



Nevada Site Specific Advisory Board (NSSAB)

Full Board Meeting

**Frank H. Rogers Science and Technology Building
755 East Flamingo Road, Las Vegas, NV
5:00 p.m. – May 18, 2016**

Members Present: Amina Anderson, Michael Anderson, Michael D'Alessio, Pennie Edmond, Donna Hruska (Chair), Janice Keiserman (Vice-Chair), Michael Moore, Donald Neill, Steve Rosenbaum, Edward Rosemark, William Sears, Thomas Seley, Jack Sybolt, Cecilia Flores Snyder

Members Absent: Francisca Vega

Liaisons Present: Christine Andres (State of Nevada Division of Environmental Protection [NDEP]), Richard Arnold (Consolidated Group of Tribes and Organizations [CGTO]), John Klenke (Nye County Nuclear Waste Repository Project Office [NWRPO]), Phil Klevorick (Clark County), Vance Payne, Nye County Emergency Management (NCEM)

Liaisons Absent: Frank Carbone (Nye County Commission), Ralph Keyes (Esmeralda County Commission), Jonathan Penman-Brotzman (U.S. National Park Service [NPS])

Department of Energy (DOE): Robert Boehlecke (Deputy Designated Federal Officer), Jhon Carilli, Tiffany Lantow, Scott Wade

Navarro (Contractor): Frank Di Sanza, Dona Merritt, Jackie Petrello, David Taylor

**Desert Research Institute (DRI):
(Contractor):** Colleen Beck

Facilitator: Barb Ulmer (Navarro)

Public Signed In: Barb Boldt (Las Vegas), Karen Eastman (Las Vegas), Anthony Graham (University of Las Vegas, Nevada [UNLV]), James Moldenhauer (North Las Vegas), Fred Peters (Las Vegas), Dick Stephens (Boulder City), Luis Zepeda (North Las Vegas)

Open Meeting/Chair's Opening Remarks

Chair Donna Hruska opened the meeting by welcoming a new liaison, Vance Payne from NCEM, to the Board. Member Thomas Seley moved to approve the agenda as presented. The motion was seconded and passed unanimously.

Public Comment

There was no public comment.

U.S. DOE Update (*Scott Wade, DOE*)

Mr. Scott Wade opened by providing a budget update. For fiscal year (FY) 2016, the budget for Environmental Management (EM) activities at the Nevada National Security Site (NNSS) was enacted for \$62.3 million. For FY 2017, the President's budget for EM activities at the NNSS was for \$62.1 million. FY 2017 proposed funding level will allow the Nevada Field Office (NFO) to continue progress toward EM remediation activities for soils, industrial sites, groundwater, and waste management. Mr. Wade utilized the NSSAB's FY 2018 baseline prioritization recommendations that were identified at the March 2016 Full Board meeting as a basis for the NFO's budget defense with EM Headquarters (HQ) in late April 2016.

Mr. Wade reported that since the beginning of FY 2016, the NNSS has received 563,000 cubic feet of low-level waste (LLW) in 598 shipments and 31,000 cubic feet of mixed LLW (MLLW) in 50 shipments. Summer is the peak time for waste shipments to the NNSS; the NNSS is expecting between 118,000 – 150,000 cubic feet LLW/MLLW in the next several months. Overall for FY 2016, projections remain between 1.2 – 1.3 million cubic feet.

Mr. Wade updated that drilling at Well ER-20-12 in Pahute Mesa was completed to a depth of almost 4,000 feet. During drilling, the NFO's goal is to gather scientific information to understand the geology to better characterize the groundwater in the future. Wells were finished with multiple completions in order for DOE to perform detailed well development and testing. Three additional wells were completed in the Yucca Flat area with depths of 2,000-2,500 feet. The cost of drilling activities for these four wells in FY 2016 has been \$32 million, which is a sizable amount, although an important investment in groundwater characterization based on prioritizations that the NSSAB has identified in past fiscal years.

Mr. Wade continued that actions have begun to revise the NNSS Waste Acceptance Criteria (WAC), the document utilized by generators to determine the performance criteria for transporting and shipping waste to the NNSS. A revision is needed to make the document consistent with new U.S. Department of Transportation regulations as well as some minor administrative changes. There are no substantive changes being made in the revision. The NFO is currently in dialogue with NDEP on the proposed revisions. The NSSAB will be given updates at future meetings on the revisions to the NNSS WAC before the document is put into effect.

Mr. Wade noted that the Board has an ongoing interest in transportation and transportation compliance, particularly at a public level. That is one of the reasons that the new LLW Stakeholders Forum was formed as an avenue to discuss and exchange information about various transportation topics. Mr. Wade proposed a future educational session or agenda item to

provide a briefing on a 2003 study done by the DRI on radiological measurements performed on 1,012 truckloads coming to the NNSS.

Mr. Wade encouraged the Board to continue to provide the Department with ways to better communicate and interact with stakeholders and the public.

Liaison Updates

Clark County (*Phil Klevorick*)

Liaison Phil Klevorick stated that he has been active in transportation meetings, and he will be attending the National Transportation Stakeholders Forum (NTSF) in June 2016. He noted that he has been participating in a four-part series on rail transport safety via webinar organized by the NTSF. Liaison Klevorick encouraged those interested to listen to the proceedings at [NTSF Recording](#). Lastly, Mr. Wade responded to a question from Liaison Klevorick that the LLW Stakeholders Forum was rescheduled to June 2, 2016 at the request of the participants.

CGTO (*Richard Arnold*)

Liaison Richard Arnold reported that a group of six tribal people, along with himself and support staff, have begun meeting with the DOE in March 2016 regarding revegetation efforts at the Area 5 Radioactive Waste Management Complex (RWMC). In June 2016, another meeting is being planned with DOE and the tribal committee to continue dialogue toward providing recommendations and solutions for revegetation efforts by looking at the land through a cultural perspective using traditional ecological knowledge. The progress with this endeavor has been very positive step in enhancing the relationship between the tribes and DOE. Liaison Arnold noted that he will also be attending the NTSF and facilitating dialogues between the DOE and the tribes. He will also participate on a panel regarding stakeholder perspectives on transportation of LLW to the NNSS. Lastly, Liaison Arnold attended the State and Tribal Working Group meeting that was hosted by DOE EM HQ this month.

NCEM (*Vance Payne*)

Liaison Vance Payne thanked the DOE for the opportunity to participate as a liaison on the Board, and he looks forward to learning more regarding EM and NSSAB activities. His future participation will be focused on the transportation corridors as many miles of the waste transportation routes to the NNSS are located in Nye County.

NWRPO (*John Klenke*)

Liaison John Klenke noted that the NWRPO attended the consent-based siting meeting in Atlanta and have also participated in other meetings remotely. Their office will be following the national elections and any change in funding for Yucca Mountain. The NWRPO attended the Energy Committee Alliance meeting last week in Washington, DC that focused on future EM cleanup activities. Liaison Klenke thanked DOE for the opportunity for Nye County to participate on the panel at the NTSF. The Nye County Tritium Sampling Program released an article in last month's Pahrump Valley Times to make the public aware that there was no tritium detected in the ten wells sampled by the program.

NDEP (*Christine Andres*)

Liaison Christine Andres informed the Board that her office is reviewing the proposed revisions to the NNSS WAC. She reiterated that there are no major changes, but include revisions to make the document consistent with federal requirements. The NDEP director has requested a briefing

on the proposed revisions. Liaison Andres thanked the NFO for planning an NNSS tour for the National Governors Association Federal Facilities Task Force that met last week in Las Vegas for its spring meeting. Lastly, Liaison Andres reported that NDEP has been involved with an investigation of a drum that self-ignited at a National Nuclear Security Administration (NNSA) facility last June 2015. As the regulator, NDEP fined the NNSA for four violations for the incident. As part of the settlement agreement, the NNSA has agreed to a Supplemental Environmental Project that will be used to purchase a piece of equipment to identify unknown chemicals that can be utilized by the NNSS fire stations for incidents at the NNSS and surrounding counties. This equipment is currently being procured and is expected to be available before the end of the fiscal year.

NSSAB Recommendation for Radioactive Waste Acceptance Program (RWAP) Facility Evaluation Improvement Opportunities – Work Plan Item #7 (*Cecilia Flores Snyder and Jack Sypolt, NSSAB Members*)

Member Cecilia Flores Snyder and Member Jack Sypolt updated the Board on the surveillance that they observed in North Las Vegas, NV, the week of March 22 – 23, 2016. Member Snyder started by noting that the work plan item was to provide a recommendation, from a community perspective, for ways to improve the RWAP assessment process. NSSAB members were accompanied by Jhon Carilli, the DOE LLW Activity Lead, and the RWAP Team from Navarro. The purpose of the surveillance was to determine whether the generator is in continued compliance with the NNSS WAC.

As part of the review of the functional area of Waste Traceability, Member Sypolt reported that he accompanied the RWAP Team to the waste holding area outside of the Device Assembly Facility (DAF) at the NNSS. During the visit, non-accountable waste (primarily trash and Personal Protective Equipment) was observed that was bagged, labeled, checked by a Radiological Control Technician, and placed in a container until a truckload is accumulated to be transferred to the Area 5 RWMC. After leaving the DAF, the RWAP Team traveled to Mercury, NV, where the scales to weigh the shipments and torque wrenches used on container fasteners were reviewed to ensure that both items have records of use and are calibrated and traceable back to the National Bureau of Standards. The empty waste containers and drums were documented back through the storage and shipping to the manufacturer. The vermiculite that is used for filler and the Aquaset for moisture absorption was checked for traceability to the manufacturer.

As part of the review of the functional area of Radiological Characterization, Member Snyder continued by reporting that she remained at the DOE facility in North Las Vegas where she observed the RWAP Team review records, primarily waste profiles and waste stream characterizations. Five different profiles were reviewed by the RWAP Team. Shipping documents and surveys stored with the waste profiles/waste streams were also reviewed for compliance. Two Observations (potential weaknesses) were identified and documented during the surveillance. The first Observation was corrected immediately by the generator and the second Observation the generator was required to provide a formal response to the RWAP Team within 30 days of the final report. There were no Corrective Action Requests (CAR) issued during the surveillance. Conclusion was that the generator's Waste Certification Program is effective and in compliance with the NNSS WAC.

The RWAP Team also reviewed and discussed the status of a recent CAR issued prior to the surveillance. Information and lessons learned regarding CARs are shared with NNSS generators

through a Waste Certification Officials (WCO) working group. The NFO has the final approval to close a CAR.

Overall, Member Snyder noted that the surveillance process is a streamlined, mature process which seems effective in assessing a generator's compliance to the NNSW WAC. The generator assessed had solid processes in place, making the surveillance a very efficient process, and evidence of this included that all documents and personnel were readily available and organized, auditors knew what to focus on, and experienced and knowledgeable personnel were available for both the generator and RWAP team.

Based on Member Snyder and Member Sypolt's observations, the following suggestions were offered to the Board for their consideration for improvements/enhancements to the RWAP process:

- Continue funding and support of the surveillance and auditing process and programs. It is important to have a pipeline of experienced auditors who can continue this process without interruption; it was great to see an auditor-in-training on the surveillance team.
- Include NSSAB members to observe/participate in future surveillances and audits of NNSW generators. The observation of the surveillance by NSSAB members is a great learning experience.

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

- The RWAP Team is required to visit each NNSW generator site once a year. An audit includes review of all four functional areas: Quality Assurance, Waste Traceability, Chemical and Radiological Characterization. A surveillance typically includes two of these functional areas. The RWAP Team is also required to review all four functional areas for each generator in a two-year period. A potential generator receives a full audit and cannot have any open CARs or Observations in order to be approved to ship and dispose waste at the NNSW. A generator's past history with CARs is reviewed to determine whether a full audit or surveillance will be conducted as it used as an indicator that a generator may require additional assistance and review.
- Each bag of the moisture absorbent material is accounted for and documented: where the material was manufactured, how the material was transported, where and how the material was stored, and where the material was used at the NNSW. Resulting from lessons learned from the Waste Isolation Pilot Plant (WIPP) incident, the RWAP Team not only reviews the procedures on how a generator utilizes an absorbent, but also requests and delves into the technical papers in support of its procedures.
- The average number of CARs issued by the RWAP is twelve per year. Navarro is currently conducting a trend analysis of CARs over the past number of years in an effort to better understand where to focus RWAP efforts. When a CAR is issued or a trend is noticed, the RWAP discusses these items during a monthly conference call with the generators' WCO in an effort to be proactive in solving issues immediately. A Waste Generator Workshop for WCO is also a tool used to discuss recent trends and CARs. An example of recent CARs issued was for lack of sufficient objective evidence that the drivers were U.S. Citizens which is a requirement of the NNSW WAC.
- Regarding the status of the CAR issued prior to the surveillance, the corrective action was two-fold in that the generator was required to: 1. modify procedures to ensure that there is not a reoccurrence, and 2. issue a new profile. The new profile has been recently reviewed by the Waste Acceptance Review Panel and will go forward to the NFO for its approval.

The waste stream will not be disposed at the NNSS until the CAR has been closed by RWAP and the NFO.

Member Edward Rosemark moved that the preceding suggestions provided by Member Snyder and Member Sypolt be included in a recommendation letter and submitted to the DOE for consideration. The motion was seconded and passed unanimously.

Proposed Changes to Long-Term Monitoring at Closed Sites at the Tonopah Test Range – Work Plan Item #2 (*Tiffany Lantow, DOE*)

- **NSSAB Work Plan Item #2**
 - The NSSAB will provide a recommendation, from a community perspective, regarding the proposed changes to current long-term requirements at the Tonopah Test Range (TTR)
- **Background**
 - Federal Facility Agreement and Consent Order (FFACO) sites that have been closed in place or clean closed and revegetated have requirements for annual inspections and/or maintenance
 - Requirements vary by site
 - Change will be proposed to NDEP
 - Goal is to align TTR closed sites with other DOE post-closure sites in Nevada
- **Map of Closed TTR Corrective Action Sites (CASs) with Monitoring Requirements**
 - TTR is a secure government facility designated for military activities
- **Bomblet Pit (CAS TA-55-001-TAB2)**
 - Historically used for bomblet disposal
 - Completed restoration activities: all bomblets were removed, detonated, and then disposed at NNSS; fencing was left in place to assist revegetation
 - No remaining contaminants
 - Current monitoring requirements: none required; fence inspections done as a best management practice
 - Current site condition: fenced to protect vegetation, not posted
 - Why is change being considered?
 - Vegetation appears to have recovered and the fence is no longer necessary
 - Options:
 - No change, leave fence up, and continue maintenance inspections; or
 - Conduct final vegetation survey, and if botanist agrees, remove fencing
- **Five Points Landfill (CAS TA-19-001-05PT)**
 - Historically used for weapons testing debris
 - Completed restoration activities: all debris was removed and disposed at the NNSS
 - Current monitoring requirements: vegetation inspection
 - Current site condition: fenced to protect vegetation, not posted
 - Why is change being considered?
 - Vegetation appears to have recovered
 - Options:
 - No change, leave fence up, and continue maintenance and vegetation inspections; or
 - Conduct final vegetation survey, and if botanist agrees, remove fencing and discontinue vegetation monitoring
- **Roller Coaster Lagoons (CAS TA-03-001-TARC)**

- Historically used as sewage lagoons; pesticide residue left in place at levels that do not require removal
- Completed restoration activities: lagoons were backfilled, capped and revegetated
- Current requirements: administrative use restriction, no inspections
- Current site condition: fenced and posted
- Why is change being considered?
 - Consistency within surveillance and maintenance program – other sites where contamination does not exceed action levels are not fenced and posted
- Options
 - No change, site remains fenced and posted
 - Remove postings and fencing, post one sign designating use restriction near the site as a best management practice
- **Roller Coaster RadSafe Area (CAS TA-23-001-TARC)**
 - Historically used to bury contaminated concrete from nuclear testing
 - Completed restoration activities: bulk of concrete was removed and disposed at the NNSS, but Plutonium-239/240 contaminated concrete pieces remain
 - Current requirements: annual inspections, vegetation monitoring as needed
 - Current site condition: fenced and posted
 - Why is change being considered?
 - Detection, remediation, and disposal techniques have improved in the ensuing years since this site was closed, making clean closure a more feasible option than it was at the time of closure
 - Work being conducted at the TTR in the next few years is of similar nature to what would be required to clean close this site
 - Options:
 - No change, maintain use restriction and current post closure monitoring plan; or
 - Evaluate potential for clean closure; or
 - Reduce size of fenced area based on walkover surveys
- **Thunderwell Site (CAS RG-26-001-RGRV)**
 - Historic location for buried construction debris associated with the Thunderwell tests
 - Completed restoration activities: characterized site, no contaminants found, subsurface debris left in place, monuments installed
 - Current requirements: annual inspection of postings
 - Current site condition: posted monuments; use restricted
 - Why is change being considered?
 - Improved site access since original closure
 - Work being conducted at the TTR in the next few years provides an opportunity to maximize resources
 - Options:
 - No change, maintain use restriction and annual inspection; or
 - Evaluate potential for clean closure

In response to Board questions, the following clarifications were provided on Bomblet Pit (CAS TA-55-001-TAB2):

- One benefit for removal of the fence would be the elimination for the need and the costs associated with inspections and maintenance.

- Currently, there are personnel working at the TTR on other activities who are available to remove the fence at a minimal cost.
- After revegetation growth of almost twenty years, the area has been restored as close as possible to its natural state and resembles the surrounding desert. Botanists would be consulted to ensure and confirm that a viable plant community exists at the site.

In response to Board questions, the following clarifications were provided on Roller Coaster Lagoons (CAS TA-03-001-TARC):

- Sandia National Laboratories produces an annual Environmental Report for the TTR that may be accessed online at: http://www.sandia.gov/news/publications/environmental_reports/
- A series of safety tests were conducted on this site in the late 1950s to early 1960s. Since it was a remote area, it was common to develop small landfills and sewage lagoons to assist with disposal activities. The site has been backfilled, capped, and revegetated under FFACO requirements. Pesticides were utilized to keep mosquitoes from breeding while the sewage lagoon was active, although residues left in place are at action levels that do not require removal.
- This site was closed in 2001.
- All these sites are different and Roller Coast Lagoons had no requirement in place for inspections.
- The land on the TTR is managed by the Sandia National Laboratories.
- The costs for removing the fence is minimal and not a large budget consideration. The change at this site is being considered for consistency with similar sites on the TTR.
- If the decision is made to remove the fence, the sign posting remaining would be inspected/monitored.
- This site was characterized and clean closed under the FFACO, then capped with a soil cover. It was determined that any residues left in place were at action levels that did not require correction action.

In response to Board questions, the following clarifications were provided on Roller Coaster RadSafe Area (CAS TA-23-001-TARC):

- Clean closure may be a viable option due to advances in the past 15 years since closure in place of the site. It is not being considered because of any safety hazards or work being performed close to the site or any pressing business need to remediate the area.
- If clean closure is feasible, any waste generated would be LLW and disposed at the Area 5 RWMC.
- During an evaluation for clean closure, it would be determined if any additional contaminated concrete pieces could be removed from the site. Many elements would need to be considered as part of the evaluation, i.e. feasibility, makes sense financially, risk to the worker, etc.

In response to Board questions, the following clarifications were provided on Thunderwell Site (CAS RG-26-001-RGRV):

- Thunderwell tests included detonation of high explosives with a radioactive component.
- Restoration activities have been completed at Thunderwell Site and no radiological or chemical contamination was found.
- After consultation with NDEP, closure in place was chosen as the most feasible corrective action alternative for a site at that time; the decision to reevaluate the site in the future for

clean closure is based on a change in the land use or another significant factor, i.e. the military being willing to consolidation efforts and de-energize the power lines as in the case of Thunderwell Site. Any change to the corrective action alternatives would also require NDEP's approval.

Site	NSSAB Recommendation
Bomblet Pit (CAS TA-55-001-TAB2)	Conduct final vegetation survey, and if botanist agrees, remove fencing, concurrently seek tribal advice and interaction with the land, and consider recycling
Five Points Landfill (CAS TA-19-001-05PT)	Conduct final vegetation survey, and if botanist agrees, remove fencing and discontinue vegetation monitoring, concurrently seek tribal advice and interaction with the land, and consider recycling
Roller Coaster Lagoons (CAS TA-03-001-TARC)	No change, site remains fenced and posted
Roller Coaster RadSafe Area (CAS TA-23-001-TARC)	Evaluate potential for clean closure
Thunderwell Site (CAS RG-26-001-RGRV)	Evaluate potential for clean closure

After Board questions and extensive discussion, Member Sypolt moved to approve a letter going forward to the DOE with the NSSAB's recommendations for the preferred options listed in the table above for each of the five sites located at the TTR. The motion was seconded and passed unanimously.

Revegetation at Corrective Action Unit (CAU) 111 (Work Plan Item #3) (Tiffany Lantow, DOE)

- **NSSAB Work Plan Item #3**
 - The NSSAB will provide a recommendation, from a community perspective, on suggesting a path forward regarding the vegetative cover at CAU 111
 - Historic 92-Acre Disposal Area at the Area 5 Radioactive Waste Management Complex
- **92-Acre Area Disposal Units**
 - The 92-Acre Area includes boreholes, trenches (T), and pits (P) where waste was buried between 1961 and 2010
- **92-Acre Area Closure History**
 - In 2009, NDEP and DOE agreed on a closure path for the 92-Acre Area consisting of a vegetative cover
 - Between January 2011 and January 2012, closure activities were conducted
 - In 201, closure activities were initially completed and the 92-Acre Area was closed with post-closure monitoring and use restrictions
 - Four 8-foot-thick engineered covers were installed over the boreholes, trenches, and pits in the 92-Acre Area
 - Vegetation:

- Prevents precipitation from percolating deep into the soil by returning moisture to the atmosphere by evapotranspiration
 - Minimizes wind and water erosion on the covers
- **Initial Revegetation Activities – FY 2012**
 - Cover construction completed in May 2011
 - Revegetation activities began in October 2011
 - Top layer of soil disked to break up soil
 - Covers were seeded
 - Straw mulch spread after seeding
 - Irrigation system installed to augment natural precipitation
 - All species in the seed mix native to the NNSS and the immediate area
 - Irrigation applied to supplement natural precipitation
- **Vegetation Monitoring After Initial Revegetation**
 - Several seedlings and established plants observed in December 2012
 - Vegetation monitoring performed in May 2013
 - Three shrub species (fourwing saltbush, shadscale saltbush, and Nevada ephedra) and a few individuals of Indian ricegrass encountered
 - More dead plants encountered than live plants
 - Several species of plants, including seedlings of white bursage and creosote, observed in December 2012 and not present in May 2013
- **Potential Causes of Plant Mortality**
 - Lower than average precipitation (in addition to supplemental irrigation not beginning until January 2012)
 - High concentration of weeds, mainly halgeton and Russian thistle, which may have been promoted by supplemental irrigation and may have used the majority of the moisture in the soil, thus decreasing the soil moisture needed for seed germination and plant establishment
 - Drop in temperature into the single digits for three consecutive days in February 2013
 - No evidence that the plants had been eaten by herbivores (even the dead plants observed were intact plants, most with leaves still present)
- **Remedial Reclamation – FY 2014**
 - Test plots on north-north cover: different seeding methods and mulching rates
 - In October 2013:
 - Mechanical disking to approximately six inches to control weed species
 - Two eastern quadrants broadcast seeded and two western quadrants hydroseeded
 - Straw mulch applied
 - Seed mix with a subset of the original seed mix with emphasis on those species that did germinate and grow
 - Testing of seed mix for viability and germination in addition to vendor certification
 - Vendor certification based on seed testing in September 2012
 - Samples of seven of ten species collected and sent to the Montana State Seed Testing Laboratory
 - Overall seed mix considered to have acceptable viability
 - Irrigation applied to supplement precipitation (good growing season – 6.9 in)
 - In June 2014, vegetation monitoring conducted
 - Higher density on broadcast seeded area than on hydroseeded area
 - Nine species encountered

- However, a viable plant community had not established on the test plots
- **Vegetation Monitoring – FY 2014**
 - Average density (4.4 plants per square meter) substantially higher than after the original seeding (0.1 plants per square meter), but significantly lower than other successful sites
 - In 2000, the disposal cell in Area 3 Radioactive Waste Management Site (RWMS) was vegetated: density was 65 plants per square meter the first year and 37 plants per square meter a year later
 - Half of the seeded species were perennial grasses, which are not drought tolerant
 - Signs of rabbits noted
 - Halogeton and Russian thistle, two invasive weedy species, were abundant on the test plots (supplemental irrigation may have contributed to abundance of weedy species)
 - Density and diversity higher on broadcast seeded area than hydroseeded area
 - Heavier mulch rate did not result in significantly higher plant densities
- **Soil Samples**
 - Soil samples collected from each cover and native surrounding area in August 2014
 - Results indicated that for most metrics, soil was suitable
 - However, two characteristics abnormally high:
 - Salinity: high salt levels hinder water absorption
 - Sodium Absorption ratio: measures proportion of sodium to calcium and magnesium in soil solution
 - While soil sample results don't indicate the soil is unsuitable for growth, it isn't ideal either
- **Irrigation Water Samples**
 - Sample results were obtained from Water Well 4a that provided irrigation water
 - All analytes within acceptable levels
 - No indication that water contributing to high salinity of soil
- **Remedial Reclamation – FY 2015**
 - Seed mix of four shrubs, two grasses, and two perennial forbs (all species native to the area and tolerant to saline soils)
 - Test plots on south-north cover: effects of mulch and supplemental irrigation
 - In October 2014:
 - Surface harrowed to break up soil compaction
 - Test plots seeded
 - Creosote and white bursage seeds treated prior to seeding by washing
 - Testing of seed mix for viability and germination in addition to vendor certification
 - In November 2014, straw mulch applied to half of the seeded area
 - Irrigation applied to half of the mulched area and half of the unmulched area
 - In February – March 2015, rabbit fence installed with bottom 15 cm of fence buried
 - Germination occurred on mulched and non-mulched areas that were irrigated; no germination on non-irrigated plots
 - In March 2015, Nevada ephedra, Indian ricegrass, and squirreltail grass observed
 - In May 2015, only a few spars fourwing saltbrush plants, abundant halogeton and Russian thistle, and evidence of small mammal activity observed
- **Vegetation Monitoring – FY 2015**
 - Vegetation monitoring in August 2015
 - Seeded species present in spring of 2015 were absent in August 2015

- Total seeded plant density 0.0 on the irrigated area and 0.0 on the non-irrigated area (no seeded species encountered along the sample transects)
- A few individuals of fourwing saltbush on the irrigated plots but were so few that they did not show up in the sampling
- Only species encountered were Russian thistle (*Salsola tragus*) and halogeton (*Halogeton glomeratus*) (34% cover on irrigated areas and 2% on non-irrigated areas)
- **Current Status**
 - Revegetation efforts of the 92-Acre Area on hold to determine best path forward
 - Considering several options, including transplants, additional soil, and a subcontractor to manage the efforts more closely
 - Subgroup of the Consolidated Group of Tribes and Organizations has been asked for input that is expected this fiscal year
 - NSSAB input also requested
- **NSSAB Path Forward**
 - The NSSAB will provide a recommendation, from a community perspective, on suggesting a path forward regarding the vegetative cover at CAU 111

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

- The soil used for the cover of the 92-Acre Area is not the original soil, but from a borrow pit located on the NNSS. This soil when tested met all the criteria for adequate soil except for the salinity and the sodium absorption ratio. Soil used from the borrow pit may not be surface soil; therefore may be something missing from the soil profile. DOE has had numerous successful revegetation efforts on various sites on the TTR and the Area 3 RWMS, and it was not anticipated that revegetation efforts would fail on the 92-Acre Area. The soil cover for the Area 3 RWMS was also from a borrow pit.
- Fertilization of the soil at the 92-Acre Area has not been conducted to date as soil sampling indicates that the soil does not require additional nitrogen.
- A DRI ecologist is working with the tribal committee in developing recommendations for revegetation of the 92-Acre Area.
- Irrigation for the revegetation would be utilized until it is deemed there is a viable plant community. DRI scientists have discussed using dry water which is in a gel form that slowly releases moisture and can be added to the soil surface or the root zone.
- The closure agreement with NDEP requires a protective vegetative cap on the 92-Acre Area. Studies/sensors have shown that moisture reaches deeper into the soil without a vegetative cover versus one with a vegetative cover, although the moisture is not likely to reach the waste in either case due to the depth of the cover.
- The sites at the TTR discussed earlier this evening and the Area 3 RWMS have been successfully revegetated and took about ten years or more for the vegetation to mirror the surrounding area.
- Plants that are annuals do not have deep enough root systems to provide the evapotranspiration rates or the wind and erosion control that a natural perennial plant community provides to the cover.

The DOE should explore all available opportunities, including, but not limited to the following:

- Remove the topsoil when constructing future waste cells and stockpile for use for the closure of the cell
- Utilize bovine manure as a fertilizer

- Consider if halogeton is contributing to the salinity
- Collect seeds in the local vicinity for replanting as it may be more viable than store-bought seeds
- Recognize that each site is unique and should be considered separately
- Prepare the soil in advance for revegetation, i.e. fertilizer, tribal cultural interaction, etc.
- Consider transplants
- Experiment with smaller test plots (5-10) with varying parameters, i.e. transplants, fertilizer, mulching, seeding, amount of watering, etc.
- Perform microscopic tests on the soil composition at different depths to understand what may be missing in the soil
- Consider doing nothing
- Consult with the State of Nevada Bureau of Mining Regulation and Reclamation
- Utilize topsoil from another area with similar soil composition and deposit on top of the 92-Acre Area
- Consult a horticulture expert

After Board questions and extensive discussion, Member Amina Anderson moved to approve a letter going forward to the DOE with the NSSAB's recommendations listed above regarding the vegetative cover at CAU 111. The motion was seconded and passed unanimously.

NSSAB Recommendation for FY 2017-2018 Membership (*Janice Keiserman, Membership Chair*)

Vice-Chair Keiserman reported that the Membership Committee interviewed 28 applicants for membership over three full days in both Las Vegas and Pahrump. The marketing efforts for the membership drive were very effective and a diverse array of applicants were included from southern Nevada. The committee discussed each interviewee and developed a matrix that prioritized applicants. This matrix was distributed by email to Board members. The Membership Committee requests that Priority One applicants be given the highest priority and applicants from Priority Two be selected by DOE to ensure maximum Board balance and diversity. A draft recommendation letter regarding the FY 2017-2018 Membership Drive was reviewed and discussed by the Board. Member Michael D'Alessio moved to accept the draft recommendation letter as written. The motion was seconded and passed unanimously.

Other NSSAB Business (*Donna Hruska, Chair*)

Chair Hruska reported that she and Vice-Chair Keiserman attended the EM Site-Specific Advisory Board (SSAB) National Chairs' Meeting in Oak Ridge, TN on April 19 -21, 2016. The chairs and vice-chairs of the eight local boards across the DOE complex meet to discuss EM cleanup activities at a national level. Three DOE HQ speakers were on hand; Mark Whitney, Principal Deputy Assistant Secretary for EM, gave an excellent EM Program Update that included the budget process. Mark Senderling, Director of the Office of Disposition Planning & Policy, provided a very in-depth and technical update regarding WIPP Recovery and Waste Disposition. Mark Gilbertson, Deputy Assistant Secretary for Site Restoration, provided a Site Restoration Update. Of special interest, the Oak Ridge Site has been tearing down large gaseous diffusion plants in an effort to turn back a portion of the land to the community as a multi-use business park. In one key area, the plan is to preserve the original footprint of one of the facilities by leaving the cement floor

to show the enormity of the plant. Hanford and Oak Ridge Sites in conjunction with the NPS are working toward standing up a National Manhattan Project Museum.

Chair Hruska noted that Nevada is hosting the next EM SSAB National Chairs' Meeting in Las Vegas, NV on August 30 – September 1, 2016. A full-day tour of the NNSS is scheduled for Tuesday, August 30 followed by the national chairs' meeting on Wednesday, August 31 through noon on Thursday, September 1. She encouraged the membership to attend and participate in the meetings/activities. Vice-Chair Keiserman added that she is putting together a welcome packet for attendees to hand out at the hotel for those attending from other sites. She will be contacting the Las Vegas Convention and Visitors Authority for available welcome materials and asked for help from the members in procuring additional items that would be of interest to attendees.

The following draft recommendation letters were generated during the EM SSAB National Chairs' Meeting:

- Letter #1: Recommendation that DOE continue funding for each of the member boards that comprise the EM SSAB needs to be at an adequate level to fulfill obligations and commitments in order to provide informed recommendations on DOE EM cleanup and provide the diverse public with meaningful opportunities to influence cleanup decisions through an open and transparent process. Member D'Alessio moved to endorse the letter. The motion was seconded and passed by majority.
- Letter #2: Recommends that DOE incorporate "planned investment within the community" as a weighted factor in the proposal evaluation process of all contractors and provide information to local boards on community investment provisions included in Requests for Proposals. Member Donald Neill moved to endorse the letter. The motion was seconded and passed unanimously.

Four letters were provided to Board members for informational purposes:

- NSSAB Recommendation for FY 2018 Baseline Prioritization Recommendation (Work Plan Item #8) – dated March 16, 2016
- DOE Response to NSSAB Recommendation FY 2018 Baseline Prioritization Recommendation (Work Plan Item #8) – dated March 28, 2016
- NSSAB Recommendation for Request for Liaison Position for Nye County Emergency Management – dated March 16, 2016
- DOE Response to NSSAB Recommendation for Request for Liaison Position for Nye County Emergency Management – dated May 3, 2016

Communication Improvement Opportunities (Work Plan #10)

In response to providing recommendations on ways that DOE can improve/enhance communication to the public, Member D'Alessio suggested that the DOE utilize media outlets from the current membership drive for future events as there was a tremendous response from the advertising.

Meeting Wrap-Up/Adjournment

The next Full Board meeting will be held at 5 p.m. on Wednesday, July 20, 2016 at the Tonopah Convention Center, 301 Brougner Avenue, Tonopah, NV with an educational session on Groundwater Hydrogeology beginning at 4 p.m. A bus will be chartered for members/liasons from

the Las Vegas valley. A block of rooms has been reserved for the NSSAB members, liaisons, and speakers.

Upcoming Calendar of Events:

- LLW Stakeholders Forum in Las Vegas – June 2
- National Transportation Stakeholders Forum in Orlando – June 6 – 9
- Public Information Officers' Tabletop Exercise in Las Vegas – June 22
- Groundwater Open House in Amargosa Valley – July 26
- Community Environmental Monitoring Program Training in Tonopah – July 30
- Full Board meeting in Las Vegas – September 21
- EM SSAB National Chairs' Meeting in Las Vegas – August 30 – September 1
- NSSAB Orientation in Las Vegas – October 12
- NSSAB Work Plan Tour of the NNSS – October 26

Any questions on the calendar of events, please contact the NSSAB Office at 702-630-0522.

Member Rosemark moved that the meeting be adjourned. The motion was seconded and passed unanimously.

Meeting adjourned at 8:58 p.m.