



Nevada Site Specific Advisory Board Table of Contents

Administrative Board Meeting Handouts for Wednesday, March 20, 2019

***Please note: For your convenience, this Table of Contents
has a link to the first page of each handout.***

Page 2	Attendance Spreadsheet
Page 3	Draft EM SSAB Recommendation from Nevada on Infrastructure Improvement
Page 11	Liaison Participation Committee Report with Attachments for Liaison Needs Assessment
Page 20	Liaison Participation Committee Report for Need to Increase Number of Liaisons
Page 21	Follow-up: Evaluation of the Audit Determination Process ~ Work Plan #4: White Paper on Risk-Informed Spreadsheet, Risk-Informed Spreadsheet, and Facility Evaluation Schedule for FY 2019
Page 31	Approach for Pahute Mesa Completion Briefing ~ Work Plan Item #2

NSSAB FULL BOARD MEETING ATTENDANCE

October 2018 through September 2019 (FY 2019)

Name	11/7/18	1/16/19	3/20/19	4/24/19	7/17/19	9/18/19	Max Terms
MEMBERS							
Amina Anderson	√	√					2020
Francis Bonesteel	√	√					2022
William DeWitt	√	√					2024
Pennie Edmond	√	√					2020
Karen Eastman	√	√					2022
Raymond Elgin	E						2022
Charles Fullen	√	√					2022
Richard Gardner	√	√					2022
Anthony Graham	√	√					2024
Tanya Henderson	√	√					2024
Hepburn Klemm	√	√					2024
Donald Neill	√	√					2020
Steve Rosenbaum	√	√					2020
Janice Six	√	√					2024
Richard Stephans	√	√					2022
Richard Twiddy	√	√					2022
Dina Williamson-Erdag	√	√					2022
C.J. Wissmiller	√	√					2024
LIAISONS							
Clark County	√	E					
Consolidated Group of Tribes & Organizations	E	√					
Esmeralda County Commission	√	√					
Lincoln County Commission	E	√					
Nye County Commission	U	E					
Nye County Emergency Management	√	√					
Nye Co. Nuclear Waste Repository Project Office	√	√					
State of NV Division of Env Protection	√	√					
U.S. Natl Park Service	√	E					
White Pine County Commission		E					
KEY: √ - Present E - Excused V - Vacant U - Unexcused							

Draft Recommendation – Infrastructure Improvement

Steve Rosenbaum, Nevada Site Specific Advisory Board (NSSAB)
Northern New Mexico Citizens' Advisory Board (NNMCAB)

Background:

Originally, this work product initiative from Nevada started as a transportation centric issue only. Research into this topic morphed into a deeper look into critical infrastructure with additional discoveries of the needs in our communities. U.S. Department of Energy (DOE) involvement will continue to support communities tied to Environmental Management (EM) activities.

The Area 5 Radioactive Waste Management Complex (RWMC) in Nevada and the Waste Isolation Pilot Plant (WIPP) in New Mexico are unique as both facilities accept and dispose waste from other DOE sites. A primary concern within the EM Site-Specific Advisory Board is safety and adequate infrastructure to support DOE/EM and by de facto other DOE operations. This does not stop at just DOE/EM sites, but encompasses the entire nation and some international arenas.

The first time in decades, Infrastructure Renewal is a priority. This administration has been favorable with its budget treatment toward DOE. This administration has also urged agencies to desilo and collaborate on projects that have interest in multiple jurisdictions, both federal, state and its political subdivisions, as well as public/private partnerships.

Radiation still has a critically dangerous reputation, even though such commodities, such as, chlorine for water treatment and anhydrous ammonia for industrial refrigeration, are far more dangerous. By Infrastructure Renewal to support DOE/EM, it also brings an added benefit of making transportation of other hazardous materials safer, as well as for EM and other DOE sites.

Infrastructure Renewal addresses Critical Infrastructure (CI) and its relationship to DOE/EM. CI is a series of systems, assets, and services that are necessary to ensure security, safety, and health. CI supports the nation's economy and maintains public confidence. Destruction or compromise of any of these systems or services would have a debilitating impact on the area of incident, either directly through interdependencies or from cascading effects.

CI has 17 distinct sectors and EM and its advisory boards in Nevada and Northern New Mexico have a direct interest with eight of these sectors:

<u>Sectors:</u>	<u>NSSAB:</u>	<u>NNMCAB:</u>
Chemical and HazMat	X	X
Defense	X	X
Government Facilities	X	X
Nuclear Power		
Telecommunications		
Banking And Finance		
Critical Manufacturing		
Emergency Services	X	X
Information Technology		
Postal Services		
Transportation	X	X
Commercial Assets		
Dams		
Energy	X	X
National Monuments		
Public Health	X	X
Water and Wastewater	X	X

Current Situation/Issues:

Chemical and HazMat Sector – Continued vigilance and continuous process improvement in regard to the Radioactive Waste Acceptance Program, DOE’s Motor Carrier Evaluation Program, and safety, technology, and environmental changes affecting EM operations.

Transportation Sector (roadways) – All designations of roadways failing (local, county, State, US, Interstate, and special construction – bridges, tunnels, etc.) at some level.

Interstate 11 (I-11) was authorized in 1995 to complete the interstate highway system. Currently in Nevada, I-11 is in various phases from conceptual to a completed segment. Where I-11 is scoped, US 95 is the northern and southern terminus of the Rad Waste routes to the Nevada National Security Site (NNSS). Until I-11 is done and upgraded to interstate requirements, US 95 is still roadworthy, but far from being ideal. Additionally, future Rad Waste shipping campaigns will contribute to infrastructure degradation. There is an Environmental Impact Statement (EIS) pending that will require 175,000 truckloads of Rad Waste from Portsmouth/Paducah to the NNSS Area 5 RWMC. Also, an additional EIS may require thousands of truckloads from Santa Susana Field Laboratory in California to the NNSS Area 5 RWMC, which is in addition to the normal shipments. Again for Nevada, there are five primary military/joint sites along the new I-11 route, aka US 95: Creech Air Force Base, NNSS, Nevada Test and Training Range, Hawthorne Army Depot, Fallon Naval Air Station and National Guard, as well as Civil Air Patrol support facilities. These facilities will also contribute to load requirements along the route.

For Nevada, these are some of the issues on US 95 (aka future I-11):

At the entry to NNSS, the off site at the terminus of the northern and southern route from the main gate to State Route 160 along US 95 is mountainous and two lane. This is small stretch of road that has had numerous close calls with smaller and big rig vehicles as they were run off the road during illegal passing.

UPDATE from February 2019: During a DOE/EM Low-Level Waste Stakeholders Forum quarterly meeting, concerns were raised with the Nevada Department of Transportation by Nye County Emergency Management and this section of road is now on the planning/project schedule.

In the township of Beatty, Nevada, all traffic must come to a stop because of a four-way stop sign requiring big rigs to make hard ninety degree turns to continue on US 95. This is a major choke point.

In the town of Goldfield, Nevada, the road has a hard ninety degree turn that has no buffer for pedestrian or adjacent property setbacks.

In the town of Hawthorne, Nevada, there is a truck bypass route that needs a traffic signal at the southern end of the bypass or needs a ramping system to reenter US 95.

Defense and Government Facilities – Onsite infrastructure is failing at an accelerated rate as deferred maintenance programs are in place. (Waste Management Symposia, 2017, Phoenix, AZ presentation) In particular at the NNSS, there are pavement failures onsite partially due to a 500-year flood event a few years ago, as well as the current operations. Some utility types are being upgraded (power). Other utilities are not being upgraded and are in need. Buildings in active, deferred, or abandoned status also need attention.

Energy, Water, and Waste Water Sectors – By being aligned with transportation routes, transportation is a contributing factor toward degradation issues of pipelines, infiltration of contaminants from pipelines, and general contaminants from Cold War testing with migration to proximity of populous and issues of environmental degradation (EM's mission to prevent).

Emergency Services Sector/Public Health Sector - Rural/frontier areas are decreasing in population. Taxing rural emergency management are issues of longer response times, staffing, and equipment. For Nevada, the Nye County Emergency Management Services, a mutual aid responder to the NNSS and who are volunteers, is in shambles with fear of shut down. Populations in the frontier areas have lost their lifeline to acute medical care. Tonopah Hospital is closed. There is not enough coverage for acute medical issues. Ambulance runs often take up to eight hours because the nearest hospitals are in California or Reno, Nevada. The closing of the hospital in Tonopah, Nevada may also change the mortality rate, as well as medical outcomes of patients in central Nevada. The new paradigm of Medivac is a costly service, compounding spiraling healthcare costs. Although highlighted in the NNSS adjacent scenario, this is a statewide problem in frontier Nevada, as well as nationwide along the HazMat/Rad Waste transportation routes.

Recommendations:

Establish a program of remediation of issues on transportation routes with U.S. Department of Transportation (DOT), State, and local government agencies along the Rad Waste corridors, resulting in a priority list of improvements, budget sources, time frame, and implementation.

Establish a program for reinforcement of Emergency Medical Critical/Public Health Infrastructures with DOT, and U.S. Department of Health and Human Services, State and local government agencies, and public/private partnerships, resulting in a priority list of improvements, budget sources, time frame, and implementation.

As with encompassing recommendations, we are not under any illusion of snapping our fingers and it will be done. It will take time and money. Lots of money, but we are looking for a start. As earlier stated, favorable attitudes toward infrastructure environment is here now, and let's not waste an opportunity to begin.

DRAFT

Appendix:

(Source: Grants.Gov, ECA Newsletter 9/2018, NV Dept. of Emer. Mgm't Website)

Some, not all the traditional funding sources and some out of the box funding resources available to collaborate with our partners:

Emergency Management Arena:

DHS - State Homeland Security Program (SHSP)

DHS -Urban Area Security Initiative (UASI)

FEMA

Emergency Management Performance Grant (EMPG): Emergency Management Performance Grant provides assistance for the development, maintaining, and improvement of state and local emergency management capabilities.

Agreement in Principle (AIP) - U.S. Department of Energy grants to support comprehensive Emergency Management (Six Eligible NV Counties: Clark-Elko-Esmeralda-Nye-Lincoln- White Pine).

Department of Defense:

Innovative Readiness Training Program – Allows for military construction to be used for civil projects for training of Combat Engineers of all branches of service.

Defense Community Infrastructure Pilot Program – A program to provide funding to state and local government for projects that enhance military activities and resilience at or near military installations.

DOT:

Federal-State Partnership for State of Good Repair Program/Federal Railroad Administration – Maintain a safe state of operation for railroad infrastructure to DOE sites.

Nationally Significant Federal Lands and Tribal Projects (NSFLTP)/DOT Federal Highway Administration - The NSFLTP Program provides an opportunity to address significant challenges across the Nation for transportation facilities that serve Federal and Tribal lands

AID Demonstration/DOT Federal Highway Administration - The FHWA continues the Accelerated Innovation Deployment (AID) Demonstration authorized within the Technology and Innovation Deployment Program (TIDP) under the Fixing America's Surface Transportation (FAST) Act. The AID Demonstration provides incentive funding for any project activities eligible for assistance under title 23, U.S.C. in any phase of a highway transportation project between project planning and project delivery including planning, financing, operation, structures, materials, pavements, environment, and construction that address the TIDP goals.

Hazardous Materials Emergency Preparedness (HMEP) – Provide financial and technical assistance as well as national direction and guidance to enhance State, Territorial, and Local hazardous materials emergency planning and training

Dept. of Treasury:

Social Impact Partnerships to Pay for Results Act Demonstration Projects - The U.S. Department of the Treasury (Treasury) invite applications from State and local governments for awards under the Social Impact Partnerships to Pay for Results Act (SIPPPRA). SIPPPRA was signed into law on February 9, 2018 and is intended to improve the effectiveness of certain social services. The purposes of SIPPPRA are 1) to improve the lives of families and individuals in need; 2) to redirect funds away from programs that, based on objective data, are ineffective, and into programs that achieve demonstrable, measurable results; 3) to ensure federal funds are used effectively on social services to produce positive outcomes for both service recipients and taxpayers; 4) to establish the use of social impact partnerships to address some of the Nation's most pressing problems; 5) to facilitate the creation of public-private partnerships that bundle philanthropic or other private resources with existing public spending to scale up effective social interventions already being implemented; 6) to bring pay for performance to the social sector, allowing the United States to improve the impact and effectiveness of vital social services programs while redirecting inefficient or duplicative spending; and 7) to incorporate outcomes measurement and randomized controlled trials or other rigorous methodologies for assessing program impact.

Dept. of Agriculture:

Distance Learning and Telemedicine Grants/Utilities Programs - Authorized by 7 U.S.C. §950aaa, the DLT Program provides financial assistance to enable and improve distance learning and telemedicine services in rural areas. DLT grant funds support the use of telecommunications-enabled information, audio and video equipment, and related advanced technologies by students, teachers, medical professionals, and rural residents. These grants are intended to increase rural access to education, training, and health care resources that are otherwise unavailable or limited in scope.

Dept. of Health and Human Services:

Public Health Emergency Preparedness (PHEP) Cooperative Agreement/Centers for Disease Control/OPHPR - This notice of funding opportunity is for the continued purpose of strengthening and enhancing the capabilities of state, local, and territorial public health systems to respond effectively (mitigate the loss of life and reduce the threats to the community's health and safety) to evolving threats and other emergencies within the United States and territories and freely associated states. This announcement provides clear expectations and priorities for recipients to strengthen and enhance the readiness of the public health system to save lives during emergencies that exceed the day-to-day capacity and capability of the public health emergency response systems. This announcement provides funds to ensure that PHEP recipients continue to advance development of effective public health emergency management and response programs as outlined in the Public Health Emergency Preparedness and Response Capabilities: National Standards for State, Local, Tribal, and Territorial Public Health. Recipients must develop strategies and activities based on the PHEP Logic Model and use findings from their jurisdictional risk assessments, capability self-assessments, National Health Security Preparedness Index, and incident after-action reports to inform their strategic priorities and preparedness investments.

DRAFT

Nevada Site Specific Advisory Board

Liaison Participation Needs Assessment Sub-Committee Report

Committee Members include: Richard Twiddy
Karen Eastman
Steve Rosenbaum

Discussion:

Some Liaison Members, to conduct Board Business, have had to travel great distances without compensation for travel expenses. This problem has been discussed on several occasions between members of the Board and some Liaisons regarding the need for funding assistance. The Board has appreciated the valuable input from Liaisons. The Board would like to assure that the Liaisons have every opportunity to continue to be fully engaged and involved with the Board activities. Thus, at the November meeting, the Board Chair assigned Members, listed above, to make inquiries to determine if the Liaisons have adequate resources to continue full participation in future meetings and activities.

Method:

The Sub-Committee Members contacted as many of the Liaison's as possible by phone to ask 2 primary questions:

1. In the past, have you had sufficient resources to allow attendance to the NSSAB meetings at various locations? If no, Why?
2. Do you believe you will have sufficient resources in the future to continue attendance of the NSSAB meetings? If no, why.

Results:

The Primary Liaison's from NYE county appear to have sufficient resources to continue to make full representation at the future Board meetings. Overall, it appears to be more of a time issue than budget. Their goal was to make as many of the meetings as possible. In some cases, they may send Substitutes.

The Primary Liaison from Clark county, and others locally, do not have a budget issue and make all the meetings as possible. One person in particular feels that a Liaison should be allowed to attend the EM SSAB Chairs/Vice-Chairs meeting. Funding is not a problem.

There is a budget issue with 3 counties including White Pine, Lincoln, and Esmeralda Liaisons. It is quite obvious all 3 have longer distances to travel and less resources because of lower population and tax funding. In fact, several Liaisons report traveling on their own dime, without refund. In one case there was some Federal funding that was utilized, however, that source has now gone. Thus, all 3 Liaisons involved stated that county funding was going to be tight in the future and it would help if some travel funding was provided. Moreover, they all felt it is important that they continue to be involved with NSSAB activities.

At this time, we have been unsuccessful in talking personally with the Consolidated Group of Tribes and Organizations liaison.

Conclusions:

During the Needs Assessment, we have determined that currently the NSSAB has more Liaisons than any of the other Boards around the country. Each Board's Deputy Designated Federal Officer is allowed to determine what liaison organizations will be extended an invitation to join the Board as a non-voting member. Currently there is no policy that allows for liaison travel, or any other, reimbursement.

It appears we, within the EM Nevada program, are fortunate to have such a diverse liaison group to assist the Board perform their functions. The various input from Liaisons have been excellent. Further, one could argue that the liaison process has been helpful with our Communication program, just completed in 2018, particularly within the outlying counties.

Thus, we conclude that the 3 counties with lower population including White Pine, Lincoln and Esmeralda should have travel expenses refunded by DOE EM. However, we as a Board cannot be involved in making this kind of decision.

Therefore, with the Needs Assessment and report complete, the Sub-Committee would like to recommend that the Board Chair set this item on the next meeting agenda (April 24, 2019) for a debate by all parties involved.

Respectfully,

Richard Twiddy
Karen Eastman
Steve Rosenbaum

Attachments:

Copies of conversations documented with various Liaisons
Sub-committee Plan
Memo to liaisons

CC: NSSAB Chair

Dina M. Williamson-Erdag (info only)
NSSAB Administrator

Attachment 1: Copies of conversations
documented with various Liaisons

NSSAB Liaison Input Regarding Participation

Lincoln County Commission (Twiddy):

12/13/18 at 10:15 am PST.

Spoke with commissioner Nathan Katschke, who was in Washington, DC. He will not be able to participate in a conference call over the next days and was willing to talk about the sub-committee work regarding Liaison resources required to continue to attend the NSSAB meetings.

He stated that in the past funding to attend the meetings was not really a big problem. There has been some Fed funding that helped, but that source has been pulled.

He stated that funding for travel would really help to make certain that someone would make all the future meetings. Currently, because of other duties there has been substitute members appointed by the Commissioner occasionally. The primary needs are travel, lodging, and meals while away at the meetings outside of Pioche.

He stated that attending the NSSAB meetings has been a priority and is important to his local community.

Esmeralda County Commission and White Pine County Commission (Twiddy):

12/14/18 at 9 a.m. PST.

NSSAB Member Richard Twiddy and NSSAB Administrator Barb Ulmer visited with Commissioner Delon Winsor, Esmeralda County, and Commissioner Richard Howe, White Pine County, via teleconference. Member Twiddy initiated discussion by letting the commissioners know that the time and the input that the liaisons put into NSSAB meetings is appreciated and important to the Board to reach a common goal.

Member Twiddy asked the commissioners 2 questions:

1. In the past, have you had sufficient resources to allow attendance to the NSSAB meetings at various locations? If no, why?

Commissioner Winsor: He stated that he pays for travel to the meetings out of his own pocket for gas and meals. He stays overnight at his mother's house to avoid lodging costs. The county resources are very limited. They have recently received even less funding from the State, which has made their budget even tighter.

Commissioner Howe: He stated that the county's resources are limited. It is costly to attend meetings, especially in Las Vegas, with a 5-hour round trip from Ely to Las Vegas. It costs around \$1,000 to attend an NSSAB meeting in Las Vegas with the costs of lodging, gas, food, etc. The county does have around \$1,000/year earmarked for travel, but county

representatives typically use that funding to make 3-4 trips per year to the state legislature. He continued that the county needs to be involved in EM activities as if affects their county, although the day-to-day business of the county takes considerable amount of time, also, many of the commissioners have businesses or otherwise employed. These were factors (funding and time constraints) in the decision to become a “limited” liaison this year.

Commissioner Howe noted that commission meetings are held on the 2nd and 4th Wednesdays of each month, which conflicts with NSSAB meetings. Barb Ulmer clarified that the NSSAB typically meets on the 3rd Wednesday* unless there is a national conference or other conflict, such as spring break, on the calendar. Commissioner Howe noted that he is currently the Chair of the commission, and there will be 2 new commissioners starting the beginning of the calendar year. He will put it on the January 2, 2019 agenda to determine if there is an incoming commissioner who would be interested in attending NSSAB meetings as a liaison. As an alternative, there was discussion that the new fire chief or emergency manager in White Pine County may have interest in attending NSSAB meetings.

2. Do you believe you will have sufficient resources in the future to continue attendance of NSSAB meeting? If no, get specific needs.

Commissioner Winsor: County funding will continue to be tight in the upcoming year. Primary needs are travel, lodging, and meals to attend NSSAB meetings.

Commissioner Howe: Same as Commissioner Winsor. Reiterated that it takes about a \$1,000 to attend an NSSAB meeting with lodging, travel, and meals.

Member Twiddy concluded by thanking the commissioners for their participation. He informed them that the committee is gathering information from all the NSSAB liaisons in order to report to the Full Board at the January 16th meeting in Pahrump. The NSSAB will then decide on its path forward.

*Upcoming NSSAB meetings:

- January 16, 2019 in Pahrump, NV (third Wednesday)
- March 20, 2019 in Amargosa Valley, NV (third Wednesday)
- April 24, 2019 in Las Vegas, NV (fourth Wednesday due to spring break)
- July 17, 2019 in Las Vegas, NV (third Wednesday)
- September 18, 2019 in Las Vegas, NV (third Wednesday)

Phil Klevorick – Clark County (Eastman):

1/14/19 at 11:15 a.m.

NSSAB Member Karen Eastman and NSSAB Administrator Barbara Ulmer visited with Phil Klevorick, Clark County, via teleconference. Member Eastman asked Liaison Klevorick if there was anything that the NSSAB could do to make it easier for him or accommodate him in regard to participating in NSSAB meetings. Phil thanked Karen for the call. He reminded her that at the last meeting in Pahrump, there was discussion that it seemed like a problem for liaisons from rural counties to participate due to budgetary constraints (he mentioned Connie Simkins from Lincoln County.)

In regard to his and the current county situation, it is not an issue for Clark County to participate at NSSAB meetings as it is understood that there are additional costs involved. He asked if there was an option to call-in or video-in. NSSAB Administrator Ulmer noted that the option to call-in is available at most meeting locations.

Liaison Klevorick mentioned that something that has bothered him for 10 years is liaison participation in EM SSAB National Chairs' Meetings. He felt that it would be valuable for EM SSAB liaisons or at least one liaison from each local Board meet at the same time as the EM SSAB Chairs/Vice-Chairs as they have a lot in common.

Richard Friese – National Park Service (Eastman):

3/18/19 at 2:45 p.m.

NSSAB Member Karen Eastman and NSSAB Administrator Barbara Ulmer visited with Richard Friese, National Park Service, via teleconference and asked the following questions:

1. In the past, have you had sufficient resources to allow attendance to the NSSAB meetings at various locations? If no, why?

Liaison Friese responded that he has the full support of his supervisors to attend NSSAB meetings, and the only time that he cannot attend is if he has a scheduling conflict. In order for him to attend both the NSSAB meeting and the Intergovernmental Meeting, it is a full day with the 2.5 hour commute both ways. He mentioned that it would be helpful to him to have the meetings start earlier.

2. In the past, have you had sufficient resources to allow attendance to the NSSAB meetings at various locations? If no, why?

Liaison Friese responded that he has not approached his supervisors to request travel status for the NSSAB meetings. If he has stayed overnight after an NSSAB meeting, he has made the choice to cover the costs of a hotel on his own and used the trip for personal errands.

Nye County: John Klenke and Darrell Lacy from Nye County Nuclear Waste Repository Office; Scott Lewis, Patrick Lazenby, Rod Fernandez from Nye County Emergency Management (Rosenbaum):

1/14/19 at 2 p.m.

NSSAB Member Steve Rosenbaum and NSSAB Administrator Barbara Ulmer visited with Nye County officials via teleconference. NSSAB Member Rosenbaum asked the following questions:

1. In the past, have you had sufficient resources to allow attendance to the NSSAB meetings at various locations? If no, why?

Liaison Lewis responded that is logistically challenging to get to a meeting held in Las Vegas, especially with the current blasting on SR 160. In the best conditions, it can take 1.5 - 2 hours to get to the Frank Rogers Auditorium. It also takes that long to return to Pahrump after NSSAB meetings. The Mountain Pass project is scheduled to take another 2-3 years. It is not a problem for Nye County to attend meetings in the rural communities. John Klenke asked whether the meetings could be held on the west side of Las Vegas as it would be more central and less of a time commitment for driving (he referenced the meeting that was held at the West Career and Technical Academy on Charleston Blvd). Liaison Klenke did ask about gas reimbursement for liaisons. Member Rosenbaum responded that this would need to be run through DOE. Darrell Lacy noted that Nye County usually had at least one liaison at the meetings. (overall, seems to be more of a time issue rather than budgetary issue for Nye County)

2. Do you believe you will have sufficient resources in the future to continue attendance of NSSAB meeting? If no, get specific needs.

Liaison Lewis responded that with the resources available that it is Nye County's goal to make as many NSSAB meetings as possible.

Member Rosenbaum opened the conversation up for further discussion.

Liaison Lewis suggested keeping the meetings to a certain time frame, as the meetings can drag on a bit. Everyone's time is valuable; so make sure that the discussion is meaningful. Liaison Klenke asked if the liaison updates could be held at the beginning of the meeting if a liaison needed to leave early. He noted that was how the meetings were currently structured, but could it be "official". He added that the NSSAB does a good job with all the different voices and all the ground covered. Member Rosenbaum asked if it would be better to have shorter meetings and more of them. The answer was a resounding no.

Attachment 2: Sub-committee Plan

Nevada Site Specific Advisory Board

Liaison Need Survey --Sub-Committee

Sub-Committee Members:

Richard T. Twiddy (rtwiddy@gmail.com)

Karen K. Eastman (kkeastman61@yahoo.com)

Steve Rosenbaum (J3imrockford@gmail.com)

Interested Parties:

Frank Bonesteel (NSSAB Chair)

Dina M. Williamson-Erdag (Information only)

Kelly Snyder (DOE EM Deputy Designated Federal Officer)

Barb Ulmer (Administrator)

PROBLEM DESCRIBED:

In the past, some (not all), Liaisons have complained they could not attend the NSSAB meetings as committed because of inadequate resources. It was explained that they occasionally had to use limited county funding, from other important needs, and could not justify the expenses to their taxpayer constituents.

POSSIBLE SOLUTION:

Generally, most Liaisons have been consistent and regular in attending the past NSSAB meetings. Obviously some funding is necessary to continue adequate participation. The Sub-committee will look into what needs are necessary, if any, and the best way to do that would be to have some conversations with the primary Liaisons and the 1 Limited Liaison.

PLAN:

Conduct an individual conversation with the Liaisons to determine what they may need to continue with full meeting participation.

The Liaison members from the smaller communities, of greater distance from the meeting locations, might have the most need. However, it may be best to discuss the situation with all 9 Primary and the 1 Limited Liaison listed in the October 2018 roster, to get full input.

Between the period of 11/30/18 thru 1/10/18 each Liaison addressed above will be contacted via phone for a conversation regarding needs. The calls will be spread between the 3 sub-committee members as listed above to assist with time constraints.

The conversations should include:

1. In the past, have you had sufficient resources to allow attendance to the NSSAB meetings at various locations? If no, Why?
2. Do you believe you will have sufficient resources in the future to continue attendance of NSSAB meeting? If No, get specific needs.

CONCLUSION:

The conversations will serve two purposes. 1. Try to determine that members have sufficient resources to continue participation and attendance with NSSAB meetings. 2. Let the individual Liaisons know how important that we members of NSSAB value their input and participation.

This exercise should not make any committed statements to secure additional resources, if needed, but is only to detail those needs, and where needed.

Additional steps will be required by the full committee if added resources are detailed.

A final report should be ready by January Meeting for full committee review.

Attachment 3: Memo to Liaisons

Richard T. Twiddy, Chair
Liaison Need Survey, Sub-Committee
Nevada Security Site Specific Advisory Board
(702) 613-4562
E-mail: rtwiddy@gmail.com

Good Day Everyone.

The best of the Holiday Season to each.

The Nevada Site Specific Advisory Board (Board) wants to make certain the Liaisons fully understands their value to the Board. We appreciate the efforts you put towards our common goal. Your input, and especially update information, is extremely important to us, and helps us meet our obligations.

It is true that Liaison participation overall has been excellent. In the past, however, we have heard, in unofficial sidebar conversations, that some members may be finding it difficult to maintain their participation with the Board because of resources. Thus, the Board has set up a sub-committee with Board members, Dick Twiddy (rtwiddy@gmail.com), Karen Eastman (kkeastman61@yahoo.com), and Steve Rosenbaum (j3imrockford@gmail.com) to contact each Liaison to determine if individual resources could be a deterrent to full participation in the future.

The Sub-Committee members would like to arrange a convenient time to talk one on one via phone or E-mail, if that is more convenient, with each Liaison. We would like to have all the data before January 10, 2019 in order to make a report to the full Board at the next meeting scheduled for January 16, 2019 in Pahrump.

Thank you for taking the time to be a part of the information gathering. One of the Sub-Committee members may be contacting you individually soon.

NEVADA SITE SPECIFIC ADVISORY BOARD

Need to Increase Number of Liaisons – Sub-Committee

Sub-Committee Members:

Dina Williamson-Erdag

Donald Neill

Interested Parties:

Frank Bonesteel (NSSAB Chair)

Kelly Snyder (DOE EM Designated Federal Officer)

Barb Ulmer (Administrator)

TASK AT HAND:

There are currently 9 “Full Liaisons” and 1 “Limited Liaison” organizations seated on the NSSAB. These liaisons are tasked 1) to inform the NSSAB with information pertinent to the Board’s mission and purpose, and, 2) to allow the liaisons access to EM information related to NSSAB activity. The question before us is “Would the NSSAB and/or the local communities that are impacted by events at the Nevada National Security Site (NNSS) be better represented if additional liaisons were invited to sit at the table”.

POSSIBLE SOLUTIONS:

There were two possible solutions present:

1. The liaison representation we currently have seems to be sufficient, both in number and information they share.
2. Perhaps current NSSAB members and liaisons could identify community stakeholders whose voices are not currently being heard, (i.e. Chamber of Commerce, volunteer EMT organizations).

PLAN:

If additional stakeholders are identified then a functional plan and process for moving forward can be proposed.

CONCLUSION:

It may be necessary for the Liaison Need Survey Sub-Committee to complete their work before a functional plan to increase the number of Liaisons on the NSSAB can proceed.

Risk-Informed Spreadsheet

White Paper

Purpose: The Risk-Informed Spreadsheet was prepared as a management tool to allow the U.S. Department of Energy (DOE) Environmental Management (EM) Nevada Program to aid in evaluating the relative risk of the wastes associated with each of the generator sites. The relative risk is defined as the sum of potential opportunities for the waste generator to take an action that might result in a *Nevada National Security Site Waste Acceptance Criteria* (NNSSWAC) non-compliance.

Background: Annually, the Radioactive Waste Acceptance Program (RWAP) prepares a Facility Evaluation schedule. This schedule identifies an audit, surveillance, or table top assessment for each site and the lines of inquiry to be reviewed. If a generator site provides notification that waste will not be shipped to the Nevada National Security Site (NNSS) within the year, the facility evaluation may be canceled, and the generator would be advised that an evaluation would be required prior to resuming shipments to the NNSS. The five lines of inquiry are: Radiological Characterization; Chemical Characterization and Classification; Traceability; Quality Assurance; and Transportation. Based on the lines of inquiry assigned for each facility, RWAP auditors are assigned and dates for the evaluation are coordinated with the State of Nevada Division of Environmental Protection and DOE EM Nevada Program.

By evaluating the relative risk, federal and contractor RWAP resources, such as personnel, can be directed to the higher-risk generator sites. Audits assess all lines of inquiry to ensure the generator's program is compliant with the NNSSWAC. Audits are conducted at the generator site and are scheduled for three days. Surveillances are similar to audits, but generally focus on two of the lines of inquiry. Surveillances are also conducted at the generator site. Table top assessments are similar in scope and time as the surveillance, but are conducted without traveling to the generator site. New generators are required to undergo a full audit as part of its program approval prior to shipping waste to the NNSS.

Risk Attributes:

Previous fiscal year actuals:

- Number of shipments
- Number of packages
- Low-level waste (LLW) shipped to the NNSS (cubic feet)
- Mixed low-level waste (MLLW) shipped to the NNSS (cubic feet)
- Activity (curies)
- Findings - a noncompliance with an applicable federal/state law, DOE rule or order, DOE or approved procedure or plan, or other significant governing practice. Findings require a response in the form of a corrective action plan that must address corrective actions taken to fix the noted condition, root cause, action to preclude recurrence, and proposed completion date.

- Observations - a condition that is not a violation of a requirement, but if left unattended could lead to a finding or nonconformance. Observations require a written response describing whether the generator intends to take action. If taking action, address the corrective actions taken to monitor and/or improve the condition. Observations identified do not require a root-cause analysis, but are not considered isolated.
- Number of deviation requests –deviation requests are requests to deviate from administrative criteria or other criteria that do not compromise the performance objectives for the disposal site or do not provide relief from regulatory criteria. Deviation requests are evaluated on a case-by-case basis.
- Number of Type B containers shipped

Forecasted waste volumes:

- LLW
- MLLW

Others

- Oversight program
- Use of Type B containers
- Is waste from decontamination and decommissioning (D&D) projects?
- Other considerations
- Is the waste special/unique/sensitive?

Calculating the Risk Score: The risk score is calculated by first determining the weight of each attribute. A weight between 5 and 25 was assigned to each attribute. The second step is to follow the instructions below for each attribute:

Attribute	Weight	Determining Which Generator Should Receive a Score ¹
	Previous Fiscal Year Actuals	
Number of Shipments	5	Review the number of shipments each generator makes to the NNSS. The top five generators who make the most shipments receive a score of 5.
Number of Packages	15	Review the number of packages sent to the NNSS by each generator. The top five highest number of packages receive a score of 15.
LLW Shipped to the NNSS	5	Review the volume of LLW sent to the NNSS for disposition by each generator. The top four highest volume generators receive a score of 5.
MLLW Shipped to the NNSS	5	Review the volume of MLLW sent to the NNSS for disposition by each generator. The top three highest volume generators receive a score of 5.
Activity	15	Review the sum of waste activity for each generator. The top four with the highest activity submitted in curies receive a score of 15.
Findings	25	Review the findings issued to each generator from the previous fiscal year, if any. Any generator with two or more findings receives a score of 25.
Observations	10	Review the observations issued to each generator from the previous fiscal year, if any. Any generator with three or more observations receives a score of 10.
Number of Deviation Requests	5	Review the number of NNSSWAC deviations requested by each generator from the previous fiscal year, if any. Any generator requesting three or more deviations receives a score of 5.
Number of Type B Containers Shipped	5	Review the number of Type B containers sent to the NNSS as shipping containers, if any. Any generator shipping 3 or more Type B shipping containers receives a score of 5.

	Forecasted Waste Volumes	
LLW	5	Review the volume of LLW forecasted to be shipped to the NNS for disposition by each generator. The top five highest forecasted volume generators receive a score of 5.
MLLW	5	Review the volume of MLLW forecasted to be shipped to the NNS for disposition by each generator. The top four highest forecasted volume generators receive a score of 5.
	Other	
Oversight Program	5	If the oversight program is not EM or National Nuclear Security Administration, then the generator receives a score of 5.
Is Waste from D&D Project?	5	If the generator is shipping D&D waste to the NNS for disposition, then the generator receives a score of 5.
Commercial Generator (treated DOE waste)	5	If the generator is a commercial NNS waste generator, then the generator receives a score of 5.
Other Considerations	10	If the shipping campaign is considered large, then the generator receives a score of 10.
Is the Waste Special/Unique/Sensitive?	15	If the waste being shipped is considered special/unique/ sensitive, then the generator receives a score of 15.

¹ By reviewing the data for each attribute, professional judgment is used to determine the break point used to determine which generators will receive a score for each attribute.

The third step in calculating the risk score is to sum the attribute scores for each generator. This step will result in a total calculated risk score, which is used to rank the generators. Using the total calculated risk score for each generator, the generators are divided up into high-, medium-, and low-risk groups. This determination is based on professional judgment. Experience shows that generators receiving a total calculated risk score of 40 or more are considered the higher-risk generators, and generators scoring below 20 are the lower-risk generators.

Conclusion: The Risk-Informed Spreadsheet is a tool that RWAP has developed to evaluate generators and the potential risks associated with their wastes. This information is used to target RWAP and federal resources to Facility Evaluations to address more likely risks.

RISK-INFORMED SPREADSHEET

Generator	# SHIPMENT	# PACKAGES	LLW	NRC	MLLW	NRCH	ACTIVITY (curies)	FINDINGS *	OBSER	# of Deviations	OVERSIGHT	TYPE B	D&D WASTE	COMMERCIAL	OTHER CONSIDERATION	SPECIAL/UNIQUE/SENSITIVE - EXAMPLES ONLY	DATE OF LAST AUDIT	LLW Forecast (ft ³)	MLLW Forecast (ft ³)	NRC (ft ³)	NRCH (ft ³)	CALCULATED RISK SCORE	OVERALL RANKING	
CNS Y-12	114	1,655	129,483	0	8,954	0	1.332E+01	0	0	0	NNSA	0				Soils	10/16/2014	144,518	9,538	0	0	50	1	
Energy Solutions-Bear Creek (DRTK)	4	5	1,422	0	1,306	0	2.301E+03	0	0	1	ALL	1		X		U-233 Waste	1/17/2013	4,004	0	0	0	45	2	
Portsmouth Gaseous Diffusion Plant	123	712	216,400	0	0	0	2.570E+01	0	1	1	EM	0	X		Large Ship Campaign		4/9/2015	631,229				45	2	
Idaho Cleanup Project (ICP) (Fluor Idaho) ⁴	80	566	12,750	0	11,281	0	2.790E+02	0	4	0	EM	40	X			Roaster Oxide	9/15/2016	15,641	13,320	0	0	45	2	
Advanced Mixed Waste Treatment Plant (AMWTP) ⁴	105	639	12,435	0	80,838	0	3.783E+01	0	1	1	EM	0				Pucks	9/15/2016	15,252	31,776	0	0	40	6	
Lawrence Livermore National Laboratory	25	149	26,814	0	164	0	1.455E+05	1	0	1	NNSA	11				Spheres	2/9/2017	61,360	150	0	0	40	6	
Nuclear Fuel Services	15	944	9,418	0	0	0	5.398E+00	0	1	0	Other	0		X		Chromium Exclusion	5/18/2017	7,831	0	0	0	40	6	
Oak Ridge Reservation (UCOR)	143	684	79,822	0	3,554	0	7.336E+01	0	0	0	EM	0	X			Melton Valley Storage Tank Sludge, U-233	9/27/2018	53,348	3,859	0	0	40	6	
M&EC Perma-Fix ¹	26	70	9,815	0	2,268	94	1.168E+03	0	4	0	NNSA/EM	0		X			7/14/2011	36,490	585	0	0	30	10	
MSTS (NNSS)	40	77	6,349	1,383	347	172	8.370E+00	0	5	3	NNSA/EM/DoD	0				BWXT Shapes, Spheres	4/5/2018	3,760	165	2,725	640	30	10	
Paducah Gaseous Diffusion Plant (PGDP)	0	0	0	0	0	0	0.000E+00	2	1	0	EM	0	X			Characterization Issue Notification	4/26/2018	6,990	47	0	0	45	2	
Pantex Plant	6	7	2,881	0	322	221	3.184E-01	2	0	0	NNSA	0					5/23/2013	2,720	19	0	19	25	12	
Oak Ridge National Laboratory (UT Battelle)	21	63	48,467	0	0	0	1.255E+04	0	0	1	Science	3					1/12/2017	13,814	0	0	0	25	12	
Navarro	211	422	102,199	0	0	0	7.592E+01	1	0	1	EM	0			Large Ship Campaign		7/12/2018	173,304	0	0	0	25	12	
Idaho National Lab (BEA)	46	251	30,539	2,564	0	0	1.515E+02	1	3	1	NE	0			Access protocols		7/12/2018	23,505	585	6,200	0	25	12	
Los Alamos National Laboratory	43	334	28,199	0	0	0	8.187E+00	0	1	2	NNSA/EM	0	X			U-233 Waste	9/24/2015	56,400	2,500	100	0	20	16	
West Valley Demonstration Project	104	327	113,509	0	0	0	1.898E+02	1	0	5	EM	0	X				10/19/2017	96,000	0	0	0	20	16	
Depleted Uranium Hexafluoride Conversion Project (DUF6) ²	6	12	13,855	0	0	0	5.554E-02	1	0	0	EM	0				Conversion Product	9/25/2014	4,692	47	0	0	15	18	
Savannah River National Laboratory	0	0	0	0	0	0	0.000E+00	0	0	0	NNSA	0				Treatment Plant Waste	11/19/2015	1,820	0	0	0	15	18	
Argonne National Laboratory	0	0	0	0	0	0	0.000E+00	0	4	0	Science	0					6/22/2017	0	0	0	0	15	18	
Brookhaven National Laboratory	0	0	0	0	0	0	0.000E+00	1	6	0	Science	0					5/10/2018	1,356	0	0	0	15	18	
Berkeley (Old Town Decommissioning) ⁵	138	402	89,497	0	11,251	0	7.511E-01	0	0	0	EM	0										10	22	
General Atomics	0	0	0	0	0	0	0.000E+00	0	0	0	Other	0					7/15/2004	2,400	0	0	0	5	23	
TRU Waste Processing Center	20	503	12,813	0	5,868	0	1.666E+01	0	0	1	EM	0					8/25/2016	16,770	9,090	0	0	5	23	
Aberdeen Proving Ground	11	60	6,674	0	0	0	8.855E+00	0	1	0	Other	0					8/10/2017	2,112	0	0	0	5	23	
Knolls Atomic Power Lab ⁵	5	33	670	0	9	0	4.421E+01	0	0	0	Other	0										5	23	
Sandia National Laboratory	15	116	3,252	1,001	2,650	684	8.758E+02	0	1	0	NNSA/EM	0					11/3/2016	2,250	2,300	450	330	0	27	
ORNL U233 Disposition Project (Isotek) ³	0	0	0	0	0	0	0.000E+00	0	0	0	EM	0											0	27
Totals	1,301	8,031	957,262	4,949	128,812	1,171	1.633E+05	10	33	18		55						1,377,566	73,981	9,475	989			
Points Awarded to Top X Rankings	5	5	4		3		4	1	6	2								5	4					
Points Awarded	5	15	5		5		15	25	10	5	5	5	5	5	10	15		5	5					
Average																	FY 2019				24.3			

¹ Includes M&EC, Northwest, and Florida Facilities

² Includes Portsmouth and Paducah

³ EnergySolutions Contract

⁴ ICP and AMWTP scored separately, will be assessed as Fluor Idaho

⁵ PermaFix Contract

* Findings can be from previous RWAP audits OR issues with waste shipments to other disposal facilities

LLW - Low Level Waste

NRC - Non-Radioactive Classified

MLLW - Mixed Low Level Waste

NRCH - Non-Radioactive Classified Hazardous

EM - Environmental Management

DoD - Department of Defense

NE - Nuclear Energy

NNSA - National Nuclear Security Administration

Other - work for others, Army, etc.

D&D - Decontamination and Decommissioning

Units

SHIPMENTS Number

PACKAGES Number

LLW cubic feet (ft³)

MLLW cubic feet (ft³)

FORECASTS cubic feet (ft³)

Radioactive Waste Acceptance Program (RWAP) Fiscal Year 2019 Facility Evaluation Schedule

03/11/2019

Start Date	Asst No	Generator	Title	Type	Lines of Inquiry	Location
10/16/2018	A-893	CH2M Hill B&W West Valley, LLC	West Valley Demonstration Project	Surveillance	Traceability Chemical	West Valley, NY
11/6/2018	A-894	North Wind Solutions, LLC	TRU Waste Processing Center	Surveillance	Quality Chemical	Oak Ridge, TN
12/10/2018	A-895	Sandia Corporation	Sandia National Laboratory	Surveillance	Quality Radiological	Albuquerque, NM
1/15/2019	A-896	Consolidated Nuclear Security, LLC (CNS-Pantex)	Pantex	RWAP Audit	Quality Traceability Chemical Radiological	Amarillo, TX
1/22/2019	A-959	Savannah River Nuclear Solutions (SNRS)	Savannah River Site	Tabletop Surveillance	Quality/ Traceability	Las Vegas, NV
2/5/2019	A-960	Battelle Energy Alliance (BEA)	Idaho National Laboratory	Tabletop Surveillance	Quality	Las Vegas, NV

Green = Facility Evaluation Completed

2019-037-EMRP

Radioactive Waste Acceptance Program (RWAP) Fiscal Year 2019 Facility Evaluation Schedule

03/11/2019

Start Date	Asst No	Generator	Title	Type	Lines of Inquiry	Location
2/12/2019	A-958	Mission Support and Test Services	Mission Support and Test Services	Surveillance	Traceability Chemical	Las Vegas, NV
2/26/2019	A-976	General Atomics	General Atomics	Surveillance	Quality Transport	San Diego, CA
3/19/2019	A-961	Consolidated Nuclear Security, LLC (CNS Y-12)	CNS Y-12	RWAP Audit	Quality Traceability Chemical Radiological Transport	Oak Ridge, TN
3/26/2019	A-962	URS CH2M Oak Ridge, LLC (UCOR)	Oak Ridge Reservation	Surveillance	Traceability Chemical	Oak Ridge, TN
4/9/2019	A-963	Lawrence Livermore National Security, LLC	Lawrence Livermore National Laboratory	RWAP Audit	Quality Traceability Chemical Radiological	Livermore, CA
4/23/2019	A-964	UT Battelle, LLC (UT-B)	Oak Ridge National Laboratory	Surveillance	Quality Radiological	Oak Ridge, TN

Green = Facility Evaluation Completed

2019-037-EMRP

Radioactive Waste Acceptance Program (RWAP) Fiscal Year 2019 Facility Evaluation Schedule

03/11/2019

Start Date	Asst No	Generator	Title	Type	Lines of Inquiry	Location
4/30/2019	A-977	U. S. Army	Aberdeen Proving Ground (US Army)	Surveillance	Chemical Radiological	Aberdeen, MD
5/1/2019	A-965	Mid-America Conversion Services Portsmouth	MCS DUF6 (Portsmouth)	Tabletop Surveillance	Traceability Radiological	Las Vegas, NV
5/14/2019	A-1010	Battelle Energy Alliance (BEA)	Idaho National Laboratory	Surveillance	Chemical Radiological	Idaho Falls, ID
5/14/2019	A-966	Fluor Idaho, LLC	Fluor Idaho -ICP and AMWTP	RWAP Audit	Quality Traceability Chemical Radiological	Idaho Falls, ID
6/4/2019	A-969	Fluor-BWXT/ Portsmouth	PORTS Gaseous Diffusion Plant	RWAP Audit	Quality Traceability Chemical Radiological	Portsmouth, OH
6/11/2019	A-968	Four Rivers - Paducah	Paducah Gaseous Diffusion Plant	Surveillance	Quality Radiological Chemical Transport	Paducah, KY

Green = Facility Evaluation Completed

2019-037-EMRP

Radioactive Waste Acceptance Program (RWAP) Fiscal Year 2019 Facility Evaluation Schedule

03/11/2019

Start Date	Asst No	Generator	Title	Type	Lines of Inquiry	Location
6/18/2019	A-967	Mid-America Conversion Services - Paducah	MCS DUF6 (Paducah)	Surveillance	Traceability Radiological	Paducah, KY
7/9/2019	A-970	Brookhaven Science Associates	Brookhaven National Laboratory	Tabletop Surveillance	Traceability Radiological	Las Vegas, NV
7/15/2019	A-981	Newport News Nuclear BWXT-Los Alamos (N3B)	EM LANL Program	RWAP Audit	Quality Traceability Chemical Radiological	Los Alamos, NM
7/23/2019	A-971	Nuclear Fuel Services (NFS)	Nuclear Fuels Services	Surveillance	Quality Radiological	Erwin, TN
8/6/2019	A-972	UChicago Argonne, LLC	Argonne National Laboratory	Tabletop Surveillance	Traceability Radiological	Las Vegas, NV
8/20/2019	A-973	Los Alamos National Security, LLC	Los Alamos National Laboratory	Surveillance	Traceability Radiological	Los Alamos, NM

Radioactive Waste Acceptance Program (RWAP) Fiscal Year 2019 Facility Evaluation Schedule

03/11/2019

Start Date	Asst No	Generator	Title	Type	Lines of Inquiry	Location
9/10/2019	A-974	EnergySolution / Bear Creek Operations	Energy Solutions-Duratek	Surveillance	Traceability Radiological	Oak Ridge, TN
9/17/2019	A-975	PermFix-DSSI	PermaFix-DSSI	RWAP Audit	Quality Traceability Chemical Radiological	Oak Ridge, TN
9/27/2019	A-988	Navarro	Navarro	Surveillance	Quality Traceability Chemical Radiological	Las Vegas, NV

Approach for Pahute Mesa Completion ~ Work Plan #2



Bill Wilborn

Deputy Program Manager, Operations
Environmental Management Nevada Program

March 20, 2019



EM *Environmental Management*

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

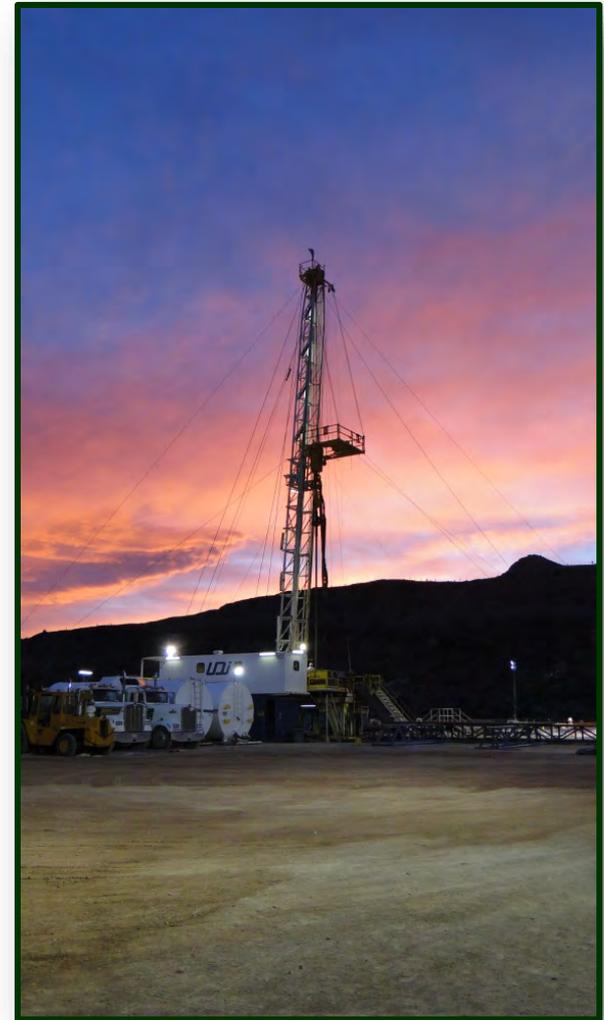
NSSAB Work Plan Item #2

- From a community perspective, provide a recommendation to the Environmental Management (EM) Nevada Program on if the more pragmatic approach for closure of Pahute Mesa is supported by the Nevada Site Specific Advisory Board (NSSAB) and/or how it could be improved
- The NSSAB recommendation is due by April 2019



Key Messages

- Current research shows the public water supply in Oasis Valley is safe from the impacts of historic underground nuclear testing
- Groundwater contamination affected by historic Nevada National Security Site (NNSS) activities has not gone beyond restricted Federal land
- Groundwater models will use current monitoring data to provide output that is key to enhancing current and developing future monitoring strategies



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

ID 2072 - 3/20/2019 – Page 3
2019-035-EMRP

Outline

1. Groundwater background
2. Pahute Mesa Corrective Action Unit (CAU) background
3. Approach to closure in Frenchman Flat, Yucca Flat, and Rainier Mesa CAUs
4. A more pragmatic approach for closure to Pahute Mesa and why it is being considered



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

Outline

1. Groundwater background
2. Pahute Mesa CAU background
3. Approach to closure in Frenchman Flat, Yucca Flat, and Rainier Mesa CAUs
4. A more pragmatic approach for closure to Pahute Mesa and why it is being considered



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

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
- Much of the contaminants are trapped in the test cavity
- Radioactive contamination has not been detected above the Safe Drinking Water Act (SDWA) standard in groundwater beyond the NNSS and the Nevada Test and Training Range (NTTR)



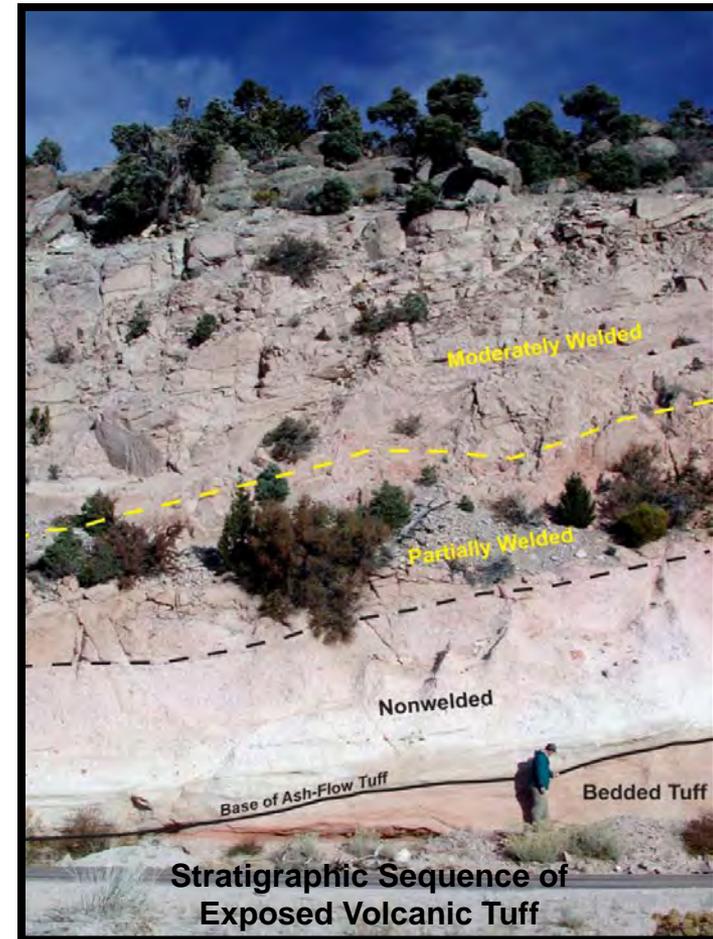
EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

Underground Test Area (UGTA) Activity

- Complex geology and hydrology of the NNSS presents unusual challenges in understanding boundary conditions, velocity, and direction of groundwater flow
 - Challenges addressed in UGTA strategy through drilling, well sampling, characterization, and computer model development
- No practical technology for clean-up
 - Natural processes occur that reduce and remove contamination



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

ID 2072 - 3/20/2019 – Page 7
2019-035-EMRP

Why Monitor NNSS Groundwater?

- Helps protect the public by providing a system of monitoring detection
- Provides baseline to establish existing conditions
- Identifies trends and verifies compliance with regulatory standards



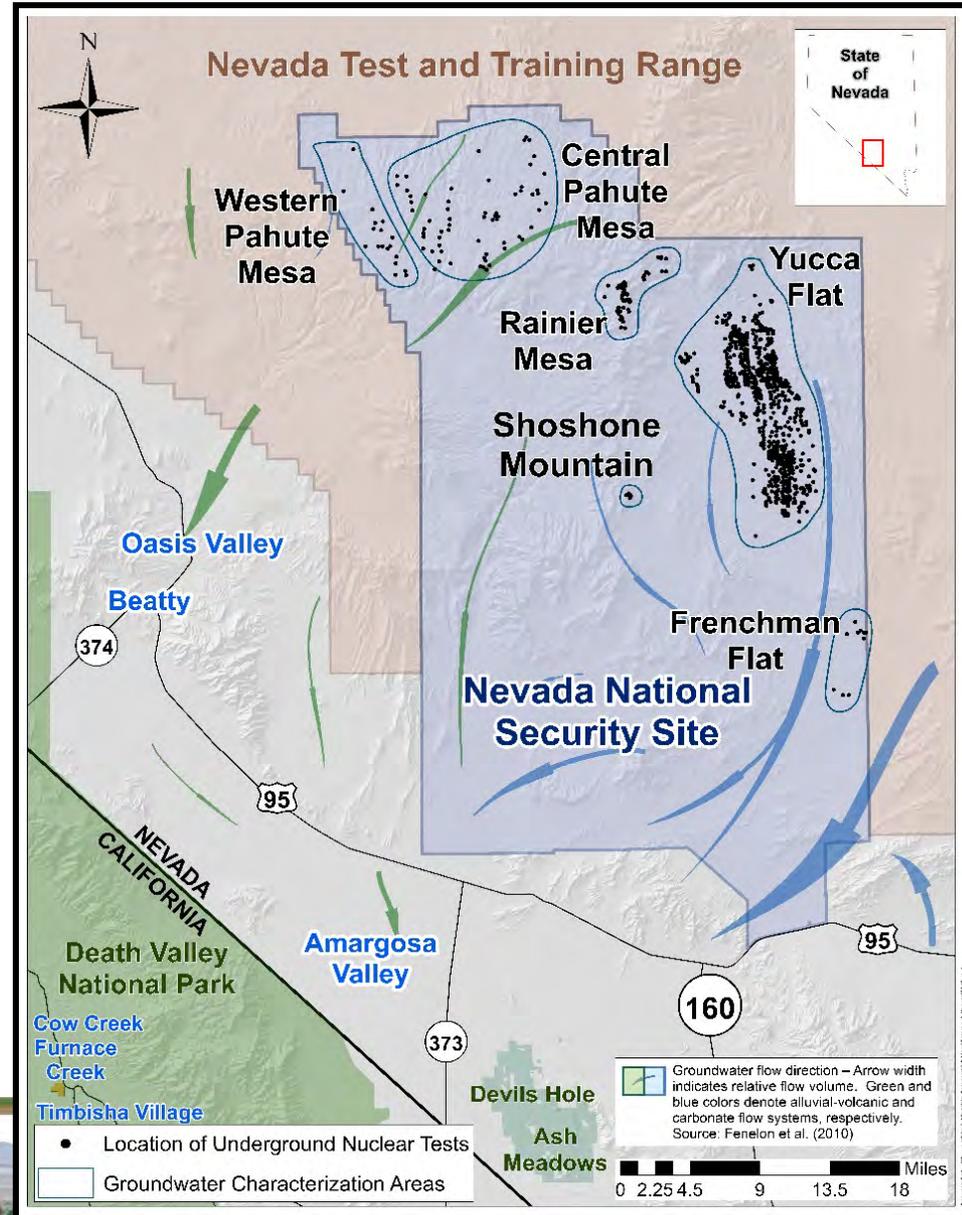
EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

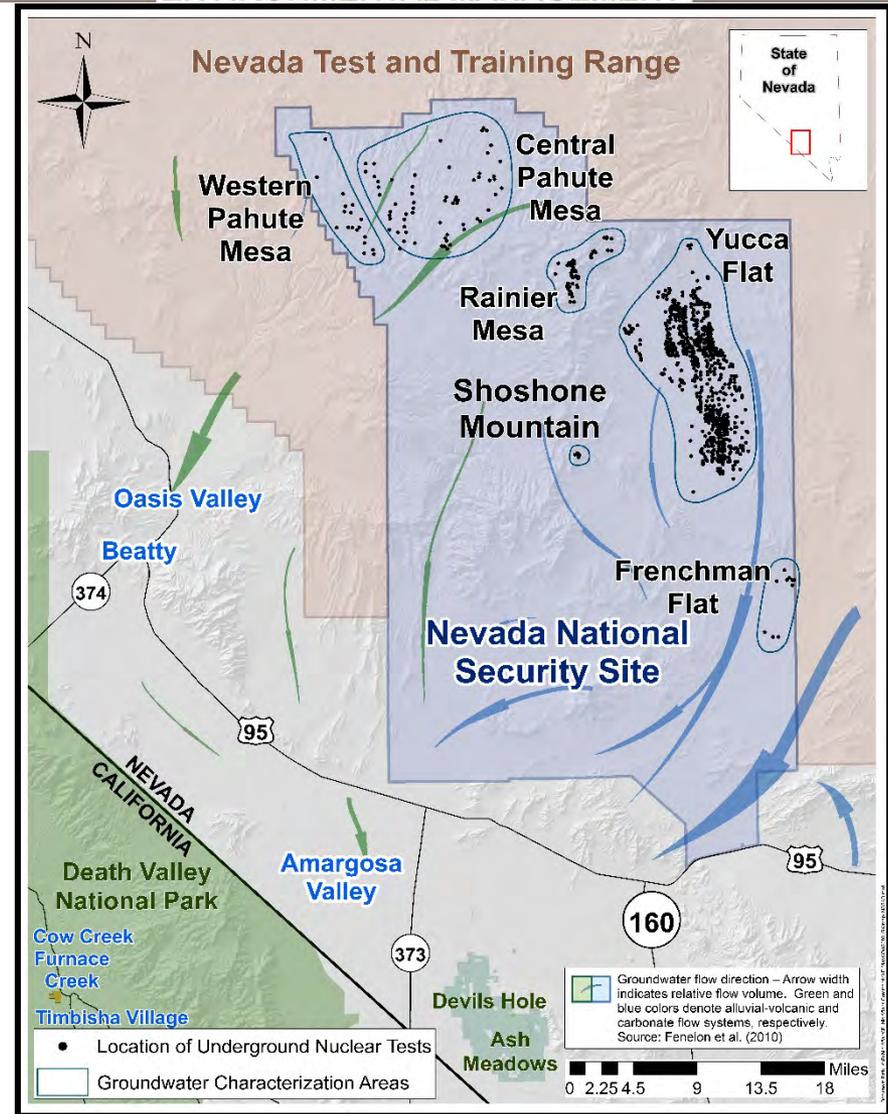
CAUs

- There are five CAUs that make up the UGTA activity
 - CAUs are determined by location and geologic conditions



Groundwater Flow on the NNSS

- 60 years of data collected indicate that groundwater:
 - In the eastern portion, eventually discharges to the Ash Meadows/Devils Hole or Death Valley areas
 - In the northwestern portion, locally discharges to springs in Oasis Valley



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

ID 2072 - 3/20/2019 – Page 10
2019-035-EMRP

Groundwater Flow on the NNSS

(continued)

- Estimated velocities (speed) range from a few feet up to 300 feet per year dependent on geology, hydraulic properties (i.e., ability of water to flow through rock), and elevation of the water table
 - Measured velocities on Pahute Mesa are no larger than 300 feet per year
- Model forecasts show contaminants above the SDWA standard would not reach publicly accessible water supply



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

ID 2072 - 3/20/2019 – Page 11
2019-035-EMRP

Groundwater at the NNSS

<https://www.youtube.com/watch?v=wJG-S0rMcms>



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

Outline

1. Groundwater background
2. Pahute Mesa CAU background
3. Approach to closure in Frenchman Flat, Yucca Flat, and Rainier Mesa CAUs
4. A more pragmatic approach for closure to Pahute Mesa and why it is being considered



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

Background Information for Pahute Mesa

- 82 of the 818 underground nuclear tests covered under UGTA Activity were conducted on Pahute Mesa
 - Ten were shallow tests that were addressed under the Soils Activity
- Represents ~ 60% of the total radionuclide inventory
- Underground tests conducted at depths ranging from approximately 740 to 4,800 feet below the ground surface
- All but two of these tests occurred near or below the water table
- Much of the contaminants are trapped in the test cavity
- Radioactive contamination has not been detected above the SDWA standard in groundwater beyond the NNSS and the NTTR



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

Pahute Mesa Data Approach

- Data from groundwater samples collected from wells provides the best way to understand what is really happening
- UGTA has drilled 11 new wells on Pahute Mesa since 2007

“Overall, citizens of the communities of Oasis Valley, Beatty, and Amargosa Valley express support for more real data and less modeling. If modeling must be used, then validation of those models must be provided using data from wells located between residents and the contaminant sources.” Community Advisory Board for Nevada Test Site Programs (2007)



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

Tritium

- Most common radionuclide found in groundwater at the NNSS
- Most mobile in groundwater; therefore, a leading indicator that other contaminants may be present, making it a primary contaminant of study
- SDWA standard for tritium is 20,000 picocuries per liter (pCi/L)
- One half-life* of tritium is around 12.3 years
- Rule of thumb – takes ten half-lives for the radioactivity to decay to stable elements (99.9%), resulting in all groundwater samples, regardless where obtained, being well below the SDWA standard
 - Approximately three-four half-lives have occurred for early tests with approximately two half-lives for later tests

*Definition: half-life of a radioactive substance is the amount of time required for half of its atoms to decay



Outline

1. Groundwater background
2. Pahute Mesa CAU background
3. Approach to closure in Frenchman Flat, Yucca Flat, and Rainier Mesa CAUs
4. A more pragmatic approach for closure to Pahute Mesa and why it is being considered

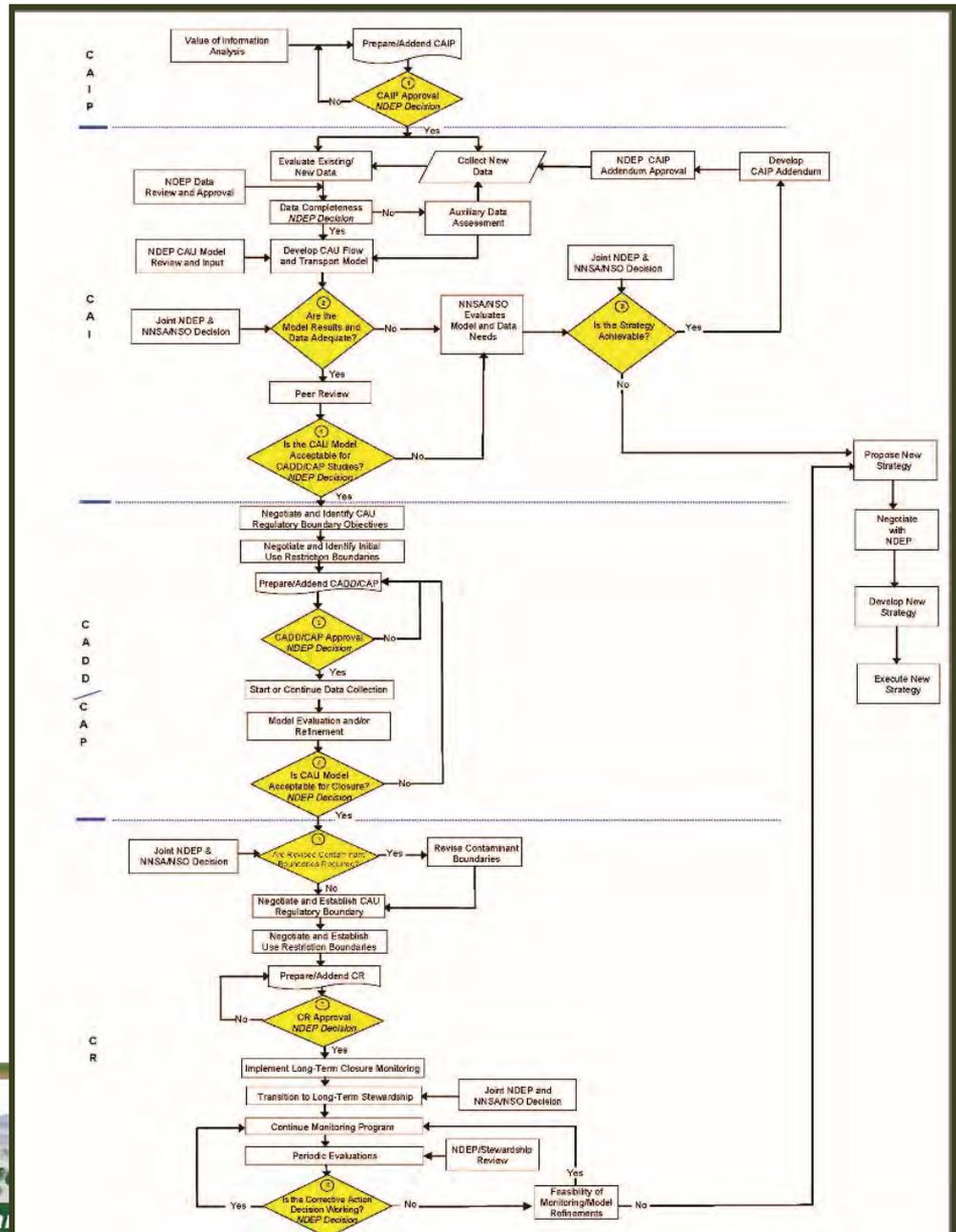


EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

UGTA Closure Strategy



UGTA Closure Strategy

(continued)

- Outlined within the Federal Facility and Consent Order (FFACO)
 - Pahute Mesa closure strategy **will follow** the FFACO process
- Corrective Action Investigation (some CAUs may require a Phase I and II)
 - Corrective Action Investigation Plan (CAIP)
 - Data collection
 - Modeling
 - Contaminant boundary
 - Peer review



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

UGTA Closure Strategy

(continued)

- Corrective Action Decision Document/Corrective Action Plan (CADD/CAP)
 - Model evaluation
 - Use restriction boundary
 - Regulatory boundary negotiations with NDEP
- Closure
 - Closure Report
 - Address regulatory boundary changes if necessary
 - Closure in place with long-term monitoring
 - Institutional controls



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

Approach for Frenchman Flat, Yucca Flat, and Rainier Mesa CAUs

- The risk to the public was expected to be small because one or more of the following were true: small radionuclide inventory, slow groundwater movement, or large distance to the NNSS site boundary
- Modeled “worst case” radionuclide transport based on ranges of parameter values
 - This approach overestimates the actual radionuclide movement
 - Even in the worst case, modeling showed contamination above the SDWA standard will not reach any offsite public water supply wells
- Used selected monitoring wells to ensure that real radionuclide movement was less than the worst case



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

What Have We Learned?

- External Peer Reviews of modeling results in Frenchman Flat, Yucca Flat, and Rainier Mesa have been successfully completed with lessons learned from each CAU
- Groundwater samples confirm that the model is conservative; therefore, the results are protective of human health and the environment
- Department of Energy recognized that additional data collection was necessary for Pahute Mesa due to its proximity to public land, higher groundwater velocities, and overall higher risk



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

ID 2072 - 3/20/2019 – Page 25
2019-035-EMRP

Outline

1. Groundwater background
2. Pahute Mesa CAU background
3. Approach to closure in Frenchman Flat, Yucca Flat, and Rainier Mesa CAUs
4. A more pragmatic approach for closure to Pahute Mesa and why it is being considered



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

Considerations in the Approach for Pahute Mesa

Larger inventory, closer proximity to public lands, and higher groundwater velocity for Pahute Mesa

Department of Energy has invested in new wells for more than 20 years

Worst case results unnecessarily raise concerns

Real data shows the location of contamination, and therefore provides information on past and potential future migration

Real data preferred by stakeholders

Models support the monitoring network design

Models must be consistent with data, not just worst case



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

What the Data Tells Us

- From radionuclide measurements in wells downgradient of cavities, only tritium concentrations are above the SDWA standard; all other radionuclides are measured at concentrations below the SDWA standard
- After nearly 50 years since the tests were conducted, contamination above the SDWA standard has moved just about 2.5 miles and has not been observed above the SDWA standard in any wells outside of the NNSS boundary



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

What the Data Tells Us (continued)

- The distance between the contamination near the outer NNSS boundary and the NTTR boundary is about 12 miles
 - At the current rate of migration, the models show that tritium above the SDWA standard will not transport beyond Federal lands
- The vast majority of tritium (99.9%) will decay to stable non-radioactive helium in about ten half-lives; therefore all water will be well below the SDWA standard



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

Pragmatic Approach for Pahute Mesa

- Use the additional measured contaminant data to the fullest extent possible
 - Evaluate models against measured data (water levels, tritium, aquifer parameters) to eliminate inaccurate predictions to reduce uncertainty
 - Model must be consistent with the data with acceptable tolerance
 - Models **can** show contamination where data shows there is none
 - Use the data fully to eliminate bad model forecasts



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

ID 2072 - 3/20/2019 – Page 30
2019-035-EMRP

Pragmatic Approach for Pahute Mesa (continued)

- Focus on the monitoring of contaminants that are moving offsite toward Oasis Valley
- Use the model to help figure out if new monitoring wells should be drilled, and if so, where to drill
 - Modeling will identify and fill in gaps in the current well/monitoring network
- Develop a robust monitoring well network that is protective of human health and the environment



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

How the Pragmatic Approach for Pahute Mesa is Different

- Robust monitoring well network with more wells than other CAUs
- Greater reliance on measured data
- Probabilistic modeling kept consistent with observed data to avoid overly conservative (unrealistic) results



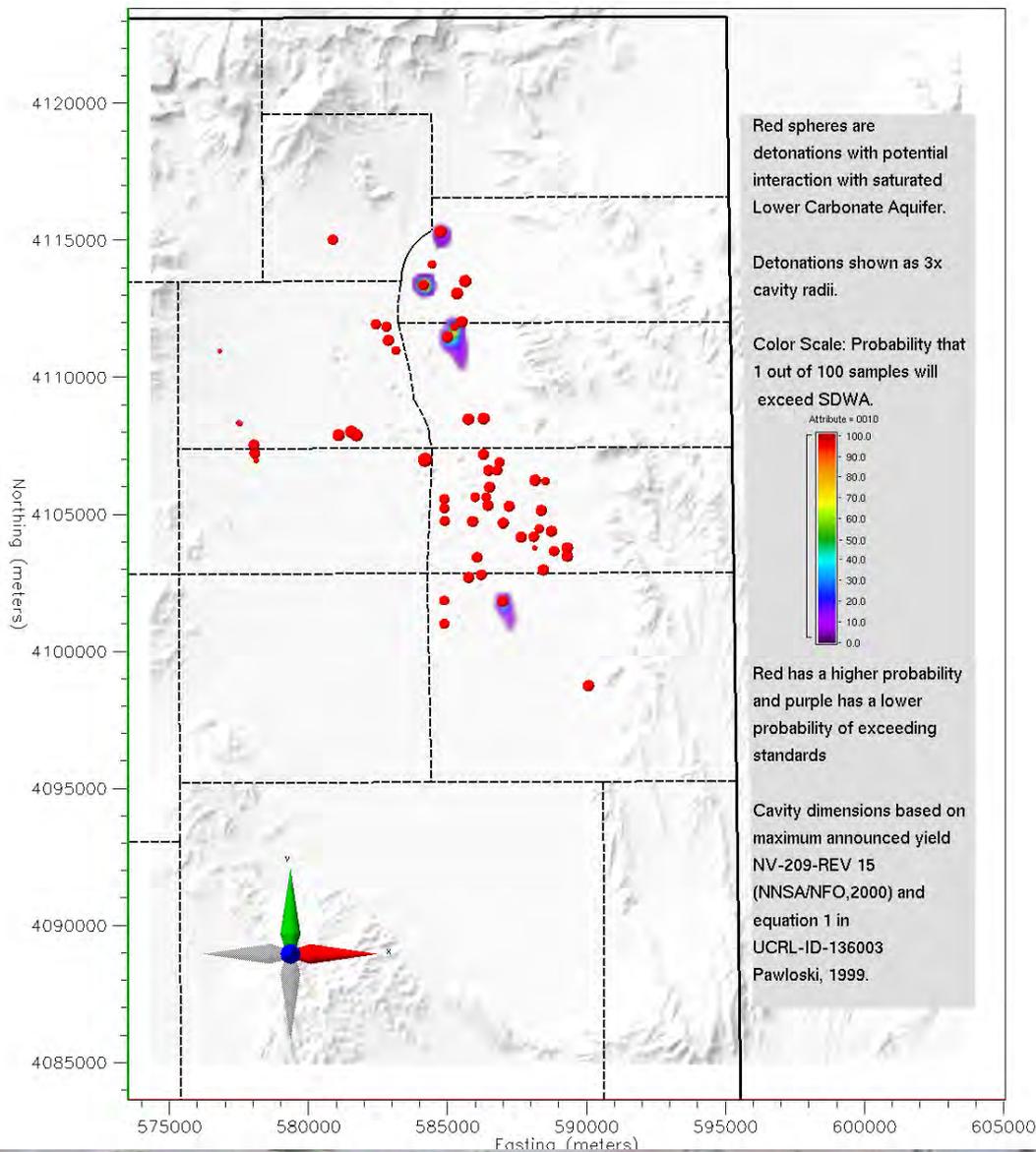
EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

Animated
Graphic

Yucca Flat Model at 10 years



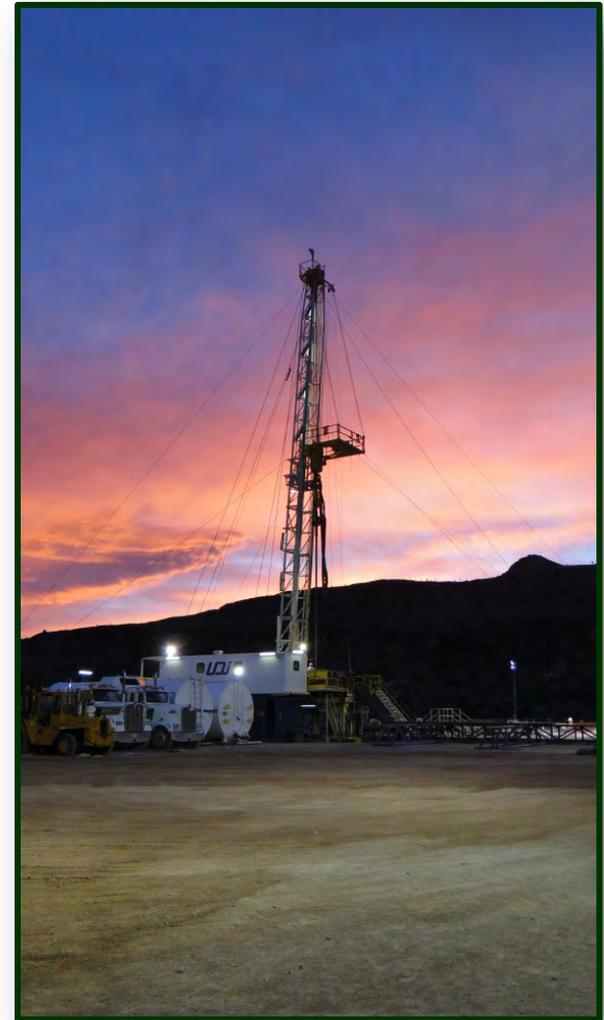
Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

Key Messages

(Reiterated)

- Current research shows the public water supply in Oasis Valley is safe from the impacts of historic underground nuclear testing
- Groundwater contamination affected by historic NNSS activities has not gone beyond restricted Federal land
- Groundwater models will use current monitoring data to provide output that is key to enhancing current and developing future monitoring strategies



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

ID 2072 - 3/20/2019 - Page 40
2019-035-EMRP

Path Forward

- From a community perspective, provide a recommendation to the EM Nevada Program on if the more pragmatic approach for closure of Pahute Mesa is supported by the NSSAB and/or how it could be improved
- The NSSAB recommendation is due by April 2019



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.nnss.gov

ID 2072 - 3/20/2019 – Page 41
2019-035-EMRP