safety protocols for the protection of staff returning to work locations.

Mr. Boehlecke continued that the EM Nevada Program enacted Congressional budget is ~\$60.7 million for fiscal year (FY) 2020, and the Presidential request for FY 2021 is also ~\$60.7 million. The EM Nevada Program budget request for FY 2022 was due and submitted to EM Headquarters in March 2020. Since the March NSSAB meeting was cancelled due to COVID-19, the FY 2022 baseline budget prioritization that was planned for that meeting will be removed from the official work plan. The NSSAB may choose to provide a FY 2022 budget prioritization recommendation on the following baseline tasks at a future Full Board meeting:

- Maintain capability to safely receive and dispose approximately 1.2 million cubic feet of low-level (LLW), mixed LLW (MLLW), and classified waste from on-site and off-site generators, and continue performing associated activities, such as, environmental monitoring, regulatory compliance, and generator facility evaluations and waste verifications
- Submit Streamlined Approach for Environmental Restoration (SAFER) plan for Engine Maintenance, Assembly, and Disassembly (EMAD) facility
- Conduct post-closure inspections and maintenance, and environmental monitoring and reporting for sites on the Nevada National Security Site (NNSS) and Nevada Test and Training Range (NTTR)
- Develop and disseminate information on EM Nevada Program activities to diverse stakeholder groups - outreach and related products planned and prepared in coordination with Underground Test Area (UGTA), Waste Management/Radioactive Waste Acceptance Program (RWAP), and Industrial Sites
- Conduct annual groundwater sampling for Pahute Mesa and complete report for sampling conducted during the previous calendar year
- Complete flow and transport model activities/reporting and an external peer review of the Phase II Flow and Transport Model for Pahute Mesa
- Complete drilling of two wells and initiate drilling of a third well at Pahute Mesa

In order to work through the procurement process, Mr. Boehlecke reminded the Board that DOE issued a contract extension for the Environmental Program Services contract with Navarro through July 30, 2020.

Mr. Boehlecke mentioned recent events/stakeholders meetings conducted by EM Nevada Program staff (March 10, 2020 - present):

- March 10 – Held the semi-annual meeting with EM Headquarters and NDEP to coordinate and discuss waste disposal activities
- April 29-30 – Hosted more than 100 participants for a web-based Waste Generator Workshop
- May 7 – Hosted more than 40 participants for a web-based LLW Stakeholders Forum meeting

Mr. Boehlecke updated that environmental restoration and waste disposal activities are complete at Clean Slate II and Clean Slate III on the Tonopah Test Range (TTR). There have been delays to on-site work (i.e. radiological surveys and additional corrective actions required per survey results) due to travel-related considerations, although it is anticipated that the work will be completed by the end of the fiscal year.

Mr. Boehlecke reported that progress continues with the transfer of long-term stewardship responsibility to LM for 70 closed Federal Facility Agreement and Consent Order (FFACO) sites on the US Air Force-controlled TTR and NTTR. Ken Kreie, Nevada Offsites Site Manager for LM, will be providing a briefing during the meeting on LM activities in Nevada, including this transfer.

Regarding the UGTA Activity (groundwater), Mr. Boehlecke stated that NDEP's approval of the Closure Report was received for the Rainier Mesa/Shoshone Mountain groundwater characterization area on April 1, 2020. This accomplishment caps off more than 15 years of active work to achieve approval for transitioning to long-term monitoring and marks the halfway point to reaching UGTA closure. The EM Nevada Program is now looking forward to closure at Yucca Flat/Climax Mine with work on the Closure Report continuing into May 2020. At Pahute Mesa, the Geochemistry Report is in internal review with comment resolution delayed until June 2020, and the Hydrologic Data Document is being prepared for internal review with work that began to build the preliminary groundwater flow model in April 2020.

Mr. Boehlecke shared that the NNSS Waste Acceptance Criteria (WAC) is currently being updated to:

- Reflect broad organizational changes to federal oversight
- Ensure current operational practices are aligned with requirements
- Strengthen core requirements based on lessons learned from mischaracterized waste events, assessments, and stakeholder and regulator feedback
- Separate into two documents – Administrative WAC will include the organizational reporting criteria and oversight and a Technical WAC will focus and more clearly define for generators the types of waste that can be disposed at the NNSS

The NNSSWAC key changes include characterization requirements, more definition of the written profiles to assist with communications between the generator and NNSS, on-site waste profile verifications, and assessment requirements.

Mr. Boehlecke reminded the Board that the EM Nevada Program coordinates with NNSA/NFO and MSTs to operate the Area 5 Radioactive Waste Management Complex (RWMC). The RWMC temporarily transitioned to a reduced-operations condition at the end of March 2020. Waste streams with mission critical needs were evaluated on a case-by-case basis and were safely disposed this week and at the end of April 2020. Effective today, the NNSS is beginning a phased transition to return to Normal Operations, including disposal operations. For the protection of radioactive disposal facility staff and waste transport drivers, additional health safety controls will be in place. Routine surveillance, maintenance, and required inspections continued throughout this time to ensure a safe, secure, and compliant configuration. Construction of the berm and channel continued in the southern portion of the western expansion. Installation of monitoring well #4 was completed in February 2020. Construction of the MLLW Cell 18 cover was paused and an extension of the completion date granted. Using topsoil collected during flood berm construction, final layers of cover were constructed with seeding dependent on the timing of a full return to regular operations with a potential delay to spring 2021.

Mr. Boehlecke updated on the status of shipping two spheres stored at the Area 5 RWMC. Planning is underway to transport the spheres to the Idaho National Laboratory (INL) for processing and repackaging to meet the Waste Isolation Pilot Plant (WIPP) WAC. A number of technical items remain to be determined. INL will then ship the spheres directly to WIPP in New Mexico.

Mr. Boehlecke reminded the Board that the NSSAB Office sent out a notice on April 17, 2020, regarding DOE's issuance of the *Final Supplemental Environmental Impact Statement for the Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride* (Final SEIS). The Final SEIS evaluates the potential human and environmental impacts associated with the transportation of depleted uranium (DU) oxide from the Portsmouth, Ohio and Paducah, Kentucky sites, and the final disposition at three LLW locations: the EnergySolutions facility in Clive, Utah; the Waste Control Specialists facility in Andrews, Texas; and the NNSS. The Final SEIS does not constitute a final decision on the disposal of the DU oxide, but provides the information and analysis to support a Record of Decision (ROD) under the National Environmental Policy Act. DOE will issue a ROD no sooner than 30 days after the Notice of Availability published in the Federal Register on April 24, 2020. The ROD is anticipated to be published in late May/early June 2020. The Preferred Alternative is to dispose the DU oxide inventory at one or more of the three disposal sites.

Mr. Boehlecke added that a notice to the NSSAB regarding DOE's issuance of the *Draft Paducah Gaseous Diffusion Plant Environmental Assessment (EA) for Proposed Disposition of Waste and Materials* sent by Catherine Hampton, EM Nevada Program Deputy Program Director, on April 30, 2020. DDFO Snyder followed up with notification to the NSSAB on May 14, 2020, that the review period had been extended until May 28, 2020. The Draft EA evaluates potential effects for Paducah Gaseous Diffusion Plant disposition of approximately five million cubic feet of waste and excess material to support deactivation and other EM activities for about 12 years beginning in FY 2020. The Draft EA identifies 14 potential off-site disposal locations including EnergySolutions facility in Clive, Utah; the Waste Control Specialists facility in Andrews, Texas; and the NNSS. The disposal volume includes approximately 3.8 million cubic feet of large LLW/MLLW components with the majority not requiring treatment prior to disposal.

Mr. Boehlecke continued with a waste stream called Isotek Building 2026 Hot Cell Process Waste (LLW). This waste stream is the balance of Oak Ridge EM U-233 disposition project inventory that is not in a form conducive to direct disposal or glovebox processing. This waste stream will be generated in a Hot Cell by extracting thorium-229 that can be used in medical treatments with the remaining waste disposed at the NNSS. The total waste volume is anticipated to be about 14,000 cubic feet after processing that will be downblended with depleted uranyl nitrate and solidified with cement/fly ash.

Mr. Boehlecke updated on the converters shipped to the Paducah Classified Gaseous Diffusion Plant that were planned for use as spares. One shipment was received at the NNSS in October 2019. The generator re-evaluation determined that, with some adjustments to the waste packaging approach, NNSS disposal of this classified waste stream is cost-effective and efficient. The converters, shipped intact, will continue to take the same route as the October 2019 shipment to accommodate the over-dimensional and overweight permit requirements. The waste profile revision submitted was for an additional 385 components and reduction in the frequency and number of shipments to about six per month for 5.5 years. The NNSS Waste Acceptance Review Panel expects to make a determination on the revised waste profile by late summer/early fall 2020.

Mr. Boehlecke stated that four radioisotope thermoelectric generators (RTGs) containing U.S. origin material located in France require repatriation and disposition. These RTGs are similar to those previously disposed at the NNS. The RTGs will be transported by freight across the Atlantic Ocean and then across country to the NNS. The shipment of three of the four RTGS are planned for calendar year 2020, although the final waste profile has not be approved. The logistics for the last RTG is undetermined at this time. The shipment will be Highway Route Controlled Quantity that requires a transportation security plan, communications between carrier and transit states, inspections, and a transport vehicle.

Mr. Boehlecke continued with an update on the Y-12 waste event, reported in July 2019 that resulted from noncompliant waste shipped to the NNS between January 2013 and December 2018. The Y-12 waste certification program is suspended, and the generator is working on corrective actions to reinstate its program in order to resume shipments to the NNS. RWAP will conduct a full audit of critical program elements and verify implementation of corrective actions before the suspended program can be reinstated, although no date has been set. Y-12 will perform an internal assessment prior to the RWAP full audit to determine readiness. NDEP is reviewing the information concerning the shipments. The U.S. Environmental Protection Agency (EPA) sent NNSA/NFO a letter stemming from an inspection conducted by the EPA at the NNS in August 2019. The letter indicates several potential violations, including the Y-12 non-compliant waste. NNSA/NFO is working with the EM Nevada Program and Y-12 to gather information for responding to EPA by July 2020.

Mr. Boehlecke provided a status on the Supplemental Environmental Project (SEP) that resulted from non-compliant waste accepted and disposed at the NNS. DOE and NDEP jointly signed the SEP that outlines program enhancements in lieu of a fine. All work has been completed for three SEP tasks: LLW profiles assessed for similarities with non-compliant waste; additional visual verifications completed on 68 waste containers at 19 waste generator sites with 83 container verification records completed; and real-time radiography completed on 106 containers at the NNS Area 5 RWMC. The EM Nevada Program is finalizing the SEP final report to be submitted to NDEP by July 2020.

NNSA Update (*Darwin Morgan and Scott Wade, NNSA*)

Mr. Darwin Morgan reported that the NNSA Federal workforce has been in full telework status since March 18, 2020, and the NNSA MSTS contractor workforce has been in telework status since March 23-24, 2020, which includes about ninety percent of the total NNSA workforce at the NNS. Since March 23-24, 2020, there have been limited operations at the NNS to maintain full security, sustain health and safety requirements, and conduct regulatory activities with NDEP. Mr. Morgan continued that it is anticipated that NNSA workforce will be in full telework status until June 1, 2020. After this date, MSTS, along with a Federal oversight team, will begin fieldwork to bring facilities from “warm” standby into normal operations in a safe and secure manner. The NNSA is taking a phased approach to return to normal operations, although NNSA is encouraging Federal staff to continue to telework during this time until a full return to work locations is approved.

Mr. Scott Wade elaborated on the recent letter received from the EPA mentioned by Mr. Boehlecke during his update. The EPA announced its inspection of the NNS prior to the Y-12 waste event. In August 2019, the EPA conducted this inspection over two days that focused on hazardous waste management and regulations under the Resource Conservation and Recovery Act (RCRA). EPA has the primary responsibility for RCRA, although the EPA can delegate the

implementation of RCRA activities to NDEP. In early April 2020, NNSA/NFO received a follow-up letter to the inspection from EPA that identified a compliance evaluation inspection report that documented inspection activities and a notice of violation to the NNSA/NFO as it relates to RCRA. Mr. Wade explained that this action begins the formal process to respond to EPA, which is due in July 2020. The response will address four items that the EPA identified in the letter, including the Y-12 waste event.

Mr. Wade also expanded on the Y-12 waste event that next steps are to resolve all the corrective actions identified and provide to RWAP for validation. There are two separate processes underway to address the Y-12 waste event and the EPA response.

Mr. Wade concluded with the Draft Environmental Impact Statement (EIS) for Plutonium Pit Production at the Savannah River Site (SRS). The Draft EIS analyzes the impacts for developing an alternative site to develop up to 80 plutonium pits per year. These plutonium pits are required for the manufacture of nuclear weapons. NNSA currently has capability for plutonium pit production at Los Alamos National Laboratory. The Draft EIS covers increasing the capacity to SRS and examines the following resources areas, i.e. air quality, socioeconomic, transportation, human health, and waste management. The Draft EIS documents the availability of an on-site disposal facility at SRS, and it is anticipated that any LLW produced from activities would be disposed on-site at SRS and any transuranic waste would be disposed at WIPP. The Draft EIS also identifies waste that could go to commercial facilities and the NNSS. Public comments on the Draft EIS is through June 2, 2020. The earliest that plutonium pit operations at SRS are planned to begin is in FY 2030.

Liaison Updates

Clark County (*Phil Klevorick*)

Liaison Phil Klevorick reported that he attended the Waste Management Symposia (WMS) in Phoenix, AZ in March 2020. He touched on two items that this year's WMS agenda included few topics relating to Nevada, and there was a 25% reduction in attendance from prior years. Liaison Klevorick stated that he is the chair for the Economic Development Subcommittee for DOE, NNSA, and Nuclear Energy for the Energy Community Alliance. A meeting was scheduled and subsequently cancelled for the end of May 2020 to have a workforce development discussion regarding DOE's laboratories and the three Federal agencies. Instead, the subcommittee worked not only on workforce issues, but also on initiatives that support local needs, such as teleworking and security in the teleworking community. One of the outcomes from discussions is to create grant opportunities for communities to support cyber security and Wi-Fi access for workforce and educational purposes. Liaison Klevorick continued that he had been involved at the Multiuse Command Center working with food distribution in the Clark County/Las Vegas valley. He encouraged people to become involved, as they are able. He concluded that the National Transportation Stakeholders Forum (NTSF) conference was cancelled and replaced with one-hour webinars covering pertinent topics. The next NTSF is planned for Charleston, SC in June 2021.

CGTO (*Richard Arnold*)

Liaison Richard Arnold reported that the CGTO annual meeting scheduled for April 2020 was cancelled. In response, the CGTO formed a Tribal Planning Committee comprised of six tribal representatives, including Liaison Arnold, and representatives from the EM Nevada Program, NNSA/NFO, and MSTs to share information and sustain communications between the tribes and DOE. Liaison Arnold updated on the Tribal Revegetation Project at the Area 5 RWMC. The Tribal Revegetation Committee has observed favorable results and are discussing different planting

regimes that previously were not considered, such as, planting in the spring. Watering of the revegetated cover was reduced in January 2020 to replicate the natural precipitation of the area. The committee conducted monthly monitoring in March 2020, but not in April or May 2020 due to the pandemic. Navarro has continued revegetation activities in the committee's absence. The Desert Research Institute (DRI) and Portland State University are developing an annual report to highlight and describe the processes, approaches, activities, and results observed to date. Liaison Arnold is exploring options for a DRI representative and himself to go to the revegetated cover to collect data in order to minimize the number of people at the site. The CGTO is very involved with the NTSF that addresses items of interest relating to DOE shipments of radioactive waste across the country. As the NTSF conference was cancelled, a number of webinars are being planned to provide information that would have been shared during the conference. Liaison Arnold noted that the State and Tribal Working Group scheduled to meet in April 2020 in Las Vegas was cancelled, and members are meeting by teleconference to determine a process to share information. He concluded that the Tribal Radioactive Materials Transportation Committee is meeting by teleconference on a monthly basis to share information.

Nye County Commission (*Leo Blundo*)

Liaison Leo Blundo had nothing new to report.

NWRPO (*John Klenke*)

Liaison John Klenke informed the NSSAB that the majority of Nye County personnel are back to work at their offices and following county safety guidelines. Next week, county employees will begin interactions with the public on a limited basis.

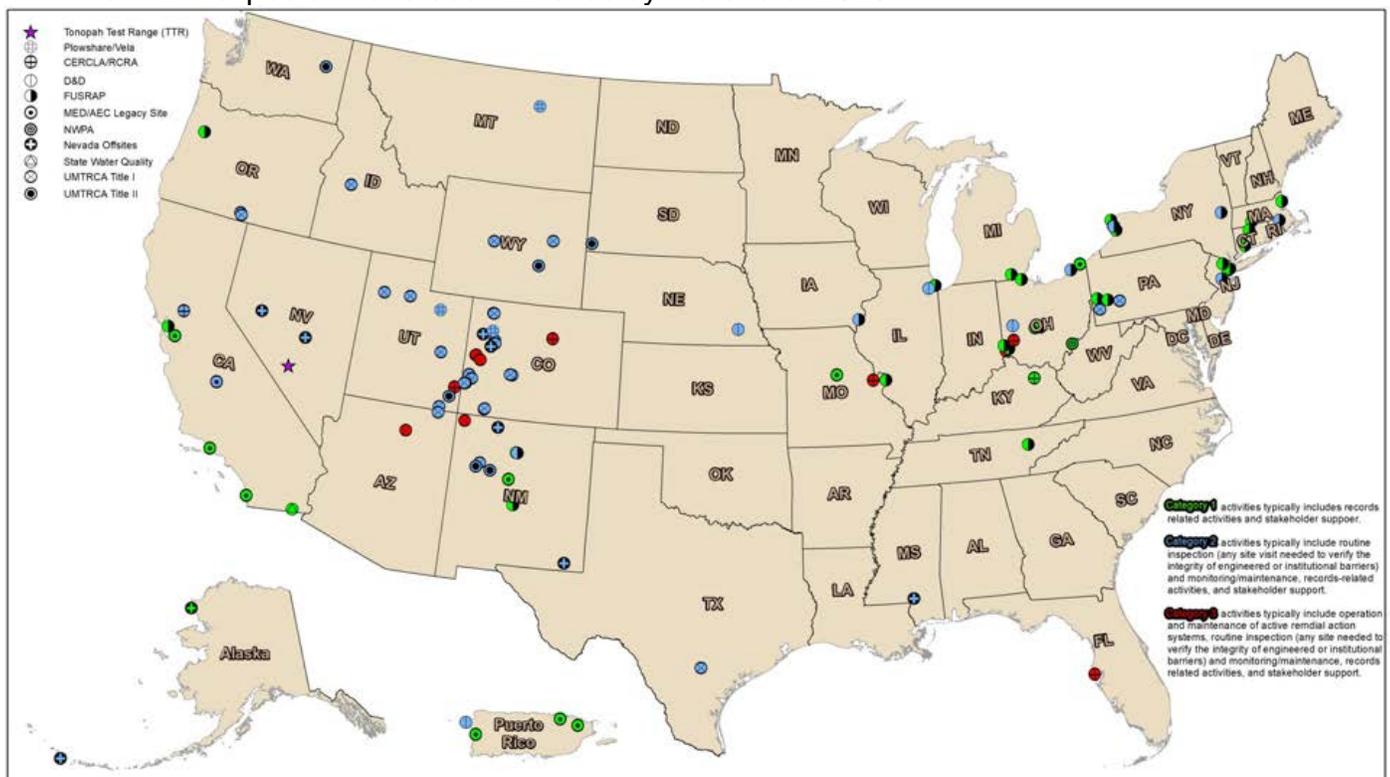
NDEP (*Christine Andres*)

Liaison Christine Andres stated that the Governor of Nevada issued a directive on March 15, 2020, that put into motion the development of telework plans for state employees. As a result, the number of NDEP employees working from the office has been limited, which has created challenges, both personally and professionally, in adapting to teleworking and remaining productive with increased demands. There has been an added challenge of moving the Las Vegas office to a new location currently under construction. The lease for the former office space was extended one month, and the move will be complete by July 1, 2020. Liaison Andres continued that a new employee started on Monday, and the onboarding process has been interesting during this time of social distancing. Regarding the Y-12 waste event, Liaison Andres updated that initial notification was to the Governor's Office, which has created a number of levels of communication and tracking both up and down the leadership chain. NDEP is awaiting information from the director of the State of Nevada Department of Conservation and Natural Resources to the Governor's Office before she can provide additional details on the Y-12 waste event to the Board. Liaison Andres noted that NDEP personnel also attended the WMS. She concluded that NDEP continues to work during the pandemic, which is a testament to the EM Nevada Program staff as they continue to work.

Overview of the DOE Office of Legacy Management (LM) (*Ken Kreie and Greg Kuntz, DOE*)

- **Discussion Topics**
 - LM Background Information
 - LM's origin and goals
 - Mission and sites
 - Stakeholder engagement and records management
 - Central Nevada Test Area (CNTA), Nevada, Site

- Project Shoal Area (Shoal), Nevada, Site
- Tonopah Test Range (TTR) Transition to LM
- **What is the Office of Legacy Management?**
 - **We are the caretakers of legacy sites that played a critical role in America's nuclear history**
 - Established in 2003, we serve as stewards of cultural, historical, and natural resources
 - Our work requires close coordination with other federal, state, local, and tribal governments to ensure public and environmental safety under our regulatory authority
- **LM is Dedicated to...**
 - Stewardship
 - Manage legacy sites that played a role in our country's nuclear history with a commitment to maintaining the public trust
 - Environment
 - Coordinate with federal, state, and local agencies to monitor the impact of sites and maintain compliance with existing environmental laws and regulations
 - Safety and Health
 - Provide the public with information they need to be confident in the safety of our sites
 - Community
 - Partner and consult with stakeholders – tribal nations, state and local government, community organizations, and individual citizens – who know and are vested in our sites
- **100 Sites in 29 States and Puerto Rico**
 - LM expects to oversee 122 sites by the end of 2025

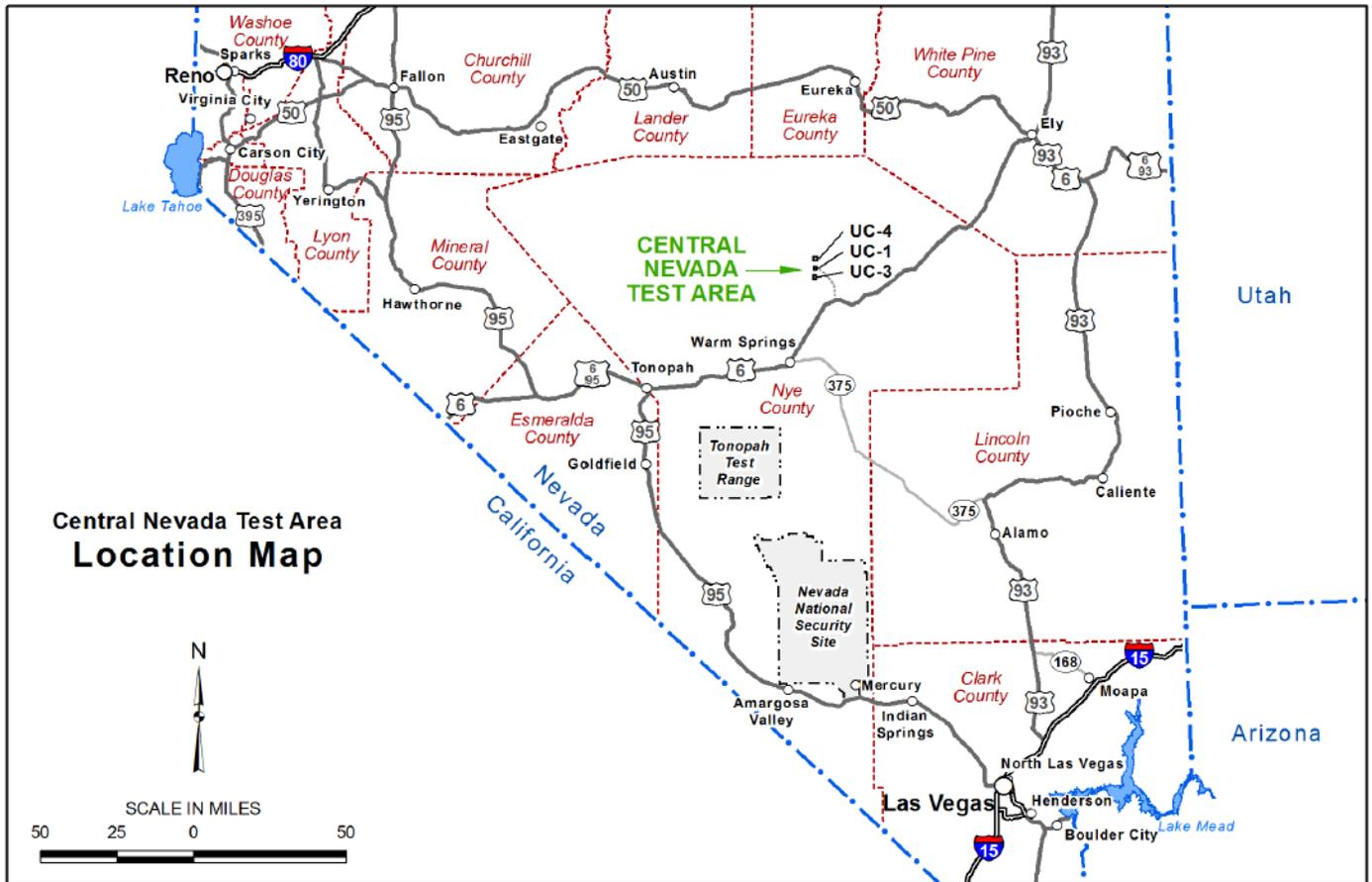


- **LM Program Responsibilities**
 - **UMTRCA** – Uranium Mill Tailings Radiation Control Act of 1978
 - **CERCLA** – Comprehensive Environmental Response, Compensation, and Liability Act of 1980

- **RCRA** – Resource Conservation and Recovery Act of 1976
- **FUSRAP** – Formerly Utilized Sites Remedial Action Program
- **D&D** – DOE Defense Decontamination and Decommissioning Program sites
- **Nuclear Waste Policy Act of 1982**, and other laws, such as state voluntary cleanup standards and DOE Orders
- **Other** – Nevada Offsites or records-only sites
- **Working With Stakeholders and Other State and Federal Agencies**
 - LM achieves its mission with input from state and local governments, affected tribes, and stakeholders
 - In Nevada
 - LM is a party to the FFACO
 - LM works with NDEP to implement closure and post-closure activities at the CNTA and Shoal sites
 - Technical support is received from Desert Research Institute (DRI)
- **Nevada Offsites Program**



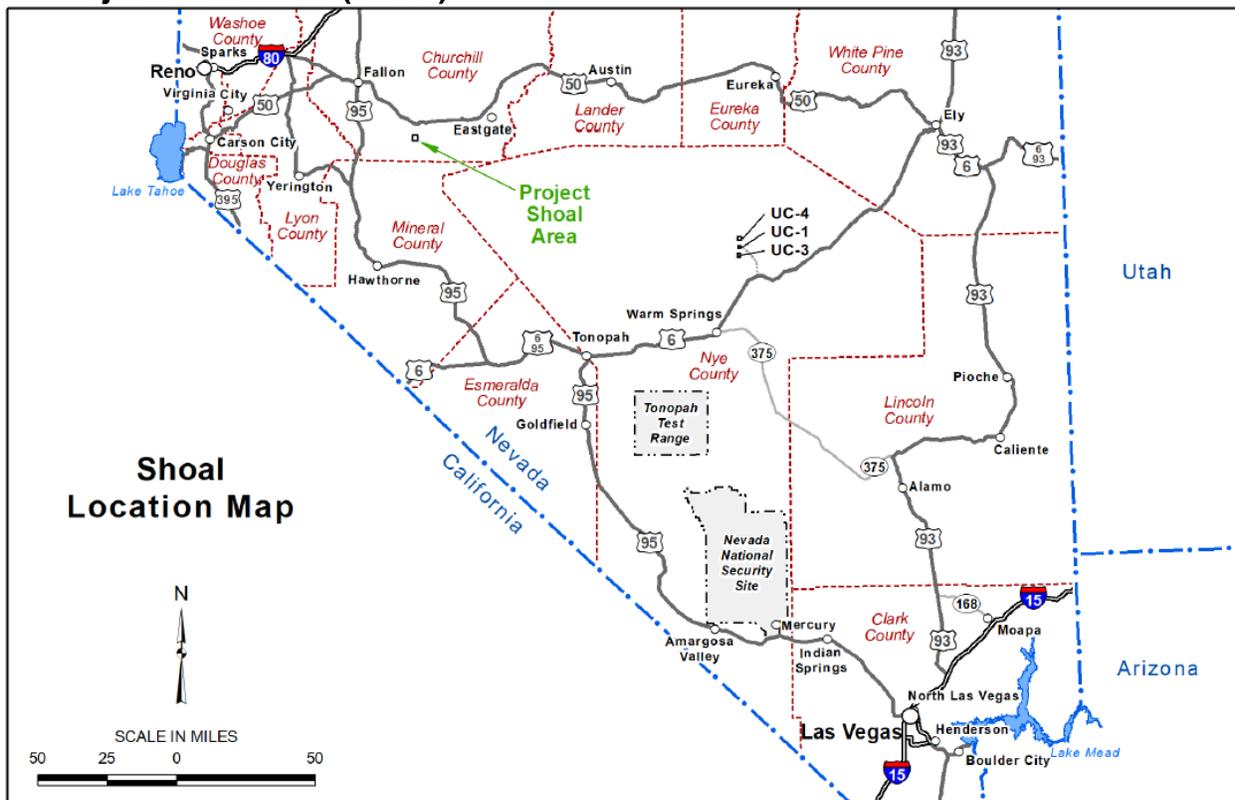
- CNTA



- Institutional Controls – Surface
 - Eleven land-use restrictions were established for areas with soils impacted by diesel fuel, two of these area are engineered basins constructed to contain impacted soil
 - U.S. Bureau of Land Management (BLM) has administrative rights and the surface use-restricted areas are maintained in their GIS database
 - Monuments, signs, and fences identify the use-restricted areas to the public, stating no excavation, drilling, and/or removal of material is permitted without government approval
- Postclosure Monitoring - Surface
 - Inspections (annual):
 - Assesses the condition of the engineered mud pit covers, vegetation on the covers, fences, signs, and monuments to ensure the institutional controls remain in place and effective
 - Reporting (biennial):
 - Documents the inspection results and provides recommendations to NDEP for any additional monitoring or maintenance at the site
- Institutional Controls - Subsurface
 - The land is under federal jurisdiction and withdrawn from all forms of appropriation associated with mining laws and leasing
 - Land-use restrictions are in place with BLM to restrict subsurface intrusion while maintaining public access for surface activities
 - Monuments and signs notify the public that excavation or digging is prohibited without U.S. Government approval

- Compliance boundary (regulatory control) – area where contaminant concentrations above Safe Drinking Water Act standards are to remain
- Postclosure Monitoring - Subsurface
 - Inspections (annual):
 - Assess condition of physical controls (surface features), confirm use restrictions remain in place and effective, and conduct site-monitoring activities
 - Sampling (every three years):
 - Collect groundwater samples to verify that radioisotopes of interest have not migrated
 - Reporting (every three years):
 - Summarizes inspection results, provides recommendations to NDEP for any maintenance, provides a status on institutional controls, describes any change in resource use, and documents the site monitoring results

- **Project Shoal Area (Shoal)**



- Institutional Controls - Subsurface
 - The land is under federal jurisdiction and withdrawn from all forms of appropriation associated with mining laws and leasing
 - Land-use restrictions to be in place with BLM and U.S. Navy to restrict subsurface intrusion while maintaining public access for surface activities
 - Compliance boundary (regulatory control) – area where contaminant concentrations above Safe Drinking Water Act standards are to remain
 - Monument – stating no excavation or digging without government approval
- Postclosure Monitoring
 - Inspections (annual):
 - Assess condition of physical controls (site features), confirm the use restriction remains in place and effective, and measure water levels in site wells

- Sampling (every three years):
 - Collect groundwater samples to verify the radioisotopes of interest have not migrated
- Reporting (every three years):
 - Summarize inspection results, provide recommendations for any maintenance, status on the institutional controls, describe any change in resource use, and document the monitoring results
- **NTTR/TTR FFACO Sites**
 - Sites where surface and shallow subsurface soil and debris were contaminated as a result of historic nuclear weapon system tests and support activities
 - DOE completed environmental corrective actions and is responsible for long-term stewardship per the FFACO
 - Located in south-central Nevada on the Nevada Test and Training Range (NTTR), which includes the TTR
 - Inaccessible to the general public – secured and controlled by U.S. Air Force (active military range)
 - TTR is currently operated by Sandia National Laboratories
 - U.S. Air Force use of this land is granted by a Land Use Withdrawal enacted by Congress
- **Transition of NTTR/TTR FFACO Sites**
 - DOE Office of EM will transfer long-term stewardship responsibility to LM by September 30, 2020
 - Seventy FFACO sites closed under the FFACO with NDEP approval
 - LM became a signatory to the FFACO in 2006 for the transfer of Nevada Offsites
 - EM Nevada Program responsible for FFACO compliance until the transfer is complete
 - NNSA/NFO is currently responsible for DOE radiological program requirements
- **Principal TTR Sites Transition Activities**
 - Transferring paper and electronic records
 - Transferring electronic data (GIS, sampling, radiological surveys)
 - Negotiating agreements necessary for executing the LM mission (site access, landfill repairs)
 - Transferring real or personal property, such as fences and monuments
 - Communicating stakeholder communication with the EM Nevada Program
- **TTR Sites Long-Term Stewardship**
 - Sixty sites are LM Category 1 sites (records only)
 - No inspections or other monitoring is required
 - LM will be responsible for records management and stakeholder interaction
 - Ten sites are LM Category 2 sites with use restrictions
 - LM will be responsible for inspections and maintenance/repairs, records management, and stakeholder interactions
 - LM will be responsible for radiological program compliance at one site with a waste pit containing buried radioactive material
 - Surveillance and maintenance at the ten sites with use restrictions:
 - Annual visual inspections of fences, warning signs, monuments, and soil covers
 - Annual visual inspection of radiological postings at the one site with a waste pit containing buried radioactive material
 - Minor repairs: filling animal burrows (common)
 - Larger repairs: filling subsidence holes or drainage runnels (rare)
 - No groundwater monitoring wells
 - No sampling

- **Contact Information**

- Ken Kreie, LM Nevada Offsites Site Manager, (970) 248-6036, Ken.Kreie@lm.doe.gov
- Greg Kuntz, LM Communication, Education, and Outreach Nevada Offsites Lead, (202) 923-0218, Greg.Kuntz@lm.doe.gov
- For more information about LM activities contact: U.S. Department of Energy, Office of Legacy Management, 2597 Legacy Way, Grand Junction, CO 81503
(970) 248-6070 (monitored continuously)
(877) 695-5322 (toll-free)
<https://www.energy.gov/lm/office-legacy-management>

Nye County Tritium Sampling and Monitoring Program (TSaMP) 2020 Update – John Klenke, NWRPO

MATERIAL IN THE FOLLOWING PRESENTATION SOLELY REPRESENTS THE VIEWPOINT OF THE AUTHOR AND DOES NOT REPRESENT DRI OR DOE.

- **Overview**

- Background
- Land Status
- Population
- Responsibilities
- CEMP Stations and Focus Area
- Locations Sampled by DOE
- Determining Nye County Sample Locations
- Core Well Sampling Results
- Sampling Results (2016 - 2019)
- ER-OV Wells
- Public Outreach
- Quality Assurance
- Town Board Meetings
- Possible Sampling Locations for 2020 - 2021

- **Background – Why are We Here?**

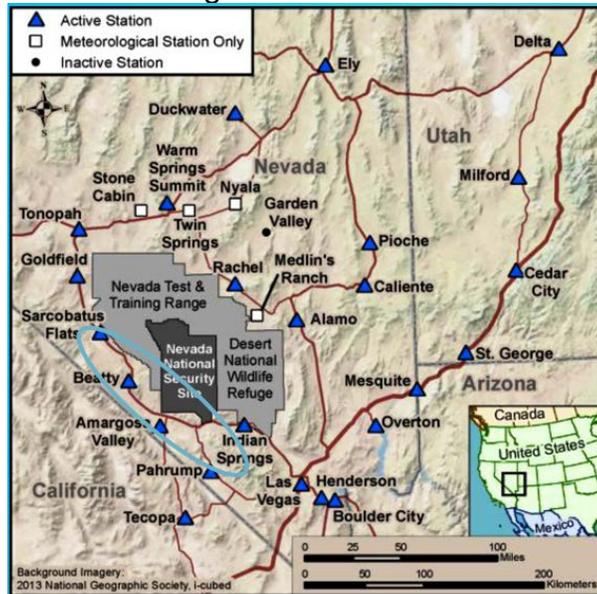
- Nye County has the duty to protect the health and safety of citizens
 - Through its Nuclear Waste Repository Project Office (NWRPO), Nye County conducted scientific characterization of the area between Yucca Mountain and the Town of Amargosa
 - Drilled and completed approximately 50 wells
 - Conducted numerous aquifer and tracer tests, geophysical surveys, water level measurements, and other specialized testing
 - Data provided to DOE
 - Tritium from former weapons tests has been observed migrating on and off the NNSS
 - Offsite migration is only located on Federally-controlled land and below the SDWA standards
 - Currently in a seven-year grant with DOE to conduct tritium sampling and analysis at locations downgradient from areas formerly used for nuclear weapons testing *
- * 2-year no cost extension approved by DOE (to 8/16/2022)

- **Land Status**

- Nye County encompasses 18,199 mi²
 - Largest county (by area) in the state, and the third largest in contiguous US.
- Approximately 98% of land in Nye County is federally controlled

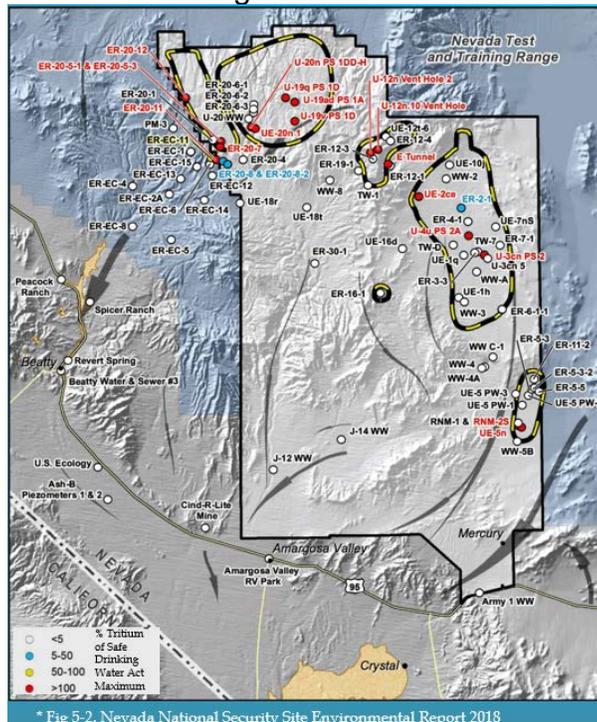
- Bureau of Land Management
 - US Forest Service
 - Department of Defense
 - DOE
- NNSS (formerly the Nevada Test Site) is entirely within Nye County; part of the NTTR lies within Nye County
- Nye County population of 44,202 (2017 - U.S. Census Bureau)
- **Population**
 - Pahrump:
 - Approximately 26 miles south from NNSS
 - Population of 38,000 people (2012)
 - Estimated 73,000 people by 2060 (at 1.5% growth rate - NCWD)
 - Amargosa:
 - Approximately 9 miles SW from the border of NNSS
 - 50 mile south (downgradient) from Pahute Mesa
 - Population of 1,456 (2010 census)
 - Beatty:
 - Approximately 30 miles southwest (downgradient) from Pahute Mesa
 - Approximately 25 miles southwest of ER-EC-11
 - Offsite well located on the NTTR
 - ER-EC-11 ; Tritium detected 2009 at 12,000 picocuries per liter (60% of EPA Safe Drinking Water Act), and re-sampled in 2017 at 18,400 (92% of EPA Safe Drinking Water Act
 - Population of 1,010 people (2010 census)
- **Responsibilities**
 - Nye County is responsible for:
 - Identification of sampling locations (will consider input from the public)
 - Developing sampling plans and procedures – ensures systematic, consistent sampling methodology
 - Collection of water samples for tritium analysis
 - Obtaining tritium analysis through independent laboratories certified by the State of Nevada
 - Checking the data to ensure quality
 - Providing sampling methodology, data, and quality check results to DOE for inclusion in the Annual NNSS Environmental Report
 - Fact sheets, brochures or handouts
 - Local government awareness
 - Public meetings and community events to ensure public's perspective is represented
 - Data dissemination options include publication on the Nye County website (www.nyecounty.com) and/or continued publication on DRI's CEMP website (www.cemp.dri.edu)
- **CEMP Stations and Focus Areas**
 - Map below of CEMP stations (6/26/18) (www.cemp.dri.edu)
 - Regional groundwater flow direction is predominantly north to south
 - Downgradient areas outlined in blue

- Note that we are characterizing conditions in offsite areas only



- **Locations Sampled by DOE**

- Map below shows sampled sites under the NNSS Integrated Groundwater Monitoring Program on and off the NNSS and NTTR
- Tritium results are represented as a percentage of the Maximum Contaminant Level (20,000 pCi/L, as defined by the US Environmental Protection Agency)
- Note localized variations in the groundwater flow directions



* Fig 5-2, Nevada National Security Site Environmental Report 2018

- **Determining Nye County Sampling Locations**

- Data from the TSaMP water sampling program has allowed us to learn more about:
 - Quality of waters (tritium) adjacent to and downgradient from the NNSS and NTTR
 - Changes in water quality with time (tritium)
- Initial screening of candidate sites was based on the following criteria:
 - Proximity to population centers
 - Groundwater gradient (flow directions)

- Geology/Hydrology
 - Faults, Rock/Soil types
- Used results from above sources to locate candidate wells and springs
 - Availability/Access, Screened intervals, Casing type and diameter
- Broadened baseline from locations previously sampled, by including some of the wells drilled by Nye County as part of past scientific characterization programs
- **Core Well Sampling Results**
 - Established 10 core wells in 2015
 - Core wells are sampled every year and considered to be of high sampling priority
 - Amargosa Elementary School*
 - Amargosa Valley RV Park
 - Baileys Hot Springs
 - Beatty Water and Sanitation (W04)
 - EWDP-13P
 - EWDP-24P
 - GWE-OV-1
 - GWE-OV-2
 - GWE-8PA
 - Northwest Academy**
 - Test results showed all 10 core wells had undetectable levels of tritium in 2015 - 2019***
 - * Well abandoned and replaced by “Amargosa Elementary School-2” in 2019
 - ** Location renamed “Never Give Up” in 2019
 - *** RSE is using EPA-approved, unenriched scintillation counting method with MDCs of approximately 300 pCi/L
- **2016 Sampling Results**
 - 20 sample locations
 - 10 core well locations; plus
 - Amargosa Narrows South Well 1
 - Beatty Water and Sanitation (W06)
 - Crystal Fire Department
 - Crystal Park Well
 - EWDP-1DX-Shallow
 - ER-OV-03-A3 *
 - Fleur-de-Lis Spring
 - GWE-33PA
 - Private Spring Oasis Valley (Colson)
 - Sarcobatus Flat Well
 - Test results showed all 20 sample locations had undetectable levels of tritium
 - *Nye Co. started sampling ER-OV wells in 2016
- **2017 Sampling Results**
 - 20 sample locations
 - 10 core well locations; plus
 - Amargosa Desert 8
 - Amargosa Estates Water Co. Well 2
 - Beatty RV Park
 - Beatty Water and Sanitation Well No. 3*
 - ER-OV-01
 - HWWT Gravel Pit
 - NC-GWE-2P

- Peacock Spring*
 - Spicer Ranch (Goss) Spring
 - USW VH-2
- Test results showed all 20 sample locations had undetectable levels of tritium
 - * Joint sampling effort with NSTec Ecological & Environmental Monitoring
- **2018 Sampling Results**
 - 20 sample locations
 - 10 core well locations; plus
 - Amargosa Estates Water Co. Well 1
 - Amargosa Valley Private Well-01 *
 - Amargosa Valley Private Well-02-wellhead*
 - Beatty Water and Sanitation Well EW4
 - Bryan Spring
 - Crystal Private Well-01 *
 - ER-OV-03b
 - ER-OV-06a
 - Lower Indian Spring
 - Nye Co. Station #2
 - Test results showed all 20 sample locations had undetectable levels of tritium
 - * Private well sample – new for 2018 with sequential number assigned for each area (Beatty, Amargosa, and Crystal)
- **2019 Sampling Results**
 - 20 sample locations
 - 10 core well locations; plus
 - Amargosa Valley Private Well-03
 - Amargosa Valley Private Well-04
 - Amargosa Valley USPS
 - Beatty Water and Sanitation Well 1
 - Cave Spring
 - ER-OV-02
 - ER-OV-03a3
 - EWDP-7S
 - NC-GWE-Felderhoff-25-1PA
 - Revert Springs*
 - Test results showed all 20 sample locations had undetectable levels of tritium
 - * Joint sampling effort with NSTec Ecological & Environmental Monitoring
- **ER-OV Wells**
 - Adds flexibility to TSaMP program and allows for a coordinated joint sampling effort with DRI
 - Nye County will continue sampling at least one ER-OV well each year
- **Public Outreach**
 - Articles run in local newspaper (PVT) summarizing results of sampling for 2015, 2016, 2017, and 2018
 - Supplied sampling locations and results for inclusion in NNSER's - 2015, 2016, 2017, 2018, and 2019*
 - Presented poster of TSaMP results at DOE Groundwater Open House meetings in Amargosa- July 29, 2016 and October 17, 2019
 - Tour for the NSSAB and CEM's (Dec 16th 2015)
 - *Report in progress

- **Quality Assurance**
 - Nye County coordinates sampling efforts through Quality Assurance Officer (QAO)
 - Nye County conducts annual internal audits to insure integrity of TSaMP data
 - Audit conducted by qualified professional (QAO)
 - Field surveillances
 - Office surveillances
 - Reports submitted to NWRPO
 - Since 2016, Nye County has been hosting preliminary reconnaissance fieldtrips with the DOE EM Nevada Program to insure maximum benefits will be gained from site selections
 - Navarro conducted independent assessment of TSaMP (11/5/18 - 12/12/18)
 - Four Observations Identified
 - Upper level documents and procedures outdated
 - Lines of communication between participants is not fully documented
 - “Checked By/Date” on Chain of Custody forms not completed.
 - Groundwater Chemistry and Analysis sheet describes using charge balance as part of validation process.
 - Nye County updated all QA documentation (WP-11, TPN 11.8, TP-11.2, and HASP) and addressed all observations prior to the 2019 sampling season.
- **Town Board Meetings**
 - TSaMP presentations were given at Beatty Town Board meetings on 9/25/17, and 11/4/19; and at Amargosa Town Board meetings on 9/27/17, and 11/21/19
 - 2017 presentations resulted in three new sampling locations for 2017, and several potential new sites for future years.
 - 2019 presentations resulted in eight potential new sites for future years.
- **Possible Sampling Locations**
 - What are the priorities for well sampling locations?
 - Wells used by communities?
 - Wells that provide early detection but may not be potable water sources?
 - What wells or other locations do members of public consider to be of highest priority?
 - What locations do you feel should be sampled?
 - 2020 - 2021
 - When making your individual recommendation, please consider:
 - Past sampling results
 - Identified flow paths and historic sampling results
 - Age of water (Tritium half-life = 12.32 yrs – less than 1% remaining after 7 half-lives (86 yrs)
 - Would you like to participate in the water sampling?
 - We welcome any participation!

Membership Interviews Update (*Kelly Snyder, DDFO*)

DDFO Snyder reported that the membership advertising campaign in March 2020 resulted in 12 applications with one applicant withdrawing and one applicant not eligible due to their residency. The Membership Committee interviewed 10 applicants via telecomm over the course of three days the first part of May 2020. NSSAB members on the committee provided their perspectives and prioritized the candidates. DDFO Snyder continued that decisions regarding applicants moving forward would rely heavily on Membership Committee input, although the timing for a formal recommendation from the Board will not be possible during this administrative meeting. A membership package with proposed members will be developed by the NSSAB Office and sent to

EM Headquarters for approval by the end of May 2020. New appointments will have a target start date of October 1, 2020.

Other NSSAB Business (*Frank Bonesteel, Chair*)

Chair Bonesteel noted that there is DOE reimbursement for two NSSAB members to attend the 2020 RadWaste Summit in Henderson, NV on September 8-9, 2020. Chair Bonesteel and Member Dina Williamson-Erdag volunteered to attend the conference and provide a written report for the NSSAB after the event.

Meeting Wrap-Up and Adjournment

Upcoming calendar of events:

- Virtual NSSAB Full Board meeting – July 15, 2020
- Virtual Intergovernmental Meeting with NSSAB liaisons – July 15, 2020
- LLW Stakeholders Forum meeting in Pahrump, NV (invite only) – August 5, 2020
- RadWaste Summit 2020 in Henderson, NV – September 8-9, 2020
- NSSAB Orientation in Las Vegas, NV – October 14, 2020
- NSSAB Work Plan Tour at the NNSS – October 27, 2020

Any questions on the calendar of events, please contact the NSSAB Office at 702-523-0894.

The administrative meeting adjourned at 6:28 p.m.