Nevada Site Specific Advisory Board (NSSAB)

Full Board Meeting

National Atomic Testing Museum
755 East Flamingo Road, Las Vegas, NV
5:00 p.m. – November 10, 2015

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, Cecilia Flores Snyder, Jack Sypolt, Francisca Vega
Liaisons Present:	Christine Andres (State of Nevada Division of Environmental Protection [NDEP]), Richard Arnold (Consolidated Group of Tribes and Organizations [CGTO]), Ralph Keyes (Esmeralda County Commission), John Klenke (Nye County Nuclear Waste Repository Project Office [NWRPO]), Phil Klevorick (Clark County)
Liaisons Absent:	Frank Carbone (Nye County Commission), Jonathan Penman-Brotzman (U.S. National Park Service [NPS])
Department of Energy (DOE):	Robert Boehlecke, Tiffany Lantow, Kelly Snyder (Deputy Designated Federal Officer [DDFO]), Scott Wade, Bill Wilborn
Navarro (Contractor):	Nicole DeNovio (Golder Associates), Irene Farnham, Brian Haight, John Hoaglund, Dona Merritt, Pat Matthews, Jeff Sanders
Facilitator:	Barb Ulmer (Navarro)
Public Signed In:	Jenny Chapman and Chuck Russell (Desert Research Institute), Alice Fessenden and Lacey Triplett (Henderson, NV)

Open Meeting/Chair's Opening Remarks

Chair Donna Hruska thanked the members, liaisons, and the public for their commitment and attendance. Following the Chair's opening remarks, Vice-Chair Janice Keiserman 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*)

Scott Wade reported that the U.S. Congress passed a continuing resolution (CR) that funds the federal government through December 11, 2015. The Nevada Field Office (NFO) will receive an apportioned budget amount similar to the fiscal year (FY) 2015 budget. This does not limit the planning and execution of existing work at the NFO for the next few months. After December 12, 2015, Congress will decide on a path forward for funding. The President's request for the NFO for FY 2016 is $62.5 million. For FY 2017 funding, the Office of Management and Budget will request information from the sites around Thanksgiving; so should have a good sense of FY 2017 funding amounts by the end of December 2015, which then is included in the President's budget rollout the first week in February 2016. Mr. Wade will continue to provide updated information on the FY 2016 and 2017 budgets at the next NSSAB meeting.

Mr. Wade gave an update on the Underground Test Area (UGTA) Activity's well-drilling campaign for Well ER-20-12 that began the first part of October 2015 in Pahute Mesa, which is located in the far northwest area of the Nevada National Security Site (NNSS). Drilling crews are operating 24/7 and anticipate completion of the borehole around the last part of December 2015 or early January 2016. In order to obtain the most technical data, ER-20-12 will be a very deep well that is planned for a depth of approximately 5,000 feet, and drilling is currently at 2,100 feet. After completion of Well ER-20-12, the drilling campaign will then move to the Yucca Flats area for an additional three wells.

In FY 2015, the NNSS received and disposed more than 1.3 million cubic feet of low-level and mixed low-level waste (M/LLW) in over 1,400 shipments. At the beginning of a FY and especially during a CR, the waste volumes and shipments to the NNSS are reduced dramatically, but increases as the fiscal year progresses as budgets are finalized.

Mr. Wade explained that two tabletop exercises focused on LLW were held last year to bring together emergency responders from various stakeholder organizations within southern Nevada to practice activities in the event of a radiological incident. Per a commitment made by the NFO and DOE Environmental Management (EM) Headquarters (HQ), the NFO held two meetings to plan another tabletop exercise focused on Public Information Officers and how they could communicate during emergencies that have a radiological element. The initial date for the tabletop exercise was scheduled for November 5, 2015, but due to the stakeholder commitment needed to hold the exercise not being fulfilled; the date has been postponed to the next calendar year depending on stakeholders' availability. The NSSAB will be informed of the new date at the January 20, 2016 NSSAB meeting.

In October 2015, Mr. Wade reported that the NFO hosted leaders from the 16 tribes of the CGTO that have cultural affiliations to the NNSS in order to have a dialogue on national security and EM activities and to get the tribes feedback on these items.

On October 18, 2015, the NNSS received over four inches of rain in a couple hours in a narrow corridor of Jackass Flats in Area 25, located in the southwestern part of the NNSS, and approximately two inches of rain at the Area 5 Radioactive Waste Management Complex

(RWMC). This rain event has posed a number of road challenges, and some of the roads at the NNSS are still closed. Mr. Wade noted that the road closures are not impacting the safety of the work force or mission activities, but is causing the NFO to assess the road status at the NNSS.

In response to Board comments and questions, the following additional information was provided:

Member Michael D'Alessio suggested conducting a real-time exercise with a highway patrolman stopping a truck carrying radioactive waste to the NNSS who then calls the Nye County Fire Chief at Station 51 in Pahrump to respond in an effort to determine if emergency responders are prepared for a radioactive incident. Mr. Wade followed up that he has been in contact with Vance Payne, Director of Emergency Management for Nye County, to perform another tabletop exercise in Nye County in 2016 that would include a number of stakeholder jurisdictions, including Esmeralda County. As it is an important commitment that the DOE has made to local communities, Mr. Wade is already reaching out to stakeholders to plan these exercises.

Based on a request by Liaison Phil Klevorick, an update will be provided at the next NSSAB meeting by the DOE and NDEP on the long-term monitoring sites at the NNSS that were affected by the recent rain event after DOE has had the opportunity to complete assessing the impacts.

Liaison Updates

Clark County (*Phil Klevorick*)
Liaison Klevorick noted that he attended a navy exercise in Wyoming in September where he observed new casks that are utilized to ship entire field assemblies that weigh approximately 290 tons. He reported that he has been heavily involved with transportation issues. In the last two months, Liaison Klevorick has attended six federal government agencies' and other jurisdiction's meetings including the Western Interstate Energy Board (WIEB) last week and the Western Governors' Association (WGA) meeting in October. The primary focus for the establishment of the WGA was for the transuranic waste shipments being transported and disposed at the Waste Isolation Pilot Plant (WIPP). Since the WIPP program is shut down, the WGA is focusing on the issues carriers are having meeting the certification requirements. The WIEB focuses on high-level and defense waste disposal. This group is working on a social study on the perceived versus the actual risks, which will be available by late spring or early summer.

CGTO (*Richard Arnold*)
Liaison Richard Arnold reported that he participated in a DOE-sponsored Tribal Energy Summit in Washington D.C. along with tribal representatives throughout the country. The focus of the summit was energy solutions for tribal communities. He was able to provide updates and status on tribal interactions at the NNSS directly to Monica Regalbuto, the Assistant Secretary for EM and Mark Whitney, EM-2. Liaison Arnold participated in a meeting with General Frank Klotz, Administrator for the National Nuclear Security Administration (NNSA), also discussing tribal interaction issues related to the NNSS. As Mr. Wade mentioned during his update, the CGTO participated in a tribal update meeting in Las Vegas, Nevada. At this meeting, there was representation from all the tribes, along with representatives from NFO, DOE EM HQ and NNSA HQ. The CGTO worked closely with the NFO and UGTA and provided a traditional blessing in Area 20. The tribes are also discussing ways to engage in the revegetation efforts at the Area 5 RWMC. The State Tribal Government Working Group is going to meet during the Intergovernmental Meeting in New Orleans next week. Lastly, Liaison Arnold noted that he is

involved with the Nuclear Fuel Storage and Transportation Working Group that focuses on high-level waste as the tribes are engaged at many different levels with the DOE.

Esmeralda County Commission (*Ralph Keyes*)
Liaison Ralph Keyes noted that he has been coordinating with emergency responders and the local emergency planning committee in Esmeralda County to participate in a DOE-sponsored tabletop exercise with Nye County next year. Information that he receives at the liaison intergovernmental and NSSAB meetings are shared with the other Esmeralda commissioners.

NWRPO (*John Klenke*)
Liaison John Klenke stated that Nye County has ten core wells that they will be sampling under a DOE grant before the end of the calendar year. He invited the Board to observe Nye County sampling at wells located at Lathrop Wells and Beatty, Nevada. Liaison Klenke will confirm a date in December 2015, and the NSSAB Office will email out the logistics.

NDEP (*Christine Andres*)
Liaison Christine Andres reported that NDEP is not the lead agency investigating the Beatty fire incident at the U.S. Ecology site. The state fire marshal is leading the investigation, and will be submitting a report when complete. She will keep the Board apprised during future NSSAB meetings of any outcomes of this investigation once the report is available. Liaison Andres is attending the Intergovernmental Meeting next week in New Orleans, and will be participating as a member of the Federal Facilities Task Force to share common state issues in regards to DOE sites within the states' borders. She noted that she will sign the renewal for the MLLW Resource Conservation and Recovery Act permit the beginning of December 2015. This permit renewal will be effective for another five years.

Frenchman Flat Long-Term Monitoring Plan (Closure Report) (*Irene Farnham, Navarro and Nicole DeNovio, Golder Associates, Inc.*)

- **NSSAB Work Plan Item 5**
  - The NSSAB will provide a recommendation, from a community perspective, as to if the draft plan meets communities' expectations and if there are any recommended changes
- **Outline**
  - Frenchman Flat background
  - Federal Facility Agreement and Consent Order (FFACO) Regulatory Strategy states
  - Closure Report purpose
  - Contaminant, use-restriction, and regulatory boundaries
  - Groundwater Monitoring Program
  - Institutional Controls
- **Frenchman Flat Corrective Action Unit (CAU) 98**
  - One of five UGTA CAUs
  - Ten underground nuclear detonations in alluvium (9) and volcanic (1) units
  - Less than 20 kilotons
  - 0.1% of UGTA inventory
  - Alluvial and shallow-volcanic aquifers
    - Dominant flow is horizontal from northwest to southeast
    - Groundwater flow is less than approximately three feet/year
  - Closest public well is over 20 miles from CAMBRIC contaminant boundary

- **Corrective Action Strategy Background**
  - Defined in Appendix VI of the FFACO (1996, as amended)
  - Assumes contaminant removal is not feasible with current technology
  - Strategy is a combination of characterization and computer modeling, monitoring, and institutional control
- **FFACO Regulatory Strategy States**
  - Corrective Action Investigation Plan (CAIP)
    - Develop the plan
  - Corrective Action Investigation (CAI)
    - Characterize site
    - Develop groundwater and contaminant transport models
  - Corrective Action Decision Document/Corrective Action Plan (CADD/CAP)
    - Collect and evaluate new data to address key uncertainties and defend that the corrective action unit is acceptable for closure
  - Closure Report (CR)
    - Negotiate use restrictions and regulatory boundary
    - Establish institutional controls and requirements
    - Develop and implement long-term closure monitoring program
- **Closure Report Purpose**
  - Summarize previous activities and conclusions that support CAU closure
  - Describe the selected corrective action
  - Establish long-term modeling objectives and requirements
  - Present final contaminant boundaries, use-restriction boundaries, and regulatory boundaries
  - Provide an implementation plan for long-term monitoring and well network maintenance
  - Identify the approaches and policies for institutional controls
- **UGTA Boundaries**
  - Contaminant Boundary – Groundwater within this boundary is forecasted to exceed the Safe Drinking Water Act (SDWA) standards over 1,000 years
  - Use-Restriction Boundary – Boundaries (based on contaminant boundaries) that require institutional controls that restrict access to contaminated groundwater
  - Regulatory Boundary – Provide protection for the public and the environment from the effects of migration of radioactive contaminants
- **Initial Contaminant Boundaries (CAI)**
  - Forecasted contaminated groundwater from underground testing over 1,000 years
  - Contaminated groundwater is defined as water exceeding the SDWA maximum contaminant levels
    - SDWA for tritium is 20,000 picocuries per liter
  - Established initially from modeling studies of flow and transport
- **CAMBRIC Radionuclides Migration Project**
  - Artificial gradient between wells RNM-1 and RNM-2S used to understand radionuclides migration away from the CAMBRIC cavity
  - Pumped over two billion gallons of groundwater from Well RNM-2S (1975 and 1991)
  - Water was discharged into ditch to transport to Frenchman Lake
- **Well ER-5-5- Monitoring MILK SHAKE Test**
  - Tritium observed to be at least 10,000x lower than simulated by the computer models

- Observation of leading edge of the MILK SHAKE plume consistent with direction and magnitude of groundwater velocity calculated with high-quality, water-level monitoring data

- **PIN STRIPE Evaluation**
  - Well ER-11-2 (model evaluation well) shows that the transport pathway for PIN STRIPE is not continuous – indicates that models have too much transport to the east
  - New conceptual model was required
    - Honored the geology that limited contaminant migration to the east (toward the regional flow system)
    - Consistent with observed water levels that demonstrated a hydraulic barriers
  - Flow and transport to the south and very slow because of rock properties
- **Refined PIN STRIPE Contaminant Boundary**
  - Based on refined conceptual model developed from Well ER-11-2 geologic data
  - Contaminant boundary uncertainty includes:
  - Groundwater velocity and flow direction
  - Approximated as two times the cavity radius (2Rc) plus uncertainty intersecting the water table
- **Use-Restriction (UR) Boundaries**
  - Annual UR verifications:
    - Is there drilling or new groundwater uses within the adjacent to the UR boundary that could conceivably impact the contamination boundary?
    - Are there any changes to site activities or site access?
    - Do monitoring data suggest that URs should be modified?
- **Groundwater Flow**
  - In the alluvial and volcanic aquifers:
    - Limited leakage into the lower carbonate aquifer occurs as the volcanic units thin and/or are offset by faults associated with the Rock Valley fault system
    - Vertical gradient in the shallow basin-fill units is approximately an order of magnitude less than the horizontal gradient; however both gradients are very small
  - Rock Valley fault system is the expected pathway of groundwater flow out of the basin
- **Regulatory Boundary**
  - Regulatory boundary objective is to protect potential receptors down gradient of the Rock Valley fault system from radionuclide contamination
    - 1,000-year contaminant boundaries are well within the regulatory boundary
    - Tritium will decay below SDWA levels within next 200 years
    - Other radionuclides have not been detected near SDWA levels except in the test cavities
  - If radionuclides reach this boundary, the Nevada Field Office will be required to submit a plan to the NDEP, for approval, to ensure receptors down gradient are protected
  - Monitoring provides early and frequent status on contaminant migration
    - Monitoring program developed based on evaluations of over 50 years of characterization data and the groundwater flow and transport model results
    - Model was evaluated by Peer Review panel of national experts
- **Long-Term Monitoring**
  - Six monitoring wells:

        - Three Wells (ER-5-3, ER-5-3#2, and ER-5-5) monitored for Tritium, Carbon-14, Chlorine-35, Technitium-99, Iodine-129, gamma emitters, metals
        - Two Wells (RNM-2S and UE-5n) monitored for Tritium, Carbon-14, Chlorine-35, Technitium-99, Iodine-129
        - One well (ER-11-2) monitored for Tritium
    - Monitoring wells sampled annually
    - Periodic evaluations performed in consultation with NDEP
- **Long-Term Water-Level Monitoring**
    - Sixteen wells – 14 in Frenchman Flat Basin and two in CP Basin
        - CADD/CAP water-level evaluations
    - Quarterly measurements for the first five years
        - Network and measurement frequency will be reevaluated after five years
    - Well inspections will be concurrently performed
    - Data entered into U.S. Geological Survey National Water Information System database
- **Institutional Controls**
    - Limit access to areas of potentially contaminated groundwater
    - Future use of any land related to this CAU is restricted from any activity that may alter or modify the institutional controls as approved by NDEP, unless appropriate concurrence is obtained in advance
        - For example, surface/shallow subsurface may be used
    - Monitored on an annual basis
- **Periodic Evaluations**
    - Monitoring network inspections to verify well functionality and effectiveness
    - Determine whether water-level data are consistent with the conceptual model and whether radiochemistry results are consistent with expected results
    - Current land URs, processes and procedures are effective and protective of human health and the environment
    - Determine if any new land use applications will threaten the effectiveness of the closure strategy
- **NSSAB Path Forward**
    - Tonight, NSSAB discusses recommended changes to the draft plan
        - NSSAB may choose to provide a recommendation to Department of Energy by tonight, or
        - NSSAB may choose to wait and continue to review and discuss the draft plan and provide a recommendation at the next meeting on January 20, 2016

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

- There are no surface springs in the Frenchman Flat basin.
- The nearest public well, Army-1 water well, from CAMBRIC is not at Mercury, Nevada, and is contained in the regional flow system where no contamination has been found.
- Other radionuclides are tested for other than tritium as part of the characterization suite that is analyzed after drilling a new well.
- Since concentrations are higher in some areas than others, it is estimated that tritium will drop below the SDWA in 200 years in all locations in Frenchman Flat.
- The Area 5 RWMC is bounded by three wells that are monitored for water levels. The closest estimated contaminant migration to the Area 5 RWMC skirts the eastern edge of the MILK SHAKE test and nothing else comes close.

- Long-term water-level monitoring in Frenchman Flat has been conducted for more than ten years.
- Since the regulatory boundary extends into the Nevada Test and Training Range, DOE has briefed the Air Force regarding the Frenchman Flat CAU and will brief them again after the NSSAB has completed its review of the CR. The Air Force does not have authority to dictate how DOE models the CAU, but they do want to understand the process. DOE is not restricting them from the air space and most of the land surface is already restricted.
- The long-term monitoring wells are very carefully aligned with the groundwater flow system, and the wells are very close as the contaminant migration is very slow.
- Rain events at the Frenchman Flat playa occur frequently when studied in terms of a time frame of several thousands of years. For recharge in light of these rain events, there is not expected to be a large pronounced change in the groundwater system as it is almost a mile from the surface of the playa to the water table. Based on projections, it would take thousands of years for water to go from the surface to the water table as water has to move through a very deep unsaturated zone. This is a very slow pathway in addition to the horizontal pathway of any radionuclide migration at the water table.
- Seismic activity recorded at Frenchman Flat has been along the Rock Valley Fault Zone along the regional flow system. Seismicity on the regional flow system is not projected to change the local flow system where contamination is located.
- The draft Frenchman Flat CR is structured that if increases in radionuclide concentrations or contaminant migration reaches the carbonate, DOE will address and respond appropriately.
- The detachment fault does not reach or touch the lower carbonate aquifer, and the deep sequence of alluvium, including clay with lower permeable minerals, actually prevents groundwater migration versus provides a pathway.
- The UR boundaries are based on the conservative nature of the models. If a UR boundary is increased, it restricts potential use of the area. If contamination exceeds the contaminant boundaries, then the UR boundaries would be reviewed and possibly modified. Each test location could have its own UR boundary, but it was determined that one UR boundary enclosing multiple tests is easier to manage.
- Every well is initially sampled at least three times for a full characterization suite that includes metals, major ions, stable isotopes, and all different radioisotopes. Very specialized instrumentation is used to quantify the natural carbon and chlorine-36 levels; so the waters from the different wells are distinguishable, although are very similar in the Frenchman basin.
- Closure is based on the definition contained within the FFACO. After closure, DOE will continue to manage the Frenchman Flat CAU -- taking samples, reevaluating the models, tracking any trends with samples and how it effects the model, reviewing any anomalies, etc.

After review of the draft Frenchman Flat Long-Term Monitoring Plan (CR), the briefing, questions, and Board dialogue, the NSSAB, from a community perspective, recommended the following changes to the draft Frenchman Flat Long-term Monitoring Plan (CR):

- Provide a drawing/diagram/narrative to further explain and clarify the water flow directions that are contained within the regional flow system versus the local flow system.
- Develop a brief pictorial summary of the document for the general public that can be accessible on the NFO website.

Member D'Alessio made a motion that the items listed above be included in a recommendation letter to be drafted by the NSSAB Office and voted on by the Board at the January 20, 2016 NSSAB meeting. The motion was seconded and passed unanimously.

Corrective Action Alternatives Recommendation for Corrective Action Unit (CAU) 573
(*Tiffany Lantow, DOE*)

- **NSSAB Work Plan Item 1**
  - Provide a recommendation, from a community perspective, to the DOE on which corrective action alternative (closure in place or clean closure) should be selected for CAU 573 – Alpha Contaminated Sites
- **Location of CAU 573**
  - As of 10/21/2015, Soils Activity consists of 31 CAUs, comprised of 142 Corrective Action Sites (CASs)
- **Two CASs in CAU 573**
  - GMX:
    - Twenty-nine experiments involving metallic plutonium and high explosives conducted between December 1954 and February 1956
    - Contamination is mainly Americium (Am)-241 and Plutonium (Pu)-239/240 as fine particles in soil and as discrete pieces of debris
    - Contamination within High Contamination Area (HCA) assumed to exceed action levels
    - Contamination outside HCA well below action levels
    - Drainage – migration not detected
  - Hamilton:
    - One nuclear effects test with yield of 1.2 tons
    - Conducted October 1958 as part of Operation Hardtack II on tower at a height of 50 feet
    - Contamination is mainly Pu-239/240 and Am-241 as fine particles in soil and as discrete pieces of debris
    - All contamination well below action levels
    - Debris pile present that is assumed to exceed action levels
- **CAU 573 Field Activities**
  - Sampling and radiological dose measurements conducted between January 2015 and September 2015, including:
    - Terrestrial radiological surveys (to identify locations of elevated radiological readings and aid in the selection of sample locations)
    - Soil sampling (chemical and radiological)
    - Thermoluminescent dosimeter sampling
    - Geophysical surveys to identify buried contamination (no anomalies identified)
    - Characterization and removal of 13 lead items at Hamilton
- **CAU 573 GMX Field Results**
  - Terrestrial radiological surveys:

        - Highest radiological levels located nearest to Ground Zero
        - Other hotspots identified scattered around the area
    - Contamination within HCA assumed to exceed action levels
    - Soil sample and dosimeter results:
        - Am-241 and Pu-239/240 are the predominant radionuclides with the dose measuring well below action levels
        - HCA requires corrective action because removable contamination is present above corrective action criteria
        - Outside the HCA, no corrective action required as dose is less than action levels
- **CAU 573 Hamilton Field Results**
    - Terrestrial radiological surveys:
        - Highest radiological levels located nearest to Ground Zero
    - Soil sample and dosimeter results:
        - Am-241 and Pu-239/240 are the predominant radionuclides with the dose measuring well below action levels
        - Debris pile requires corrective action as the contamination present likely exceeds action levels
- **NSSAB Involvement**
    - DOE requests NSSAB provide a recommendation this evening on selection of a Corrective Action Alternative for the sites identified in the following slides
    - Possible Corrective Action Alternatives
        - Closure in Place with use restrictions
        - Clean Closure
- **Assumptions**
    - Site remains in government control
    - Site workers have radiological training
    - No public access
    - If this changes, site closures may be reevaluated
- **Evaluation – GMX**
    - Clean Closure
        - Excavate soil within the HCA to a depth of ~1 foot below ground surface
        - Remove the bunker
        - Dispose of as low-level waste (LLW)
        - Soil/debris volume estimate: ~53,000 cubic feet
    - Closure in Place:
        - Establish Federal Facility Agreement and Consent Order (FFACO) Use Restriction for HCA and post as required
        - Area: ~1 acre

Corrective Action Alternatives	Pros	Cons
Clean Closure Remove ~ 53,000 cubic feet of soil/ debris	Reduces environmental risk by removing hazard Long-term reliability and effectiveness Eliminates long-term monitoring and maintenance costs	Moderate occupational risk during removal due to heavy equipment and location within High Contamination Area Moderate cost associated with waste packaging and disposal
Closure in Place	Feasible and cost effective Minimal environmental risk Consistent with other similar sites	Controls exposure but does not remove hazard Will require long-term monitoring and maintenance costs

- **Evaluation – Hamilton**
  - Clean Closure:
    - Remove debris pile, segregate any potential source material
    - Dispose of as LLW
    - Soil/debris volume estimate: ~2,500 cubic feet
  - Closure in Place:
    - Establish FFACO Use Restriction for debris pile and post as required
    - Area: ~485 cubic feet

Corrective Action Alternatives	Pros	Cons
Clean Closure Remove ~ 2,500 cubic feet of soil and debris	Reduces environmental risk by removing hazard Long-term reliability and effectiveness Eliminates long-term monitoring and maintenance costs	Moderate occupational risk during soil and debris removal Moderate cost associated with removal, waste packaging, and disposal
Closure in Place	Feasible and cost effective Minimal environmental risk Consistent with other similar sites	Controls exposure but does not remove hazard Will require long-term monitoring and maintenance costs

- **Summary of Options**
  - GMX (CAS 05-23-02) – Clean Closure or Closure in Place
  - Hamilton (CAS 05-45-01) – Clean Closure or Closure in Place
- **CAU 573 Next Steps**
  - DOE considers NSSAB recommendations
  - Corrective Action Alternatives discussion with NDEP– November 2015
  - Complete Draft Corrective Action Decision Document/Corrective Action Plan (CADD/CAP)-December 2015
  - Complete Final CADD/CAP-February 2016

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

- With the Hamilton debris pile, there is minimal contaminant migration after large rain events.
- Each CAS is unique and evaluated individually whether closure in place or clean closure is chosen, and NDEP is included in the decision-making process. For CASs that have large soil contamination, closure in place is more often the preferred corrective action alternative.
- For CASs that have been clean closed with a large amount of soil removed, revegetation has not been a part of the closure process unless it is an element of a cover on a landfill cap to prevent water from seeping down to waste.
- Information on the ingestion pathway to humans may be accessed in the 2014 NNSS Environmental Report (ER) at http://www.nv.energy.gov/library/publications/aser.aspx
- Contamination has not been measured at air monitoring stations at the NNSS and results may be found in the NNSSER at http://www.nv.energy.gov/library/publications/aser.aspx. Saltation samplers, instrumentation to measure potential for sediment to move along the ground, have also not measured any contamination at soils sites.
- Other than the debris pile at Hamilton, the rest of the CAS does not exceed action levels; therefore does not require any corrective action.
- Desert Research Institute has conducted studies to research options for stabilizing contaminants at sites that have been closed in place. One option researched is spraying a material on the ground, which would have to be reapplied frequently, increasing the maintenance costs substantially.
- The Hamilton debris pile is within a larger area that is eligible for the National Historic Register as part of the Frenchman Flat Historic District, but the pile is not a part of what makes this district intrinsically valuable. The State Historic Preservation Office evaluates any artifact or location to determine if it qualifies to be placed on the register. It is unlikely that the Hamilton debris pile would be determined worthy for preservation versus the other assets and attributes at the NNSS that are more historical and in their original condition.
- The greatest financial costs for placing an artifact or location on the National Historic Register is the systematic evaluation and documentation of the historical value, and after data recovery of any artifacts is the costs for curation and preservation.
- Clean closure of the Hamilton debris pile will likely not harm the integrity of other sites that located in the Frenchman Flat Historic District.
- If clean closure is chosen for the Hamilton debris pile, approximately 2,500 cubic feet of soil and debris would be removed, packaged, and disposed of at the Area 5 RWMC.

During this process, the risk to workers is negligible as they would utilize the appropriate personal protective equipment.

- There is one site at the NNSS that is currently listed on the National Register of Historic Places – Sedan Crater, but there are numerous other sites that are eligible.

Board members had open discussion regarding the information and the pros/cons analysis presented. After review of the draft recommendation letter for Corrective Action Alternatives for CAU 573, Vice-Chair Keiserman moved to approve the letter with the following:

- GMX (CAS 05-23-02) to recommend Closure in Place.
- Hamilton (CAS 05-45-01) to recommend Clean Closure.

The motion was seconded and passed unanimously.

Other NSSAB Business (*Donna Hruska, Chair*)

Chair Hruska reiterated that a bylaws review of the eight local boards under the federally-chartered EM Site-Specific Advisory Board (SSAB) was an initiative of EM HQ in an effort to make the language more consistent among all the local boards. The proposed bylaws were made available by email to the Board the week of September 8th for review and discussed at the September 16, 2015 Full Board meeting. Per NSSAB's request, the NSSAB Office provided a red-line markup with the major changes to the Board the week of November 2, 2015. Vice-Chair Keiserman made a motion to accept the proposed bylaws as written. The motion was seconded and passed unanimously.

During the fall EM SSAB National Chairs' Meeting in September 2015, Chair Hruska reported that the Chairs and Vice-Chairs revised the proposed recommendation on Supplemental Environmental Projects based on inputs received from their respective local boards. Member Edward Rosemark made a motion to endorse the letter. The motion was seconded and passed unanimously.

Nicole DeNovio provided a clarification to a question that was posed during the Frenchman Flat Long-term Monitoring Plan (CR) briefing. She explained that Well WW 5B will be monitored for water levels and gradient, but not for chemistry as a part of the CR unless radionuclide migration at monitoring locations indicate that there is need to monitor further or away from the plume. Any additional monitoring will be determined by deviations of groundwater velocity, water level monitoring, or radionuclide concentrations that are different from what is anticipated. There is not a large number of monitoring wells required in the area due to the groundwater velocity that results in groundwater movement of approximately three feet per year, and based on calculations would take approximately 450-500 years to move between monitoring wells. Wells RNM-2S and UE-5n are located south of the plume and have long-term monitoring records. WW 5A is a part of the public water supply and not currently part of the closure plan, but other wells in the area can be utilized for additional sampling in the future, if deemed necessary.

Chair Hruska reported that the NSSAB tour of the NNSS in October 2015 went well and the tour guide did an exceptional job.

Member D'Alessio reported that he observed the Transportation Emergency Preparedness Program video project in March 2015 that was filmed in Pahrump, Nevada. During the meeting, the Board viewed the national training video that resulted from this video shoot that will be used for training first responders across the nation.

Resulting from a NNSS tour that Member D'Alessio attended in October 2015 for the Pahrump Chamber of Commerce and a Pahrump housing community, he was asked to appear on Pahrump TV Channel 46 regarding his perspectives on LLW transportation to the NNSS. During the meeting, the Board viewed the broadcast which is available on YouTube at https://www.youtube.com/watch?v=IiBZS7wi5G8&index=2&list=PLJhPXTDzD7dyL5U81T0W2RR4AY3Jgwzl8

The 2016 Waste Management Symposia in Phoenix, Arizona is scheduled from March 6 – 10, 2016. The initial planning is for two members to attend the symposia, but the number of attendees may be reduced at any time. The NSSAB leadership decided that one registration should be designated for the leadership and the second for an NSSAB member. The Board voted by ballot and Donna Hruska and Steve Rosenbaum were selected to attend. Other interested members may attend and pay their own expenses by registering at www.wmsym.org.

Based on NSSAB input resulting from the October NSSAB tour and yearly evaluations, DDFO Kelly Snyder reported that a tour focused on NNSA facilities and activities will be available only for NSSAB members and liaisons due to tour attendee limits at some of the facilities and the tour escort to attendee ratio requirements. DDFO Snyder noted that the dates available for this NNSA-focused tour is either December 15 or 16, 2015. The Board voted and the preferred date was Tuesday, December 15, 2015. The Board also provided feedback that they prefer the NNSA-focused and the Nye County sampling tours to be scheduled on separate days due to the length.

For planning purposes, Facilitator Ulmer requested that members fill out a questionnaire regarding transportation for the January Full Board meeting in Beatty, Nevada. On another questionnaire item, the Board was asked whether they would prefer to have a briefing from the Air Force on radioisotope thermoelectric generators that were disposed at the NNSS during the official January meeting or the educational session in March 2016. This briefing was in response to NSSAB input from the September meeting that the Board would like to be briefed on unique waste streams.

Two letters were provided to Board members for informational purposes:

- NSSAB Recommendation for Communication Improvement Opportunities (Work Plan Item #10) – dated September 16, 2015
- DOE Response to NSSAB Recommendation for Communication Improvement Opportunities (Work Plan Item #10) – dated September 28, 2015

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 information on Board meetings be provided to Pahrump Channel 46 and Member Steve Rosenbaum suggested Clark County Channel 4. Chair Hruska suggested an educational session on the national laboratories at the NNSS. DDFO Snyder noted that this briefing could be added to the NNSA-focused tour on December 15, 2015.

Meeting Wrap-Up/Assessment/Adjournment

The next Membership Committee meeting will be held on Tuesday, December 8, 2015, at the Sahara Business Center, 1810 E. Sahara, Las Vegas, Nevada from 3-4:30 p.m. The next Full

Board meeting will be held on Wednesday, January 20, 2016, at the Beatty Community Center, 100 A Avenue South, Beatty, Nevada with an educational session, “Central Nevada Test Area,” beginning at 4 p.m., followed by the official meeting at 5 p.m.

Due to the lateness of the hour, the Board chose to forgo the meeting assessment.

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

Meeting adjourned at 9:30 p.m.