

Nevada Site Specific Advisory Board (NSSAB)

Full Board Meeting

**Frank H. Rogers Science and Technology Building
755 East Flamingo Rd, Las Vegas, NV
4:00 p.m. – January 18, 2017**

Members Present: Amina Anderson, Michael Anderson, Francis Bonesteel (Vice-Chair), Karen Eastman, Pennie Edmond, Raymond Elgin, Charles Fullen, Richard Gardner, Donald Neill, Autumn Pietras, Steve Rosenbaum (Chair), Edward Rosemark, William Sears, Cecilia Flores Snyder, Richard Stephans, Jack Sypolt, Richard Twiddy, Dina Williamson-Erdag

Members Absent: Arcadio Bolanos, Michael D'Alessio

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

Liaisons Absent: Vance Payne (Nye County Emergency Management [NCEM]), Jonathan Penman-Brotzman (U.S. National Park Service [NPS]), Dan Schinhofen (Nye County Commission)

Student Intern Anthony Graham (University of Nevada, Las Vegas [UNLV])

Department of Energy (DOE): Robert Boehlecke, Tiffany Lantow, Kelly Snyder (Deputy Designated Federal Officer [DDFO]), Scott Wade, Bill Wilborn

Facilitator: Barb Ulmer (Navarro)

Contractors: Irene Farnham, Brian Haight, Sharad Kelkar, Patrick Matthews and Dona Merritt and Ken Rehfeldt (Navarro); Chuck Russell and Maureen King (Desert Research Institute [DRI]); Wayne Belcher and Jeff Sanders (U.S. Geological Survey)

Public Signed In: Eileen Christensen, Daniel Gerrity, Roy Jagers, Shubhada Kelkar, and William Schmidt

Open Meeting/Chair's Opening Remarks

Chair Steve Rosenbaum welcomed members and liaisons to the meeting. Following the Chair's opening remarks, Member Edward Rosemark 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 with an update that the Federal budget for fiscal year (FY) 2017 is currently under continuing resolution until April 28, 2017. With the new administration, the U.S. Congress will take further actions on the FY 2017 budget and also on revisions to the FY 2018 budget. In March 2017, the Nevada Field Office (NFO) will be requesting the NSSAB's thoughts and insights for the FY 2019 budget process in order to communicate stakeholder prioritizations with Environmental Management (EM) Headquarters (HQs).

In FY 2017, the Nevada National Security Site (NNSS) has received 140,000 cubic feet of low-level waste (LLW) in 152 shipments. The NNSS is forecasted to receive 1.2 million cubic feet in FY 2017. LLW shipments are fewer at the beginning of a FY and increase as the year progresses, mainly due to budgetary considerations at other DOE sites.

Mr. Wade noted that the NFO maintains its environmental restoration activities in both groundwater and soils. NFO continues to characterize the extent of the contamination from underground nuclear testing at the five corrective action units (CAUs) under the Underground Test Area (UGTA) Activity. One of these CAUs, Frenchman Flat, went into the closure phase last year. There has been great progress under the Soils Activity in the last couple decades with several more years of cleanup activities remaining until completion.

Mr. Wade stated that one of the hallmarks of the EM Program is transparency in its outreach and communication efforts, whether with the NSSAB or other stakeholders. An upcoming example is the local LLW Stakeholders Forum held quarterly to discuss transportation, receipt of LLW, community issues not related to LLW, for example, discussions on the Nevada Department of Transportation initiatives regarding the I-11 Corridor. On February 9, 2017, the group will participate in a tour of the NNSS. Next meeting of the LLW Stakeholders Forum will be scheduled in the May 2017 timeframe. The NFO continues to interact with the CGTO that include the 17 tribes that have ties to the NNSS. One interaction is soliciting tribal thoughts and advice on how to effectively revegetate the 92-acre Area at the Area 5 Radioactive Waste Management Site. In two weeks, NFO will host another meeting with tribal members and elders on revegetation efforts.

The NNSS Waste Acceptance Criteria (NNSSWAC) is the control document that defines the waste that can be disposed and the basis for receiving, emplacing, and disposing of waste at the NNSS. Meetings were held with the DOE, tribal, state, and county government officials, and the NSSAB to seek insight and comments during its efforts to update the document. The NNSSWAC revision was issued in November 2016, and after a 90-day period will be fully implemented on February 13, 2017.

Mr. Wade reported that the current mixed LLW (MLLW) cell is reaching capacity; so the NFO has initiated activities to build a new MLLW cell. The design of the replacement cell is complete, and the NFO submitted the permit modification application to NDEP in December 2016. On December 14, 2016, the NFO hosted a public meeting in the community of Pahrump, Nevada. The public comment period extends to January 28, 2017, and all comments received will be forwarded to NDEP for its consideration during its review of the technical and administrative components of the application. Best case scenario, construction authorization will be received by the summer 2017. After approximately six months of construction, the new unit will be commissioned in late winter or early spring 2018.

Mr. Wade updated that the Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico, reopened on January 4, 2017. WIPP is the facility where DOE disposes its transuranic waste. Since February 2014, the facility has been closed and undergoing recovery activities after two significant events occurred underground. As part of the recovery efforts, there have been decontamination activities to the infrastructure underground, a HEPA ventilation system operating in the facility, and improvements in its waste processes. Current WIPP operations include the emplacement of waste that was already staged at the surface of WIPP, which is expected to take the next several months. In the spring 2017, routine waste shipments from other DOE sites will begin, although not at the same level before the shutdown. WIPP continues to be a major focus of the EM Program in getting the facility to normal operations.

The contract for the NNS Management and Operating contractor is undergoing further procurement actions. The contract for the existing contractor, National Security Technologies, Inc., has been extended to May 31, 2017.

Lastly, Mr. Wade informed the Board that an updated Management Agreement was signed in December 2016 between the EM Program and the National Nuclear Security Administration (NNSA). The NNSA is a semi-autonomous agency established by the U.S. Congress in 2000 to focus on the DOE's responsibilities related to its nuclear weapons and stockpile stewardship activities. NNSA has a number of facilities across the nation, including the NNS, and there were agreements put in place when the EM cleanup mission was initiated in 1989. Mr. Wade added that he is an NNSA employee; therefore with the new agreement his roles and responsibilities will change. He will not be attending future NSSAB meetings on a routine basis, but will continue to support the EM mission in his new role. Mr. Wade shared that the NSSAB had a profound impact on him and his career the past seven years and is going to affect how he moves forward with his new responsibilities. Mr. Wade introduced Catherine Hampton, the Acting EM Program Manager for the NNS. Ms. Hampton further explained that during the establishment of the EM Los Alamos Office, General Council made a determination that it was inappropriate for NNSA and its managers to oversee EM resources for both its contractors and personnel. Therefore, EM made a commitment to look for any similar situations where EM autonomy at other DOE sites was needed, which NNS was one. The EM NFO will continue to operate in concert with NNSA, although it will be implementing administrative elements to delineate the management of EM resources to DOE EM personnel. Ms. Hampton noted that her role is reviewing the contract transition needs, realigning the Federal personnel, and determining the best structure for the organization. EM will continue to support NNSA on critical elements, and likewise NNSA will continue to support EM mission work. The NSSAB will continue to receive progress updates at future meetings.

Liaison Updates

Clark County (*Phil Klevorick*)

Liaison Phil Klevorick attended the Intergovernmental Meeting with DOE in November 2016. Discussions were held on LLW disposal at the NNSS and also on a high-level waste repository. He reiterated that it is important for Nevada participants to positively repeat the key message that LLW activities at the NNSS are a mission critical need for the country. Liaison Klevorick encouraged the NSSAB to continue attending national conferences and workshops. He reported that he is a member of the Western Governors Association (WGA), a transportation advisory group that discusses issues related to transuranic shipments in the western United States. The WGA is standing up a Road Show to take to communities in the transuranic transportation corridors; wherein first responders can inspect trucks with mock waste casks in preparation for the restart of transuranic waste shipments after a three-year hiatus. Nevada and California will not initially take part in the Road Show as transuranic shipments will not be leaving or traveling through for several years. Nevada will be sending members of the Nevada Highway Patrol to Colorado and Utah for this training. Lastly, Mr. Klevorick asked that the message be relayed to the NNSA the importance of interacting with the community.

CGTO (*Richard Arnold*)

Liaison Richard Arnold stated that the CGTO was involved with the State and Tribal Governmental Working Group during the Intergovernmental Meeting. Meetings were held with EM HQs personnel and CGTO to share collective thoughts on the work at the NNSS. CGTO was contacted by the Confederated Tribes of the Umatilla Indian Reservation in Pendleton, Oregon, who expressed an interest in growing seedlings from seeds that originate from the NNSS. This is a positive collaborative relationship within the tribes and DOE agencies. The Fort Hall Shoshone-Bannock Tribes in southeast Idaho will be one of the Road Show locations that Liaison Klevorick reported in his liaison update. There will be an effort to include other tribes to participate in this Road Show and in other locations as well. Liaison Arnold will be in Charlotte, North Carolina next week for a Tribal Caucus Meeting which is part of the National Transportation Stakeholders Forum. As Mr. Wade mentioned in his update, tribal representatives from the CGTO along with three designated key elders are scheduled to meet this month at the 92-acre Area and further develop and refine a work plan for the revegetation effort. The CGTO will also participate in the quarterly LLW Stakeholders Forum tour in February 2017 and its Annual Meeting in April 2017. During the Waste Management Symposia, Liaison Arnold will present on stakeholder involvement in the revegetation of the 92-acre area. He will also participate in the National Transportation Stakeholders Forum in June 2017.

Esmeralda County Commission (*Michelle Bates*)

Liaison Michelle Bates had nothing to report.

NWRPO (*John Klenke*)

Liaison John Klenke had nothing to report.

NDEP (*Christine Andres*)

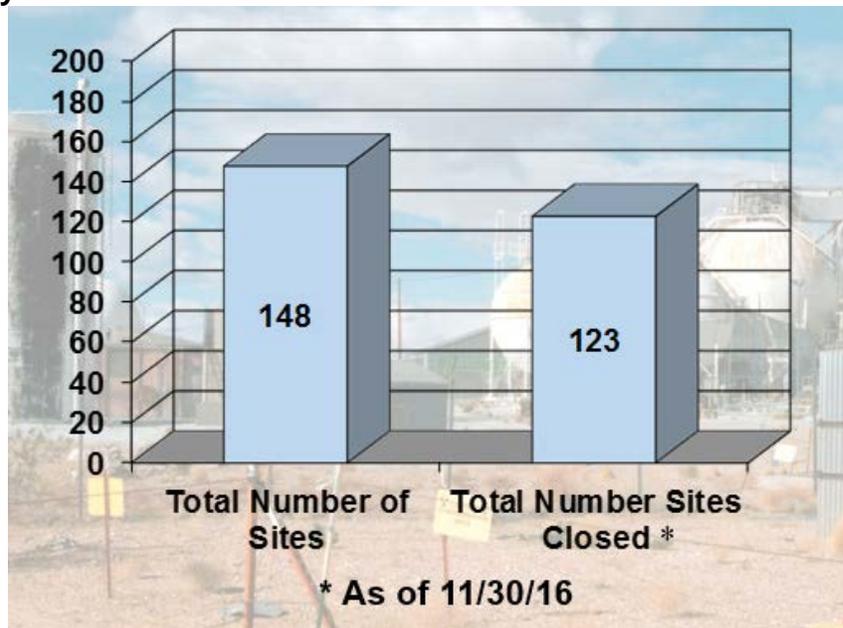
Liaison Christine Andres reported that NDEP is undergoing a technical review of the MLLW permit modification application. NDEP will then forward its comments to DOE for its response. She will continue to update the NSSAB on the status. Liaison Andres commented that she will also attend the Waste Management Symposia and has co-authored a paper that provides regulator perspectives on peer review lessons learned at the NNSS. Liaison Andres stated that the UGTA Activity has completed the comment responses to the Yucca Flat External Peer Review. She

noted that this is an exciting milestone for all involved in that after 20 years the model for the Yucca Flat CAU is acceptable and approved by NDEP to move into the Corrective Action Decision Document/Corrective Action Plan phase of the UGTA Federal Facility Agreement and Consent Order (FFACO) Groundwater Closure Strategy. Lastly, Liaison Andres stated that Administrator David Emme from the Nevada Department of Conservation & Natural Resources will retire effective February 2017. During this transition, the local NDEP Offices will operate as usual.

Corrective Action Alternatives Recommendation for Corrective Action Unit 576 (*Tiffany Lantow, DOE*)

- **Soils Activity Background**
 - Atmospheric nuclear weapons tests, nuclear safety experiments, and evaluation tests for peaceful uses of nuclear explosives conducted at the NNSS and Nevada Test and Training Range (operated by the U.S. Air Force) resulted in the radioactive contamination of surface and near surface soils
 - The Soils Activity is responsible for:
 - Characterizing and/or remediating surface soil contamination
 - Characterize means to identify the nature and extent of the contamination present
 - Remediating means to select a closure option (clean close, closure in place, etc.)
 - Ensuring appropriate controls (i.e. postings, barriers, etc.) are in place at the sites with remaining contamination
 - Conducting long-term monitoring of sites
 - NDEP provides oversight under the FFACO
- **Terminology**
 - Corrective Action Site (CAS) – A site that has been identified as needing remediation
 - CAU – A grouping of Corrective Action Sites that are similar in remediation technique, type of contaminants or proximity to each other
 - There are 32 Soils CAUs which consist of 148 CASs (as of 11/30/16)
- **Remediation Processes**
 - Corrective Action Investigation Plan (CAIP) – Details the investigation plan and provides information for planning investigation activities
 - Site Investigation – Act of conducting field characterization activities
 - Corrective Action Decision Document (CADD) – Describes the results of the characterization, multiple corrective action alternatives, and the recommended corrective action alternative and the rationale for its selection
 - Corrective Action Plan (CAP) – Plan for implementing the selected corrective action
 - Closure Field Work – Implementation of the selected corrective action at the site
 - Closure Report (CR) – Documented overview and results of corrective actions implemented, closure verification information, and use restriction and monitoring requirements (when applicable)
 - **Note: All documents must be approved by NDEP**

- **Soils Activity**



- 123 Closed Soils Sites
 - 9 were Clean Closed
 - 48 were Closed in Place
 - 66 were No Further Action
- **NSSAB Work Plan Item 1**
 - Provide a recommendation, from a community perspective, on which corrective action alternative (closure in place or clean closure) should be selected by DOE for CAU 576 – Miscellaneous Radiological Sites and Debris
- **CAU 576, Miscellaneous Radiological Sites and Debris Overview**
 - CAU 576 includes sites discovered on the NNSS during other Soils investigations and while researching potential CASs as part of the Soils Activity closeout
 - Over 80 sites were evaluated, resulting in six CASs and the creation of CAU 576
 - The six CASs consist of
 - Radiochemical piping, surface and subsurface
 - Rad waste legacy site
 - Debris (lead bricks, battery, etc.)
- **Location of CASs for CAU 576**
 - Two of the six CASs require corrective action alternative analysis
 - Kennebec
 - Rad Waste Legacy Site
- **Kennebec**
 - A low-yield weapons-related test of a nuclear device intended for a specific type of weapon system
 - Conducted June 25, 1963, as part of Operation Storax
 - Engineering drawings reflect a radiochemical piping layout
 - Historically, radiochemical piping systems (gas-sampling assemblies) were designed to collect test gases for radiochemical analysis
 - Current field conditions reflect subsurface piping coming from an emplacement borehole, past a vault area, to the surface at the gas-sampling assembly and then continuing to the west where the exhaust pipe ends near a soil mound
 - Principal contaminant of concern is residual cesium-137 in the interior of the piping

- **Rad Waste Legacy Site**
 - Site identified from a 1965 Frenchman Flat Quadrangle Map
 - Radiologically elevated soil and debris exist on the surface (30 feet square) to a depth of approximately one foot
 - Source of the contamination is unknown but is suspected to be associated with nearby nuclear testing activities
 - Principal contaminant of concern is plutonium-contaminated debris and soil
- **CAU 576 Field Activities**
 - Further field activities scheduled for early 2017
 - Terrestrial radiological surveys
 - Radiological soil sampling and thermoluminescent dosimeter placement
 - Geophysical surveys
 - Anticipate new data will validate existing characterization data and information for waste management activities
- **NSSAB Involvement**
 - DOE requests NSSAB provide a recommendation on selection of a Corrective Action Alternative for the Kennebec and the Rad Waste Legacy Site
 - Possible Corrective Action Alternatives*
 - Closure in Place with use restrictions
 - Clean Closure
 - *Corrective Action Alternative evaluated based on general standards and remedy selection decision factors defined by the U.S. Environmental Protection Agency [EPA] (40 CFR 300.430(e)(9))
- **Corrective Action Alternatives EPA General Standards**
 - Corrective Action Alternatives must meet the following standards:
 - Protection of human health and the environment
 - Compliance with environmental cleanup standards
 - Control the source(s) of the release
 - Comply with applicable federal, state, and local standards for waste management
- **Corrective Action Alternatives EPA Remedy Selection Decision Factors**
 - Short-term reliability and effectiveness
 - Reduction of toxicity, mobility, and/or volume
 - Long-term reliability and effectiveness
 - Feasibility
 - Cost
- **Assumptions**
 - Site remains in government control
 - Site workers have radiological training
 - No public access
 - If this changes, site closures may be reevaluated
- **Evaluation – Kennebec**
 - Clean Closure
 - Excavate piping, vaults, and contaminated soil within the site
 - Dispose of piping and soil at the NNSA Area 5 Radioactive Waste Management Site (RWMS)
 - Recycle lead debris
 - Soil/debris volume estimate:~2,500 cubic feet
 - Refill excavation with clean native soil
 - Closure in Place

- Establish FFACO Use Restriction

Corrective Action Alternatives	Pros	Cons
Clean Closure Remove ~ 2,500 cubic feet of soil/debris	<ul style="list-style-type: none"> Reduces environmental risk by removing hazard Long-term reliability and effectiveness Eliminates long-term monitoring and maintenance costs 	<ul style="list-style-type: none"> Moderate occupational risk during removal due to heavy equipment operations, cutting contaminated piping systems, and excavation of underground tanks Moderate cost associated with waste packaging and disposal Compliance with the Historical Preservation Act will require additional evaluation and documentation
Closure in Place	<ul style="list-style-type: none"> Feasible and cost effective Minimal environmental risk Consistent with other similar sites Preserves the historical significance of the site Use restrictions (including monitoring and maintenance) can be removed when radiological dose decays below action level. Regardless of the dose level, the dose will diminish by 50% in 30 years. 	<ul style="list-style-type: none"> Controls exposure but does not remove hazard Will require long-term monitoring and maintenance costs

- **Evaluation – Rad Waste Legacy Site**

- Clean Closure
 - Remove debris pile, segregate any potential source material
 - Dispose at the NNSA Area 5 RWMS
 - Soil/debris volume estimate is ~900 cubic feet
- Closure in Place
 - Establish FFACO Use Restriction for debris area and post as required
 - Area is ~900 square feet

Corrective Action Alternatives	Pros	Cons
Clean Closure Remove ~ 900 cubic feet of soil and debris	<ul style="list-style-type: none"> Reduces environmental risk by removing hazard Long-term reliability and effectiveness Eliminates long-term monitoring and maintenance costs 	<ul style="list-style-type: none"> Moderate occupational risk during soil and debris removal Minimal cost associated with removal, waste packaging, and disposal
Closure in Place	<ul style="list-style-type: none"> Feasible and cost effective Minimal environmental risk Consistent with other similar sites 	<ul style="list-style-type: none"> Controls exposure but does not remove hazard Will require long-term monitoring and maintenance costs. Dose reduction to decay is considered to be insignificant due to the long-lived radionuclides.

- **CAU 576 Next Steps**

- DOE considers NSSAB recommendations due February 15, 2017
- Corrective Action Alternative discussion with NDEP – March 2017
- Complete final Corrective Action Decision Document/Corrective Action Plan – September 2017

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

- DOE's environmental responsibility began in the 1990s under the FFAO with over a hundred soils sites requiring investigation and remediation. Additionally, resources were needed for over a thousand Industrial Sites and 828 nuclear tests under UGTA. The CASs in CAU 576 were not identified as part of the FFAO until more recently while DOE researched potential sites as part of the Soils Activity closeout. During the nuclear weapons testing years, initial decontamination actions were undertaken, although the major focus of the country during the Cold War was national security. In 1989, the EM Program was stood up as the DOE recognized that a better understanding of the long-term legacy of the Manhattan Project was needed at DOE sites, including the NNSS.
- Under clean closure for Kennebec, the soils cleanup could extend 10-12 feet below the surface until reaching the crater.
- With the current data available, the radiological dose at Kennebec will be below action levels in 30-50 years.
- The monitoring at each CASs is prescribed in the Closure Report, and is dependent on each site. Monitoring may include taking samples, doing visual inspections, inspecting debris/soil left in place, etc. Other than specific monitoring at the CASs, the NNSS has additional monitoring, (i.e. nine air-quality monitoring stations, over 100 radiological dose locations, groundwater monitoring locations), to provide confidence that contaminants are not airborne or leaving the NNSS. These monitoring results are available to the public in the annual NNSS Environmental Report.
- Once the Corrective Action Decision Document/Corrective Action Plan is approved by NDEP, the field work will commence at the Kennebec and Rad Waste Legacy Site, depending on the appropriation level for FY 2018.
- Under Clean Closure for Kennebec, DOE's cultural resources contractor, DRI, would work with the State Historic Preservation Office to determine the historical significance of the site. DOE would go through the prescribed process for Clean Closure, which may take longer to provide the required documentation. DOE will not undergo this process if Closure in Place is chosen as the preferred alternative.

Board members had open discussion regarding the information and the pros/cons analysis presented. After all questions had been answered and extensive dialogue, Member Edward Rosemark made a motion that a letter be sent to the DOE with the following recommendations:

- Kennebec (CAS 02-99-12) – Clean Closure
- Rad Waste Legacy Site (CAS 05-19-14) – Clean Closure

The motion was seconded and passed unanimously.

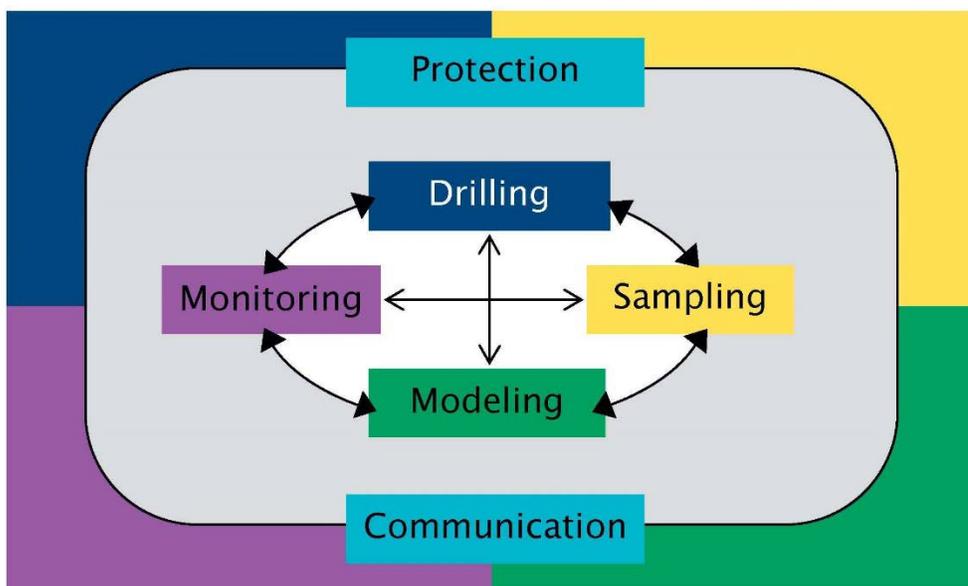
Internal Peer Review Process Improvement Work Plan Item 6 (*Bill Wilborn, DOE*)

- **Historic Nuclear Testing Impacts on the Groundwater**
 - 828 underground nuclear tests conducted at the NNSS from 1951 to 1992
 - Underground tests conducted at depths ranging from approximately 90 to 4,800 feet below the ground surface
 - One-third of these tests occurred near or below the water table
 - Some radioactive contamination detected in groundwater on the NNSS and the Nevada Test and Training Range

- **NNSS Groundwater Program Objectives**

- Because of the significant worker safety concerns and cost associated with any type of active remediation, the DOE in consultation with NDEP has selected an end state that requires modeling and monitoring strategy that is documented in the FFAO
- This strategy is supported with the following activities
 - Tackle challenges using investigative methods, such as drilling wells to investigate the hydrology and geology (UGTA)
 - Sample wells, analyze samples, and build computer models from gathered data (UGTA)
 - Implement controls to prevent access to contaminated groundwater (UGTA and National Nuclear Security Administration)
 - Ongoing monitoring of wells on and off the NNSS (National Nuclear Security Administration)
 - Establish a comprehensive long-term monitoring network to ensure public protection (UGTA)

- **Understanding Groundwater...an Integrated Approach**



- **UGTA Closure Strategy**

- Implemented in four stages
 - Corrective Action Investigation Plan (CAIP)
 - Corrective Action Investigation (CAI)
 - Corrective Action Decision Document/Corrective Action Plan (CADD/CAP)
 - Closure Report (CR)
- Nine decision points (yellow diamonds)
- Corrective Action Investigation (CAI) [some CAUs may require a Phase I and II]
 - Corrective Action Investigation Plan (CAIP)
 - Data collection
 - Modeling
 - Contaminant boundary
 - External peer review
- Corrective Action Decision Document/Corrective Action Plan (CADD/CAP)
 - Model evaluation
 - Use restriction boundary

- Regulatory boundary negotiations with NDEP
 - Closure
 - Closure Report (CR)
 - Address regulatory boundary changes if necessary
 - Closure in place with long-term monitoring
 - Institutional controls
- **UGTA CAU Status**
 - *Frenchman Flat (CAU 98)* In closure, performing annual groundwater monitoring
 - *Yucca Flat/Climax Mine (CAU 97)* Finishing External Peer Review comment responses, moving into CADD/CAP (collect and evaluate new data to address key uncertainties and defend that the CAU is acceptable for closure)
 - *Rainier Mesa/Shoshone Mountain (CAU 99)* Modeling is being conducted under an Alternative Modeling Strategy
 - *Central Pahute Mesa (CAU 101) and Western Pahute Mesa* (CAU 102)* Preparing Phase II CAI (characterize site and develop groundwater and contaminant transport models)
 - *Western and Central Pahute Mesa are managed as one entity
- **NSSAB Work Plan Item 6**
 - From a community perspective, the NSSAB will provide recommendations as to how the internal peer review process could be enhanced
- **Internal Peer Reviews**
 - Internal independent review* that examine broad issues of technical quality and consistency and address whether the work being performed is sufficient to achieve the UGTA strategy goals
 - Includes members of the UGTA Team that are not directly involved with the specific CAU under review
 - In contrast, an External Peer Review brings in scientific experts in multiple disciplines from outside the UGTA Team
 - *Also referred to as Pre-emptive Reviews (PER)
 - Important and long-standing quality improvement process
 - Identified in the UGTA Quality Assurance Plan
 - Assures work is comprehensive, accurate, in keeping with the state of the art, and consistent with CAU goals
 - Reviews data, documents, software/codes, analyses, models, and technical briefings
- **Internal Peer Review Goals**
 - Ensures work is technically adequate, competently performed, and properly documented
 - Maintains high technical standards and consistency in products that are reviewed
 - Aids in focusing CAU studies on UGTA Activity objectives defined in FFACO
 - Provides early identification of technical/strategy issues
 - Gives assurance to the NDEP that work in progress and final reports are technically sound

- **Process and Responsibilities**

Activity	UGTA Federal Activity Lead	PER Chairperson	Science Advisor	CAU Lead	EPS UGTA Project Manager	EPS UGTA Integration Manager	PER Committee Member, NDEP Employee, and Nye County Representative	Contract Manager
Select PER Chairperson	Select chairperson	N/A	Advise UGTA Federal Activity Lead	N/A	N/A	N/A	N/A	N/A
Select PER members	Select PER members	N/A	Advise UGTA Federal Activity Lead	N/A	N/A	N/A	N/A	Determine availability of selected member
Initiate PER review	Authorize review	N/A	Advise UGTA Federal Activity Lead	Identify the need for PER	Identify the need for PER	N/A	N/A	N/A
Ensure funding is available for PER committee members to participate	Authorize funding	N/A	N/A	Plan PER with EPS UGTA Project and Integration managers	Plan PER with CAU Lead and EPS UGTA Integration manager	Coordinate PER with Contract Managers and UGTA Federal Activity Lead	N/A	Work with EPS UGTA Integration Manager and UGTA Federal Activity Lead to ensure funding is available
Identify PER Objective and Determine guiding questions	Provide support/guidance as needed	Work with Science Advisor, CAU Lead, and EPS UGTA Project Manager to develop questions	Work with PER Chairperson, CAU Lead, and EPS UGTA Project Manager to develop questions	Work with PER Chairperson, Science Advisor, and EPS UGTA Project Manager to develop questions	Work with PER Chairperson, Science Advisor, and CAU Lead to develop questions	N/A	N/A	N/A
Develop schedule for review	N/A	Work with CAU Lead, EPS UGTA Integration Manager, and committee members to develop schedule	N/A	Work with PER Chairperson and EPS UGTA Integration Manager to develop schedule	N/A	Work with PER Chairperson and CAU Lead to develop schedule and communicate the schedule to Contract Managers	N/A	Identify whether any schedule conflicts exist

Activity	UGTA Federal Activity Lead	PER Chairperson	Science Advisor	CAU Lead	EPS UGTA Project Manager	EPS UGTA Integration Manager	PER Committee Member, NDEP Employee, and Nye County Representative	Contract Manager
Conduct reviews	N/A	Coordinate review; ensure members receive necessary information; compile comments; develop overview comments	Monitor PER review; interact with committee; and inform UGTA Federal Activity Lead of issues/concerns	Provide materials to PER Chairperson and committee members, as needed	N/A	N/A	Provide review comments to PER Chairperson, and review/accept overview comments	Report schedule and budget issues to EPS UGTA Integration Manager and UGTA Federal Activity Lead
Participate in comment resolution process	Resolve differing opinions that cannot be resolved by consensus of the Science Advisor, PER Chairperson, CAU Lead, and EPS UGTA Project Manager	Work with committee and CAU Lead to resolve comments; post review process documentation on SharePoint site	Advise PER Chairperson, CAU Lead, EPS UGTA Project Manager and/or UGTA Federal Activity Lead to resolve comments as necessary	Work with authors to develop comment responses and PER Chairperson to facilitate comment resolution	Advise CAU Lead as needed	N/A	Provide feedback on proposed comment responses to the PER Chairperson	N/A
Manage potential outcomes of review process	Solicit/receive guidance to determine necessity for remedial work scope; authorize work scope	Support PER committee as needed; work with CAU Lead and Science Advisor to ensure unresolved comments are resolved before products are finalized	Advise UGTA Federal Activity Lead, and provide assistance as needed; work with CAU Lead and PER Chairperson to ensure unresolved comments are resolved before products are finalized	Ensure work resulting from the PER is coordinated with other CAU studies; track comments that have yet to be resolved	Support CAU Lead as needed	Provide support to UGTA Federal Activity Lead to integrate new work scope required as an outcome of the PER	N/A	Work with EPS UGTA Integration Manager to plan remedial work if needed

- EPS is the Environmental Program Services contractor, currently Navarro

- **UGTA Leads and Committee Members**



DOE
 UGTA Federal Activity Lead: **Bill Wilborn**
 Nevada Field Office UGTA Quality Assurance Contact: **Kevin Cabbie**
 Nevada Field Office Project Controls Lead: **Andy Weber**

NDEP
 Bureau Chief: **Chris Andres**
 UGTA Branch Supervisor: **Mark McLane**
 UGTA Hydrologist/Modeler: **Britt Jacobson**

Nye County
 Grant Manager: **Darrell Lacy**
 Geologist: **John Klenke**
 Contract Geologist: **Jamie Walker**

Environmental Program Services (EPS)
 UGTA Project Manager: **Ken Rehfeldt**
 UGTA Integration Manager **Brian Haight**

Contract Managers
 Los Alamos National Laboratory (LANL): **Kay Birdsell**
 National Security Technologies (NSTec): **Ken Ortego**
 Desert Research Institute (DRI): **Karl Pohlmann**
 Lawrence Livermore National Laboratory (LLNL): **Andy Tompson**
 U.S. Geological Survey (USGS): **Jeff Sanders**

CAU Leads
 Frenchman Flat: **Brian Haight**
 Pahute Mesa: **Ken Rehfeldt**
 Yucca Flat / Climax Mine: **Ed Kwicklis**
 Rainier Mesa/Shoshone Mountain: **Andy Tompson**

Science Advisors
 Pahute Mesa and Rainier Mesa/Shoshone Mountain: **Chuck Russell**
 Yucca Flat/Climax Mine and Frenchman Flat: **Irene Farnham**

Committee Members
 DRI: hydrologist, modeler/hydrologist, modelers (2)
 LANL: radiochemist, hydrologist, modelers (2)
 LLNL: geochemist, modelers (2)
 Navarro: hydrogeologist, geochemist, engineer, modelers (4)
 NSTec: engineer, geologists (2)
 NDEP: regulators (2)
 Nye County: geologists (2)
 USGS: modeler, geologists (3)

- **Upcoming Internal Peer Reviews**

- Rainier Mesa/Shoshone Mountain (CAU 99) – August/September 2017
 - Flow and Transport Document
 - Alternative Modeling Strategy
 - GoldSim simplified modeling approach
- Yucca Flat/Climax Mine (CAU 97) – March/April 2017
 - CADD/CAP
 - Pending closure of External Peer Review and NDEP approval to advance to the CADD/CAP stage
- Pahute Mesa (CAU 101/102) – July 2017 (pending)
 - Review water balance analyses (discharge, boundary, recharge, and chemistry)

- **What to Expect**

- Very technical exchange between the UGTA Leads and committee members
- Not a rubber stamp of approval
- Sessions held in Las Vegas, Nevada and may include conference calls
- Each session usually lasts between 3 and 5 hours
- Dates typically not set more than 30 days in advance
- Agendas are set based on what needs to be accomplished
- Each session has a different subject matter – very dynamic dialogue/debate

- **NSSAB Path Forward**

- Choose up to two members to observe Internal Peer Review sessions (beneficial to have same members for each CAU for consistency)
 - UGTA Science Advisors hold prebrief and debrief meetings with NSSAB in coordination with each Internal Peer Review session to address any questions, clarify information, and to assist with their updates to the NSSAB
- Members attending Internal Peer Review sessions will provide timely written updates after each session that will be emailed to the NSSAB

- Provide a recommendation by the Full Board as to how the internal peer review process could be enhanced at the August 16, 2017 meeting

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

- The internal peer review examines the technical process throughout the entire UGTA FFACO Groundwater Closure Strategy and provides a level of confidence and a readiness to present to an external peer review.
- UGTA utilizes multiple three-dimensional computer-generated models within a framework to understand the underground geology, hydrology, and how the water interacts with the geology.
- The UGTA Activity utilizes a quality assurance document that outlines the quality standards expected, the processes used in following a model, and the manner in which to move through the strategy. UGTA requires internal quality assurance as part of this requirement, and PER personnel are utilized to independently review issues as part of the internal peer review process.
- The Rainier Mesa CAU is located geographically in central NNSS, and radionuclide migration off the NNSS is not expected in the next 1,000 years. Due to the tremendous expense of modeling that would result in no reduction of uncertainties, an alternate modeling strategy has been approved by NDEP that will result in significant cost savings that could be a better use of taxpayer's dollars at CAUs with a downgradient risk. The NDEP-approved alternative modeling strategy still requires that an External Peer Review be conducted for Rainier Mesa.
- In terms of time commitment, NSSAB volunteers will be provided a prebrief before the internal peer review sessions to ensure that the members are prepared and have background on the upcoming discussions. A debrief will be held to explain the session outcomes and answer any NSSAB questions. Additional documentation to review before the sessions may be made available to the NSSAB as appropriate to the specific CAU. Historically, the internal peer review sessions have been one full-day meeting with follow-up phone calls as needed, unless there is disagreement among the group or other issues come up that need to be further addressed. The NSSAB is not expected to contribute technically to the discussions, but observe the process and offer insights on how it could be improved for the future.

NSSAB Members volunteered to observe the following internal peer reviews, as follows:

- Rainier Mesa/Shoshone Mountain (CAU 99) Alternative Modeling Strategy and GoldSim simplified modeling approach – Edward Rosemark, Bill Sears, and Richard Twiddy
- Yucca Flat/Climax Mine (CAU 97) CADD/CAP – Francis Bonesteel, Bill Sears, and Cecilia Flores Snyder
- Pahute Mesa (CAU 101/102) review water balance analyses (discharge, boundary, recharge, and chemistry) – Michael Anderson, Pennie Edmond, Autumn Pietras, Bill Sears, and Richard Stephans

Other NSSAB Business (*Steve Rosenbaum, Chair*)

Chair Rosenbaum introduced Anthony Graham, UNLV student intern, to provide an update to the Board. Student intern Graham reported that he will be working on a bulletin to send out next week to UNLV students to educate the student body on the NSSAB, the NNSS, and the proceedings of this meeting in order to encourage students to attend and participate in future NSSAB meetings.

Chair Rosenbaum noted that the trip to observe a Panacea Pump at BESST, Inc. in San Rafael, California, has been postponed. DOE has budgeted for two NSSAB members to attend this trip. The NSSAB Office will notify the Board when new dates for the field trip are scheduled.

Chair Rosenbaum stated that Member Michael D'Alessio cannot attend the Waste Management Symposia (WMS) in Phoenix, Arizona, on March 5-9, 2017. Member Charles Fullen was chosen by ballot to fill this position and will be attending the WMS along with Chair Rosenbaum.

Communication Improvement Opportunities (Work Plan #9)

In response to providing recommendations on ways that DOE can improve/enhance communication to the public, Member Bill Sears suggested that there be increased advertisement of the public tours to the NNSS. Member Charles Fullen noted that it would be beneficial to do an interview on the Pahrump KPVM television station before the NSSAB meeting that will be held in Pahrump, Nevada. Member Dina Williamson-Erdag added that the television station is always canvassing for new stories and would provide follow-up and possibly an ongoing series on the NSSAB and NNSS. She also explained that the county advisory committee sponsors an annual Earth Day event in April in Pahrump, and she suggested that DOE participate by hosting a booth. Lastly, Member Williamson-Erdag asked that DOE reach out to the Nye County liaisons not at the meeting in order to encourage their attendance.

Meeting Wrap-Up and Adjournment

Upcoming calendar of events:

- Next Full Board Meeting – February 15, 2017 at the Beatty Community Center in Beatty, Nevada with educational session at 3 p.m. and meeting at 4 p.m.
- Waste Management Symposia – March 5 – 9, 2017

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

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

Meeting adjourned at 7:44 p.m.