

## ***Nevada Site Specific Advisory Board Table of Contents***

### ***Full Board Meeting Handouts for Wednesday, November 13, 2019***

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## NSSAB FULL BOARD MEETING ATTENDANCE

October 2019 through September 2020 (FY 2020)

Name	11/13/19	1/15/20	3/18/20	5/20/20	7/15/20	9/23/20	Max Terms
<b>MEMBERS</b>							
Amina Anderson							2020
Francis Bonesteel							2022
William DeWitt							2024
Pennie Edmond							2020
Karen Eastman							2022
Charles Fullen							2022
Richard Gardner							2022
Anthony Graham							2024
Tanya Henderson							2024
Donald Neill							2020
Steve Rosenbaum							2020
Janice Six							2024
Richard Stephans							2022
Richard Twiddy							2022
Dina Williamson-Erdag							2022
C.J. Wissmiller							2024
<b>LIAISONS</b>							
Clark County							
Consolidated Group of Tribes & Organizations							
Elko County Commission (limited)							
Esmeralda County Commission							
Lincoln County Commission							
Nye County Commission							
Nye County Emergency Management							
Nye Co. Nuclear Waste Repository Project Office							
State of NV Division of Env Protection							
U.S. Natl Park Service (limited)							
KEY: √ - Present    E - Excused    V - Vacant    U - Unexcused							

# What Does 20,000 pCi/L of Tritium Actually Mean? and What is the Risk Associated with It?



**C.E. Russell**  
Research Scientist Hydrogeology  
Desert Research Institute



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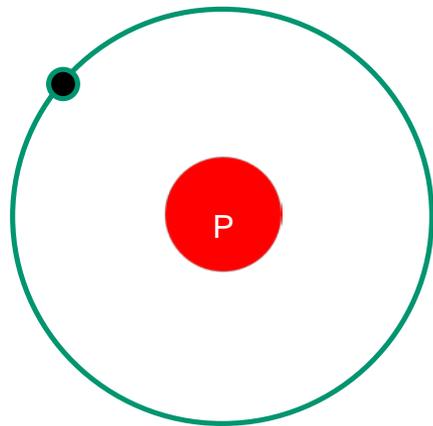
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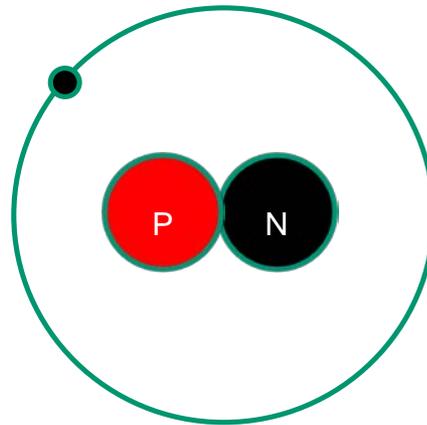
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# The Basics - What is Tritium?

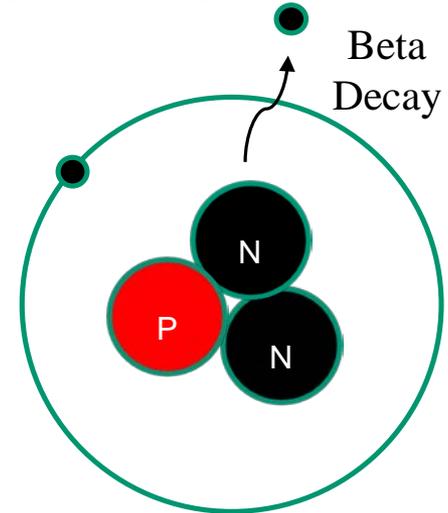
- There are different types of hydrogen and the abundance varies
- Tritium is the radioactive form of hydrogen
- When tritium decays it releases a low energy beta particle



Hydrogen ( $^1\text{H}$ ) – 99.985%



Deuterium ( $^2\text{H}$ ) – 0.015%



Tritium ( $^3\text{H}$ ) –  
0.000000000000000001%



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# Sources and Inventory of Tritium

- Tritium is produced naturally in the environment and by man primarily through nuclear testing and nuclear reactors
  - The natural production rate of tritium is about 0.33 to 0.44 pounds (lbs)/year
    - Some tritium accumulates each year and a little decays away; the processes balance out eventually, resulting in a total of about six (6) to eight (8) lbs on earth due to natural processes
  - The amount injected into the atmosphere by atmospheric nuclear testing during the 1950s to 1960s was about 1,036 to 1,486 lbs
    - As of 2019, approximately 44 lbs remain in the hydrosphere with the remainder decaying away to helium-3 (non-radioactive)



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# Sources and Inventory of Tritium (continued)

- As of 2019, the amount that remains in the subsurface of the Nevada National Security Site (NNSS) due to underground nuclear testing is approximately 4.9 lbs\*
- Operation of a typical 900 megawatt pressurized reactor releases about 0.000066 lbs of tritium per year
- Other sources exist, however, their contributions are marginal

*\*Nevada National Security Site Radionuclide Inventory, 1951-1992: Accounting for Radionuclide Decay through September 30, 2012, LA-UR-16-21749, Los Alamos, NM: Los Alamos National Laboratory.*



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# Tritium Can Be Detected in Amazingly Small Amounts

- Lower detection limit for **specialized** analysis:

$$1 \text{ picocurie per liter} = \frac{3 \text{ Tritium Atoms}}{10,000,000,000,000,000,000 \text{ Hydrogen Atoms}}$$

or

0.3 parts per Quintillion

(Not parts per thousand, not parts per million, not parts per billion, not even parts per trillion, but a million times more accurate than that)



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# Tritium Can Be Detected in Amazingly Small Amounts (continued)

- Lower detection limit for **routine** analysis:

$$1,000 \text{ picocuries per liter} = \frac{310 \text{ Tritium Atoms}}{1,000,000,000,000,000,000,000 \text{ Hydrogen Atoms}}$$

or

310 parts per Quintillion

(Not parts per thousand, not parts per million, not parts per billion, not even parts per trillion, but a million times more accurate than that)



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# The Regulatory Standard

- The U.S. Environmental Protection Agency's (EPA's) dose-based drinking water standard of four (4) millirem per year (**more on this later**) is assumed to be achieved by drinking water containing:
  - 20,000 picocuries per liter of tritium
  - Two liters per day
  - Every day for a year



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# So What is 20,000 pCi/L?

- pCi/L stands for picocuries per liter
  - A liter is one (1) liter of water
  - A curie is the amount of any radioactive substance that produces 37 billion radioactive disintegrations every second
    - A disintegration is a process by which an unstable atomic nucleus loses energy by emitting radiation, such as an alpha or beta particle
- A pico is a **very very very** small portion of something (one trillionth) of that thing

$$\text{pico} = \frac{\text{Something}}{1,000,000,000,000}$$



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# How Much Activity is Occurring in a Liter of Water Containing 20,000 pCi/L?

20,000  
pCi/L

=

740  
disintegrations  
per second



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# How Much Tritium is in that Bottle?

20,000 pCi/L = 2 trillionths of a gram (g) of tritium  
(0.00000000000002 g)



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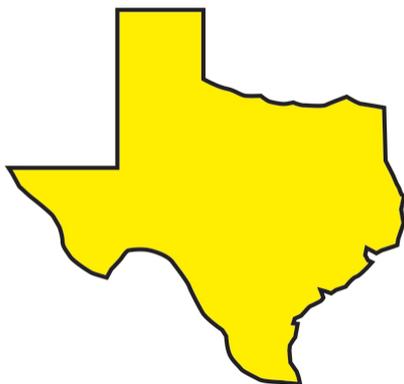
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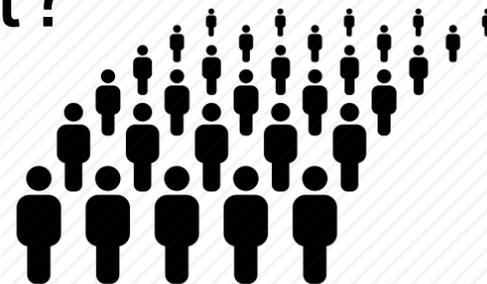
# How Do I Relate to This Very Small Amount?



+



50 Million People



1 Liter of Water  
Containing  
1 Curie of Tritium  
(1 Ci/L)

Formerly Clean  
Water Now Has  
20,000 pCi/L



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# What is a Four (4) Mrem Dose?

- A rem is a unit of effective absorbed dose of ionizing radiation in human tissue
- 1/1,000 of a rem is called a mrem
- On average, a general member of the public receives 620 mrem/year (yr) from all sources, including medical
- According to the EPA, drinking two (2) liters of water that contains 20,000 pCi/L every day for a year will give a dose of four (4) mrem/yr
- How does that compare to the other sources of radiation that comprise the average total dose of 620 mrem/yr?



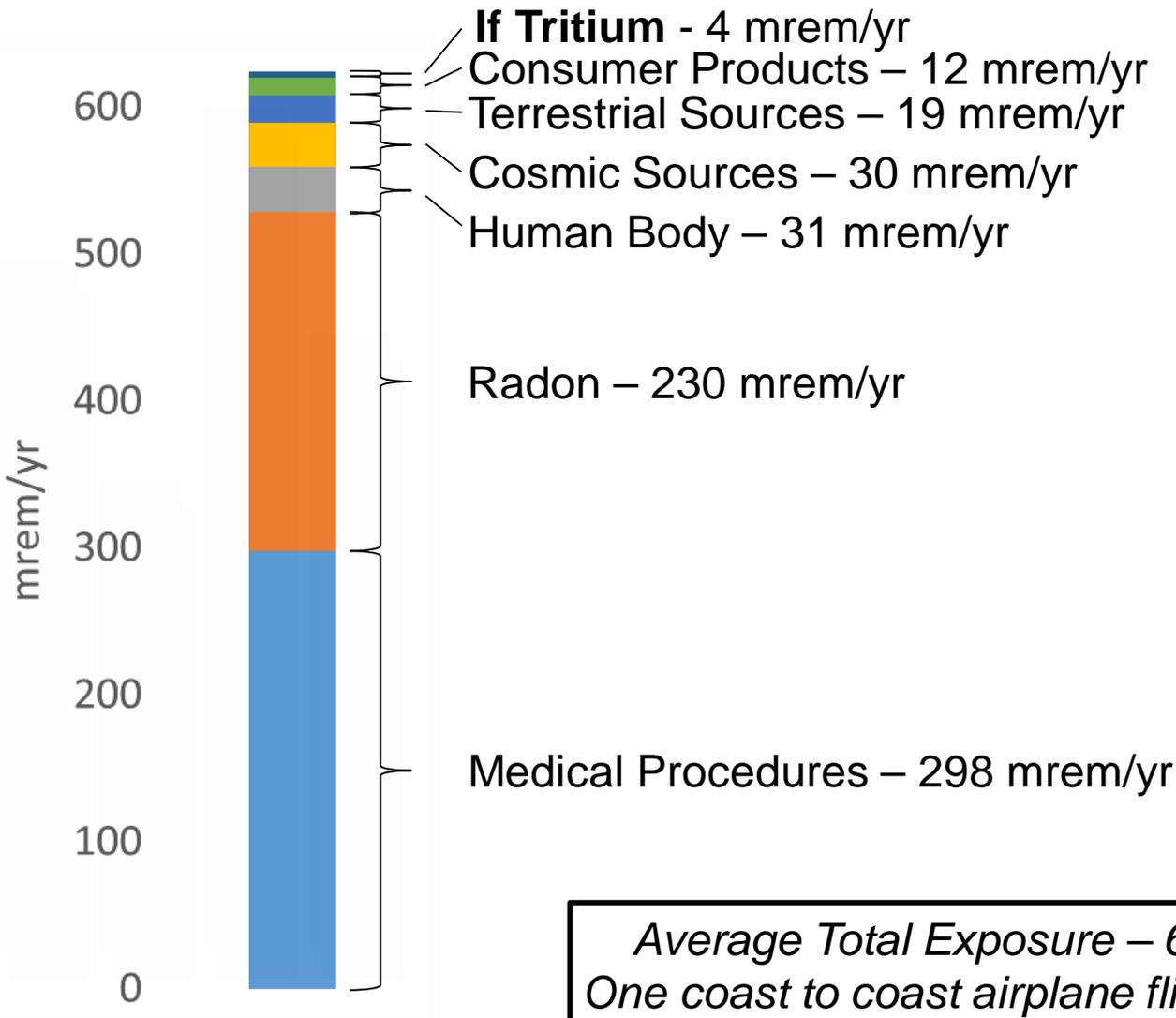
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# Putting It into Perspective

*Average Total Exposure – 620 mrem/yr;  
One coast to coast airplane flight – 3.5 mrem*



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# The Risk of Chronic Exposure

- Chronic radiation dose is a small amount of radiation received over a long period of time
- The principal effect of chronic radiation dose is an increased risk of contracting cancer
- Latent Cancer Fatality: The likelihood that a dose of radiation will result in death from cancer at some future time



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# Effects of Chronic Radiation

- The EPA has ***estimated*** that consumption of four (4) mrem of beta/photon emitters in drinking water over a lifetime may result in an individual fatal lifetime cancer risk of .000056 ( $5.6 \times 10^{-5}$  or 1 out of 17,857)
  - To date, **no human studies have demonstrated that tritium causes cancer** (Canadian Nuclear Safety Commission, 2010)
  - Tritium has been shown to induce cancer in mice, but only at extremely high doses (i.e., in excess of 50 rem)
- American Cancer Society estimates lifetime risk of an individual dying of cancer from all causes as 0.2 (one out of five)



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# Reference Doses in Other Countries

- Reference Dose: the level of radiation dose above which it is not appropriate to plan to allow exposures to occur and below which protection and safety are optimized
- World Health Organization recommends a reference dose level of ten (10) mrem per year for assessing health risks to an individual from prolonged exposure to radionuclides in drinking water
- International Atomic Energy Agency (IAEA) Basic Safety Standards (IAEA, 2014) recommends a reference level of 100 mrem per year
- Most countries adopted standards along these guidelines



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# Tritium Drinking Water Guidelines by Country

Country	Reference Dose Limit (mrem per year)	Tritium Standard (pCi/L)
Australia	100	2,056,838
Finland	50	810,811
Switzerland	10	270,270
World Health Organization	10	270,270
Russia	10	208,108
Canada	10	189,189
United States	4	20,000**
European Union (EU)	10	2,703*

\*EU Dose Limit

\*\*U.S. Standard adopted in 1976. 2003 update recommended 60,891 pCi/L -> old standard maintained as it was protective of human health.



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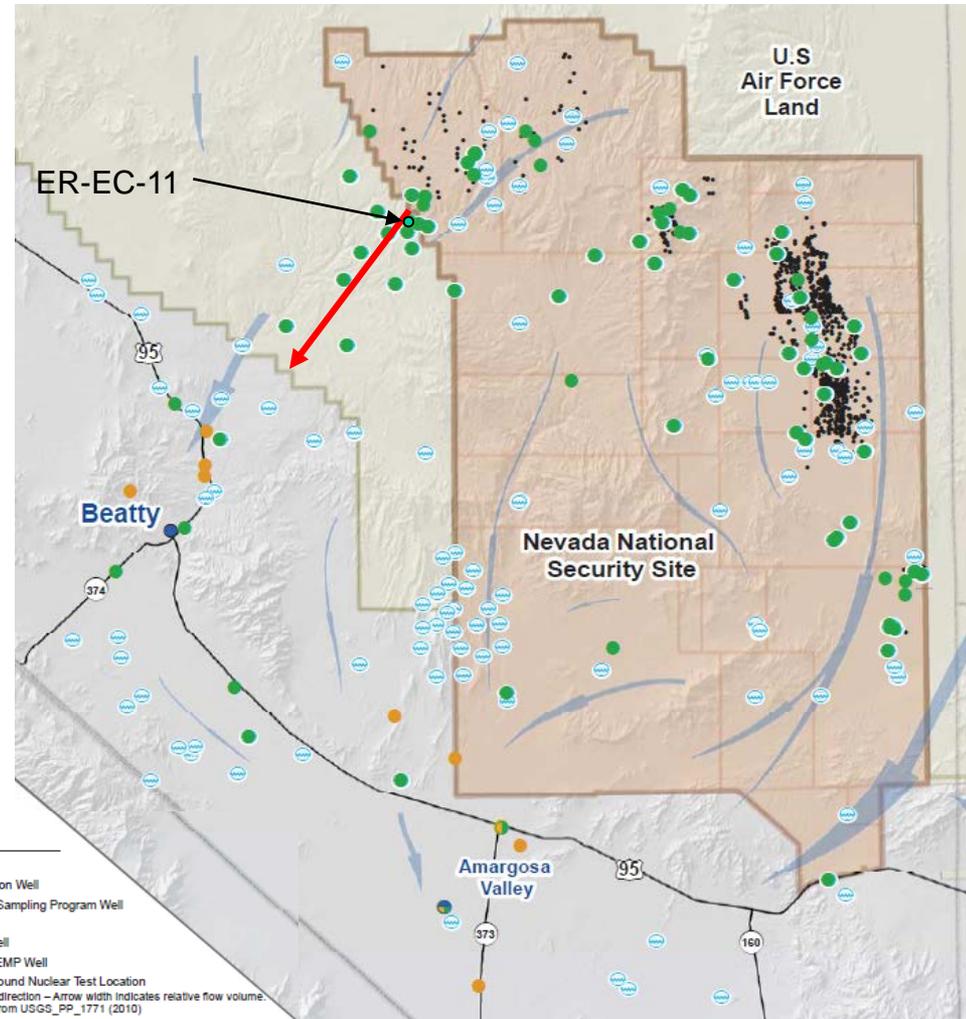


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# NNSS Groundwater

- Distance to closest offsite receptor is 13.8 miles
- Current models do not predict contaminants to reach offsite populations at levels that exceed regulatory thresholds



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# Take Home Messages – Part 1

- There is a surprisingly small amount of tritium on earth
- It takes only a very, very, very small amount of tritium to be detected
- Two trillionths of a gram of tritium in a liter of water is equivalent to 20,000 pCi/L
- U.S reference dose level for beta emitters is 2.5 to 25 times less than that of most other countries
- U.S has purposely underestimated (by a factor of three [3]) the tritium activity that will yield a four (4) mrem dose
- The U.S. regulatory standard of 20,000 pCi/L is approximately a factor of ten (10) less than other countries



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# Take Home Messages – Part 2

- Distance to the closest offsite receptor is 13.8 miles
- Current estimates indicate contaminant transport off the NNSS and Nevada Test and Training Range will not exceed regulatory standards
- Multiple monitoring wells lie between the NNSS and downgradient populations to track the movement of the tritium plume
- Only one well off the NNSS (although located on restricted Federal land) contains tritium that is close to exceeding the regulatory standard



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# Test Cell C (TCC) Path Forward ~ Work Plan #3



**Tiffany Gamero**  
Industrial Sites Activity Lead  
Environmental Management (EM) Nevada Program  
November 13, 2019



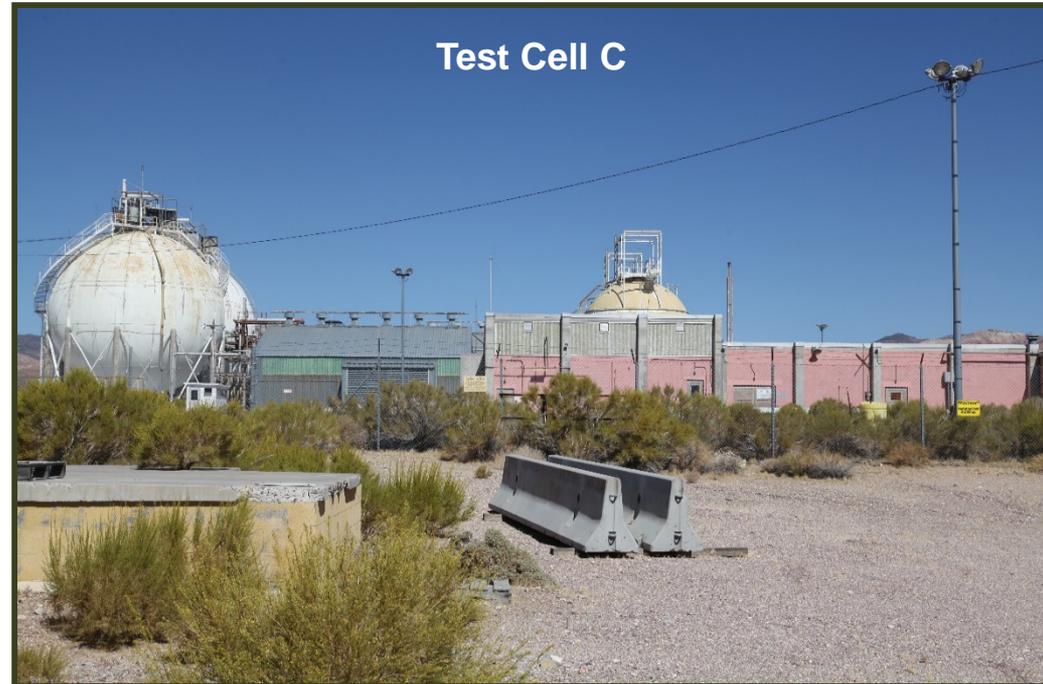
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# Nevada Site Specific Advisory Board (NSSAB) Work Plan Item #3

- From a community perspective, the NSSAB will provide a recommendation on the Department's planned end state for TCC or how the plan could be improved
- NSSAB recommendation is due tonight



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# Nuclear Rocket Development Station (NRDS) History

- NRDS activities conducted in Area 25 on the Nevada National Security Site (NNSS)
  - NNSS chosen due to the history of nuclear testing and the potential to release radioactive exhaust
- NRDS facilities included:
  - Test Cell A (closed)
  - TCC (partially closed)
  - Engine Test Stand-1 (currently active)
  - Reactor Maintenance, Assembly, and Disassembly (RMAD) (closed)
  - Engine Maintenance, Assembly, and Disassembly (EMAD) (scheduled for closure)
  - Jackass and Western Railroad (closed)



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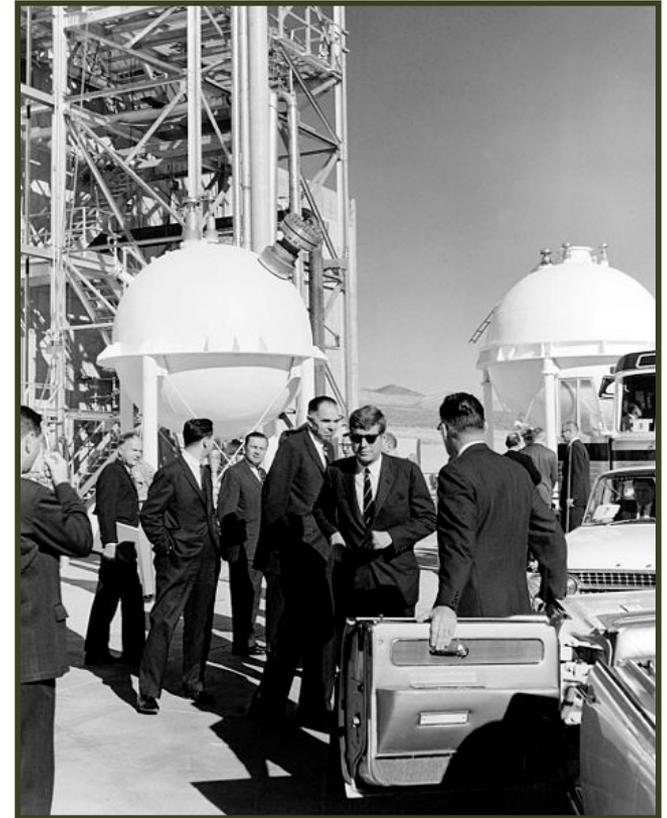
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# NRDS History

## (continued)

- NRDS mission was to support Project Rover by developing and testing nuclear rocket engines
- Objective was to use atomic energy to propel a rocket for interplanetary travel and other terrestrial objectives
- NRDS activities began in 1957 and ended in 1973
- Jointly administered by the Atomic Energy Commission and the National Aeronautics and Space Administration (NASA)
- Visited by President John F. Kennedy (still the only time a U.S. President has visited the NNSS)



President John F. Kennedy at  
Engine Test Stand-1



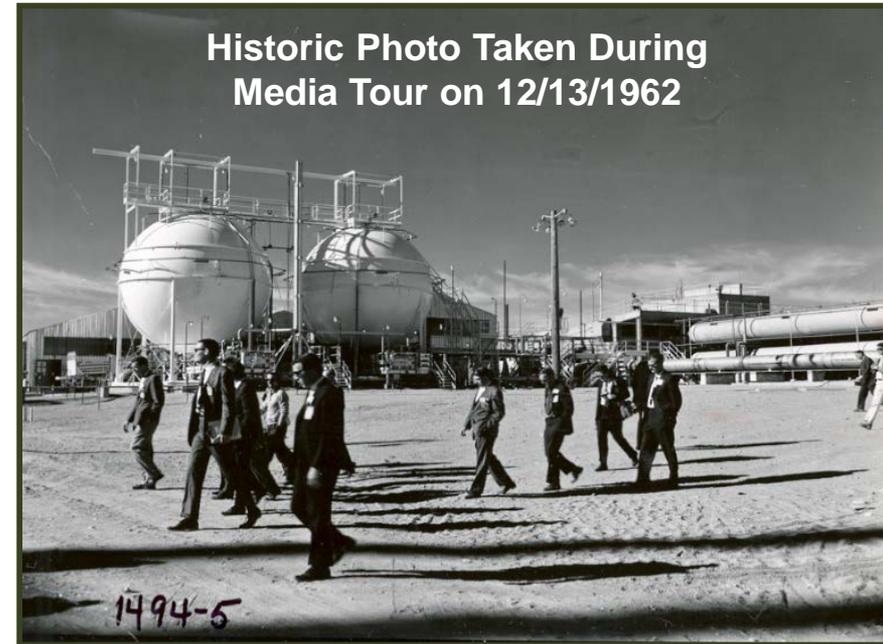
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# TCC History

- Built in 1961, TCC was used to ground test nuclear reactors and engines for rockets
  - An upgrade from the earlier Test Cell A
  - Connected at that time by rail to the rest of the NRDS:
    - Test Cell A
    - Engine Test Stand-1
    - RMAD
    - EMAD
- Operations ceased in 1973 with the cancellation of Project Rover



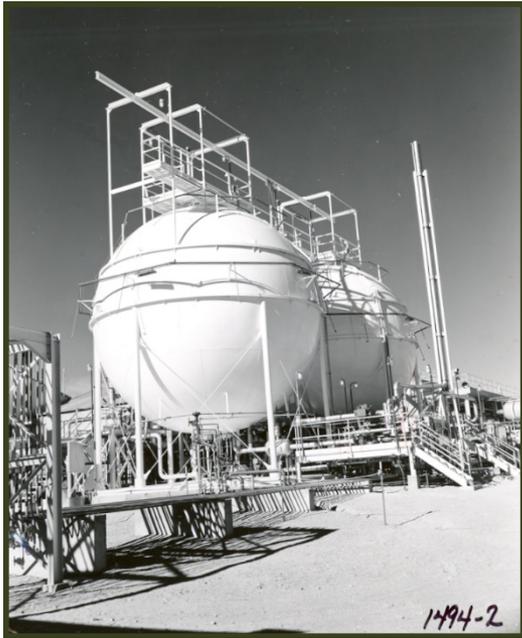
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Historic Photos Taken During Media Tour on 12/13/1962



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# Completed Activities at TCC

- TCC is addressed under two (2) Corrective Action Units (CAUs) in the *Federal Facility Agreement and Consent Order (FFACO)*:
  - CAU 572, Ancillary Buildings and Structures
  - CAU 116
- Closure work for CAU 116 was conducted from 2007 to 2011
  - CAU 116 included the main building, attached concrete shield wall, nuclear furnace piping, and a shed
  - All were demolished
  - Most debris was placed in the basement of the main building and grouted over with remaining disposed onsite at the NNSS



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# Completed Activities at TCC (continued)

- CAU 116 closed in place with use restrictions in 2011
  - Radiological and polychlorinated biphenyl (PCB)-impacted debris remains in the grouted basement of the main building
  - Radiological postings and use restriction signs were installed
  - Annual inspections required
  - Inspection results and maintenance reported annually



# TCC Ancillary Buildings and Structures

- CAU 572 includes the remaining structures at TCC
  - Five (5) buildings, comprising approximately 18,550 square feet
  - Reactor cooling station
  - Three (3) water tanks
  - Four (4) hydrogen tanks
  - One (1) water tower
  - One (1) train shed



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# Planned Closure Activities



- TCC has no current or future mission
- Scheduled for decontamination and decommissioning (D&D) starting in fiscal year (FY) 2023 and planned for completion by FY 2024
- Remove and demolish structures and properly dispose of the generated waste



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# Planned Closure Activities

(continued)



NSSAB Tour Ancillary Building

- D&D at TCC reduces the long-term cost of surveillance and maintenance
- End state is anticipated to be demolition to slab of remaining facilities



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# Cultural Resource Documentation

- The National Historic Preservation Act requires federal agencies to consider the effects of federally-funded projects on historic properties and to provide the opportunity for comment regarding avoiding or mitigating adverse effects
  - A historic property is any property that is included in or eligible for inclusion in the National Register of Historic Places
  - An adverse effect occurs when a project may diminish the integrity of a historic property
- If a historic property will be adversely effected, mitigation may be required. Mitigation can include:
  - Data recovery to preserve knowledge about the property
  - Preserving components of the property, if possible
  - Mitigation banking: preserving another historic property in lieu of the area of potential effect



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# Cultural Resource Documentation

## (continued)

- Desert Research Institute archeologists recommended that the TCC district be determined eligible to the National Register of Historic Places
  - Recommendation made to the U.S. Department of Energy (DOE), National Nuclear Security Administration (NNSA), and the Nevada State Historic Preservation Office (SHPO)
  - A cultural resources inventory and historical evaluation of TCC document will be sent to SHPO for review in the coming months
  - Response expected from SHPO after that
  - If determined eligible, any adverse effects to the facility due to the closure activities will require some form of mitigation agreed to by SHPO, NNSA, and DOE



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# Path Forward

- From a community perspective, the NSSAB will provide a recommendation on the Department's planned end state for TCC or how the plan could be improved
- NSSAB recommendation is due tonight



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# Yucca Flat/Climax Mine Long-Term Monitoring Network ~ Work Plan #5



**Bill Wilborn**

Deputy Program Manager, Operations, U.S. DOE  
Environmental Management (EM) Nevada Program

November 13, 2019



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# NSSAB Work Plan Item #5

- From a community perspective, the Nevada Site Specific Advisory Board (NSSAB) to provide a recommendation to the Environmental Management (EM) Nevada Program if they support the proposed Yucca Flat/Climax Mine (YF/CM) long-term monitoring network and recommend how it could be enhanced
- NSSAB recommendation is due tonight



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# Outline

1. Key Messages
2. YF/CM Background
3. Why Monitor Groundwater During Closure
4. Proposed Monitoring Network
5. NSSAB Path Forward



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# Key Messages

- Groundwater contamination resulting from historic underground nuclear testing in YF/CM is not expected to leave the boundaries of the Nevada National Security Site (NNSS)
- Only potential (but unlikely) pathway out of the Yucca Flat basin is in the lower carbonate aquifer (LCA)
- Contamination exceeding the *Safe Drinking Water Act* (SDWA) Maximum Contaminant Level (MCL) in the LCA has only been observed in a single isolated location at Well UE-2ce
- Groundwater monitoring will provide early detection of contamination in the LCA



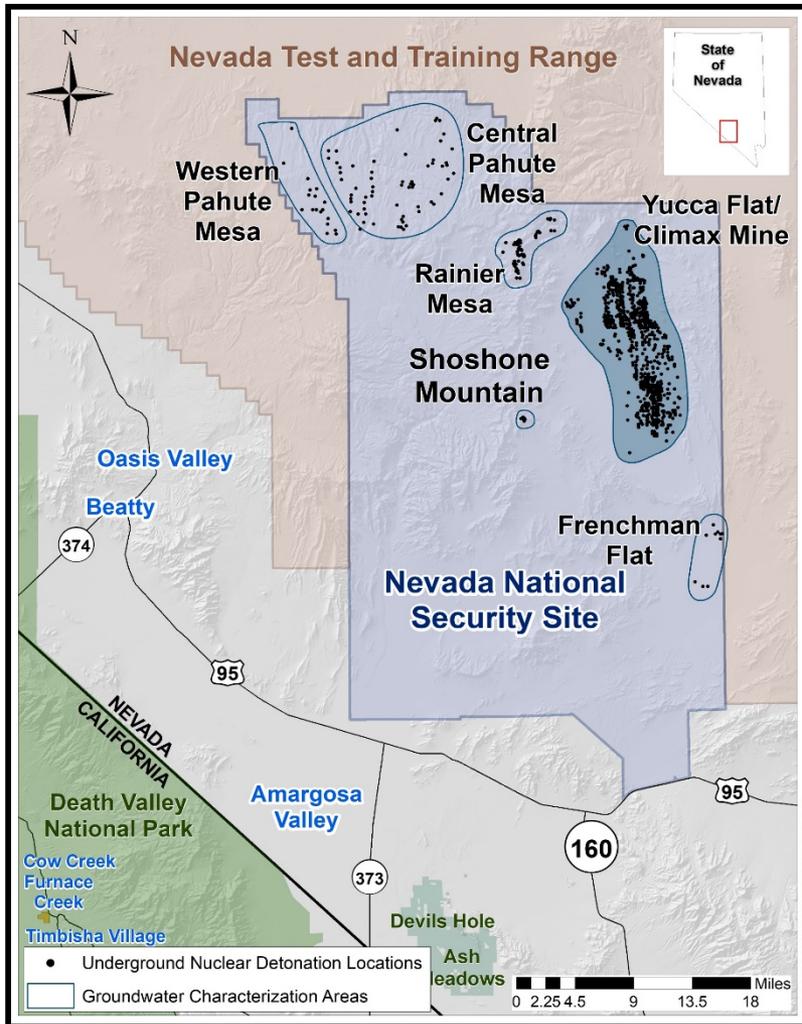
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# YF/CM Background

- 747 underground nuclear detonations
- About 69% of the radionuclide inventory is near (within 330 feet) or below the water table
- Detonations conducted in alluvium, volcanic, and carbonate rocks
- LCA provides the only potential (but unlikely) flow path outside the basin



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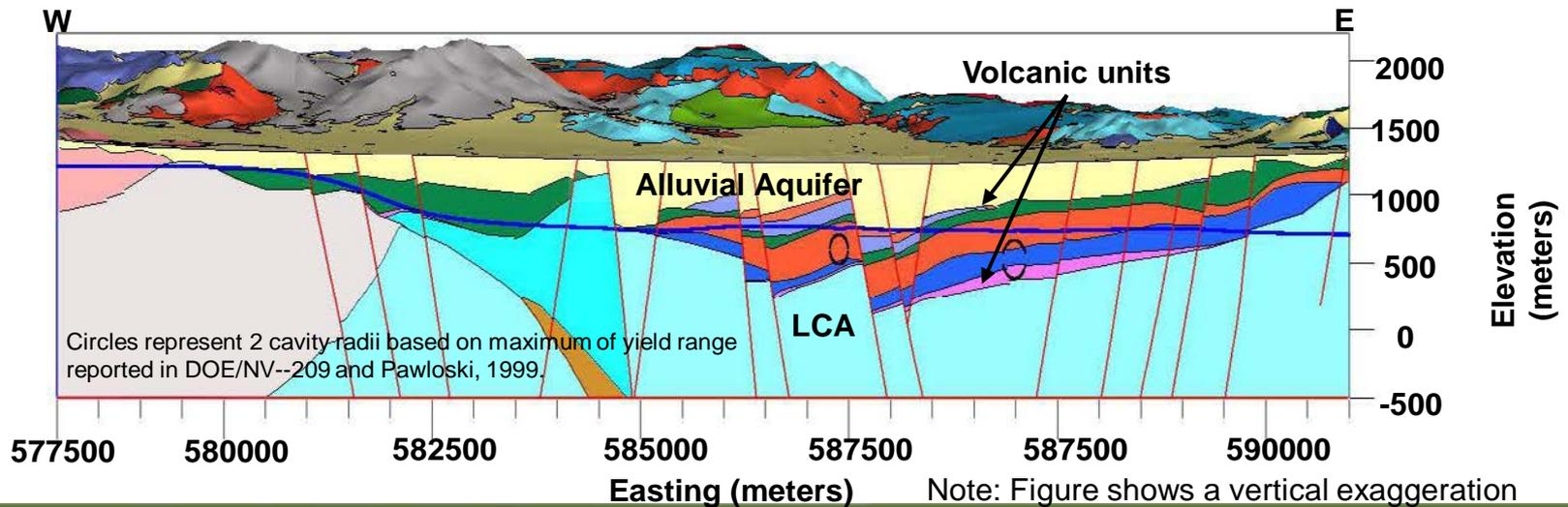
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EMRP-2019-190

# Why is the LCA so Important In Yucca Flat?

- LCA is the only pathway out of the Yucca Flat basin
- No pathways in the alluvial and volcanic units directly lead outside the basin
- Volcanic confining units limit radionuclide movement down to the LCA



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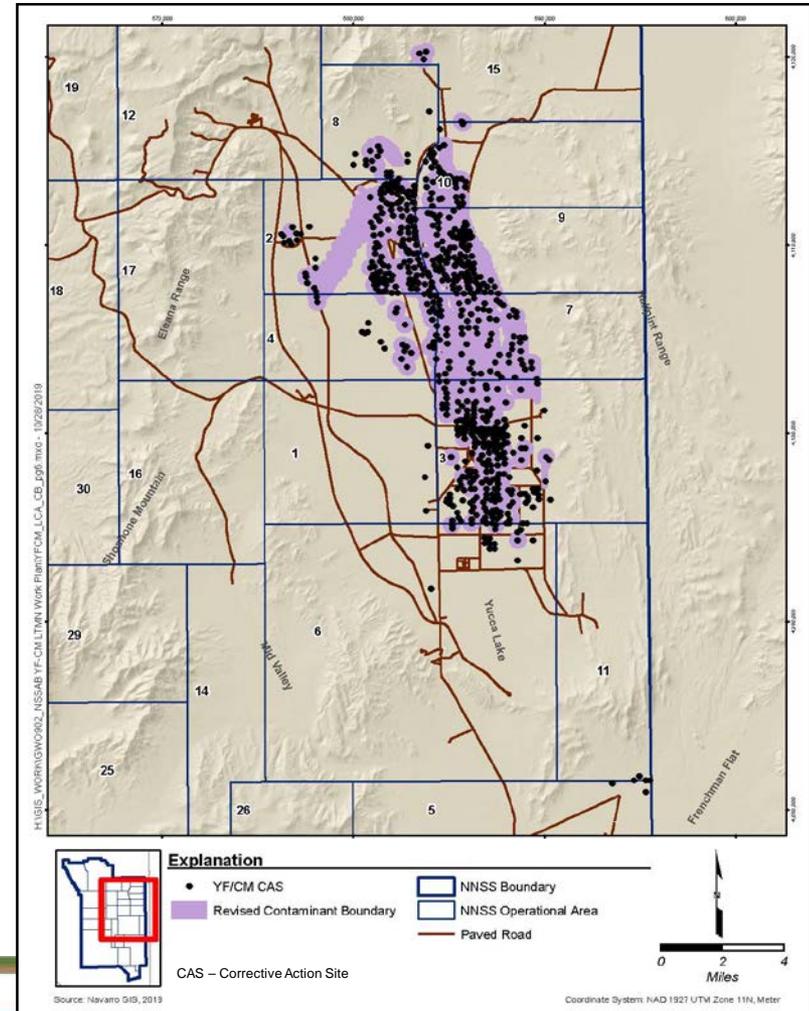
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EMRP-2019-190

# Groundwater Migration in YF/CM

- Groundwater within the **Contaminant Boundary** may exceed the safety standards at some time within 1,000 years
- Contaminant boundary was revised based on recent model evaluation activities
- Revised contaminant boundary (computer simulations augmented by historic data) indicates contamination remains within the Yucca Flat basin over the next 1,000 years



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# Why Monitor Groundwater During Closure

- Helps protect the public by providing a monitoring system designed to detect radionuclides from underground nuclear testing in groundwater
- Provides baseline to establish existing conditions and identifies trends
- Verifies compliance with regulatory standards
  - U.S. Environmental Protection Agency's SDWA MCLs
  - Regulatory Boundary Objective



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# Regulatory Boundary Objective

- Statements of specific objectives for each corrective action unit to protect the public and environment from exposure to groundwater contaminated by underground testing of nuclear weapons on the NNSS
- Negotiated between EM Nevada Program and State of Nevada Division of Environmental Protection (NDEP)
- Objective is to verify that radionuclide contamination from YF/CM is contained within the Yucca Flat basin, thus not impacting the Frenchman Flat LCA or downgradient receptors



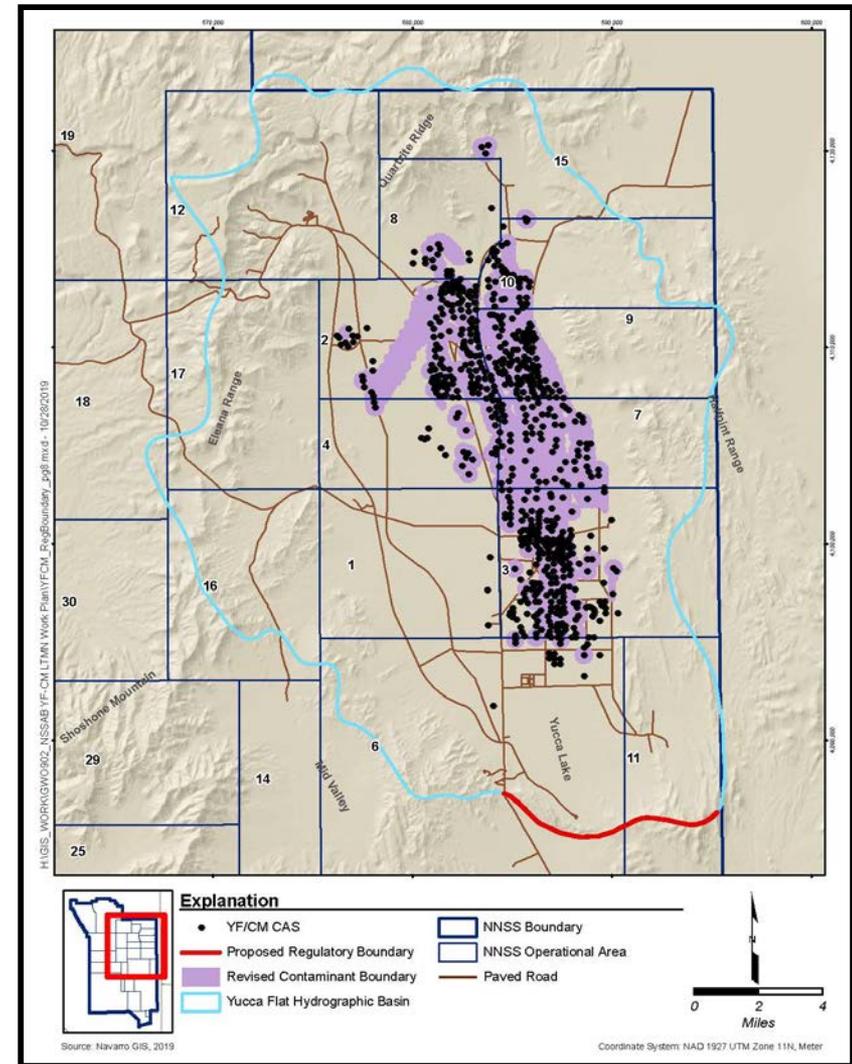
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# Regulatory Boundary

- Provides protection for the public and the environment from the effects of radionuclide contamination
- If radionuclides reach this boundary, a plan must be submitted to the State to ensure water resources downgradient are protected
- Proposed boundary corresponds with the southern extent of the Yucca Flat hydrographic basin



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# Monitoring Network Criteria

- Monitor groundwater pathways leaving the Yucca Flat basin
- Identify contamination in the LCA within the basin
  - Locations near or downgradient of testing areas
  - Locations hydraulically connected to testing areas
- Continue to verify contamination has not reached the LCA in Frenchman Flat



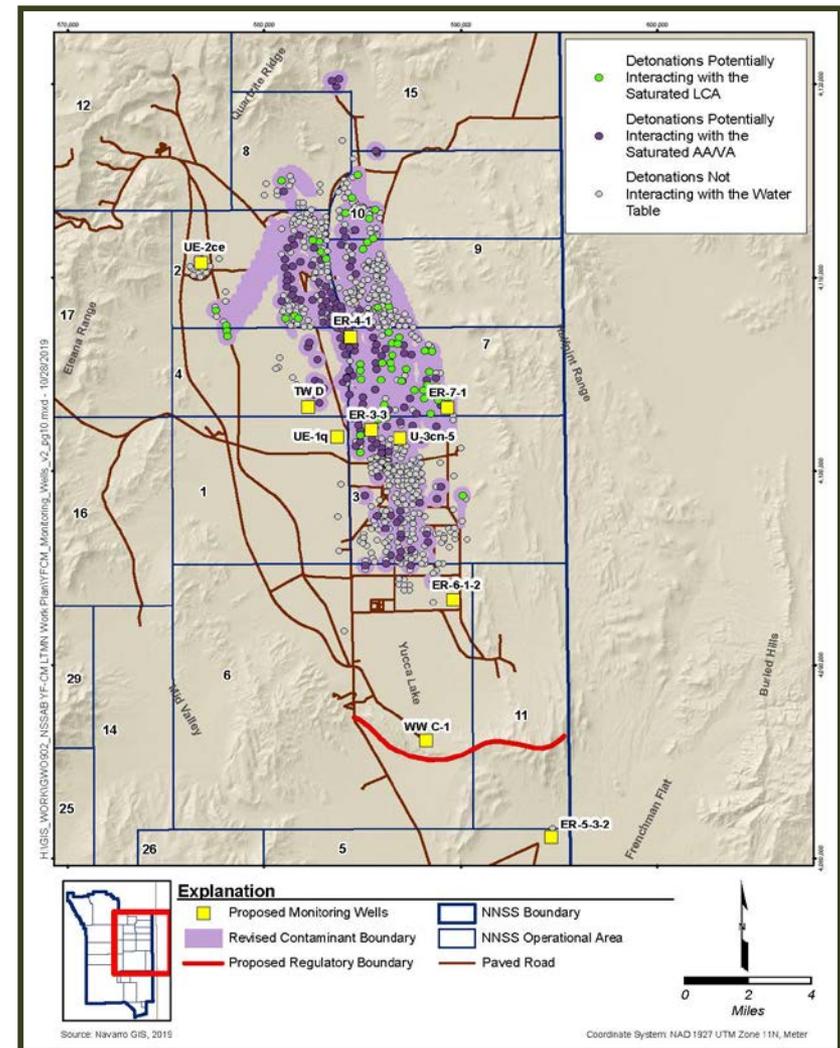
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# Proposed Monitoring Well Network

- Monitor pathways out of the basin (WW C-1)
- Early detection of contamination downgradient of testing (UE-1q, TW-D, and ER-6-1-2)
- Monitor for radionuclides near test cavities (ER-3-3, ER-4-1, ER-7-1, U-3cn-5, and UE-2ce)
- Monitor locations within Frenchman Flat (ER-5-3-2)



Note: Proposed network consists of existing wells



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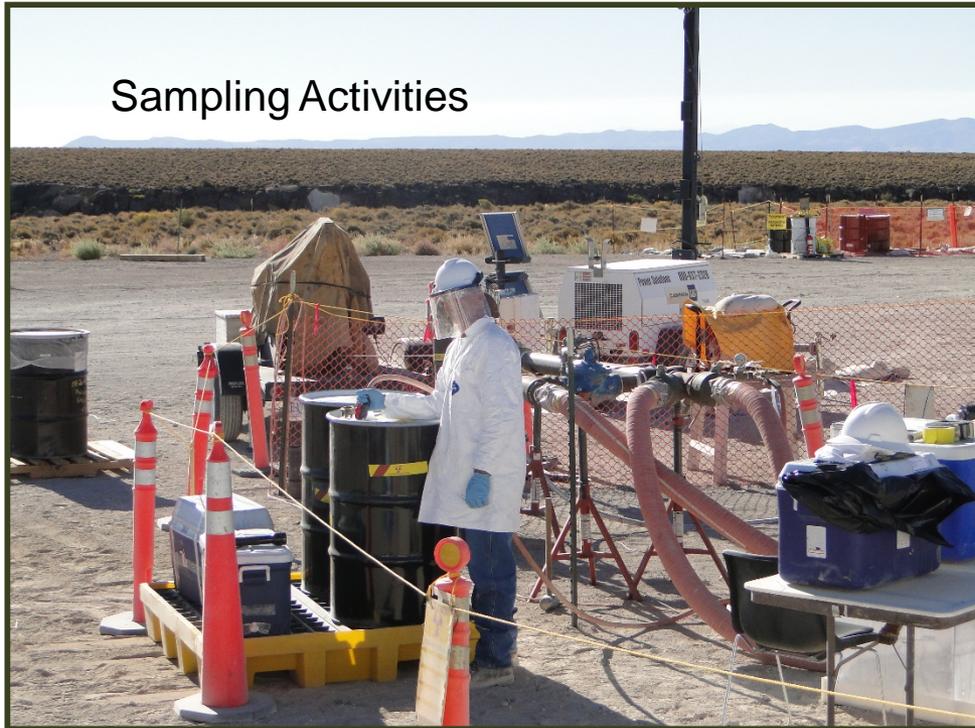
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# Sample Analysis

Sampling Activities



- All samples analyzed for tritium
- Analyses performed by laboratory certified by the State of Nevada
- Detection limit is approximately 300 pCi/L which is well below the 1,000-pCi/L detection limit required for SDWA



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# Why Analyze for Tritium

- Comprises more than 95% of the radionuclide inventory
- Other longer-lived radionuclides will not be present unless increased levels of tritium are observed
- Tritium monitoring provides early detection of contaminant migration downgradient of testing (detection level is 1.5% of the 20,000 pCi/L SDWA MCL)
- With a single exception (UE-2ce), little to no tritium (less than 20 pCi/L) is currently detected in YF/CM monitoring wells
  - Well UE-2ce, located near the NASH cavity, was extensively pumped to accelerate and evaluate radionuclide migration; tritium is currently reported as 144,000 pCi/L (2016)



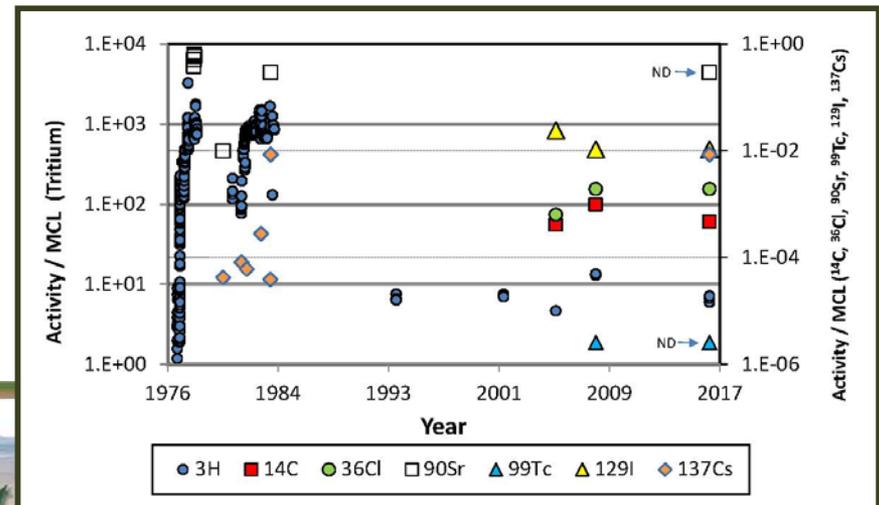
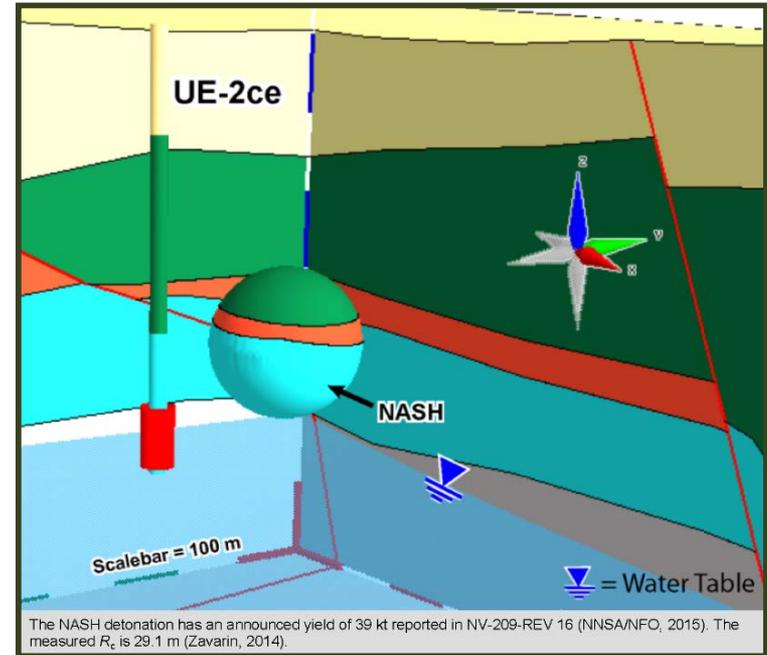
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# Radionuclide Migration Experiment at NASH

- Extensive information regarding radionuclide migration in the LCA was obtained
- Supports monitoring for tritium
  - Tritium reached concentration over 1,000 (1E+03) times its MCL
  - Other radionuclides are well below their MCL



# Sampling Frequency

- Samples will be collected every six years
  - Two samples collected within a tritium half life (12.3 years)



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# Triggers for Further Actions

- Trigger set at 1,000 pCi/L of tritium (5% of SDWA MCL) for all sampling locations except Well UE-2ce
  - UE-2ce has already exceeded this trigger
- Trigger value, if reached, requires the following actions:
  - Other long-lived radionuclides (carbon-14 and iodine-129) will be analyzed at the specific location for subsequent sampling events
  - Meeting will be held between NDEP and DOE to determine the path forward (e.g., additional sampling, evaluate model, communication)



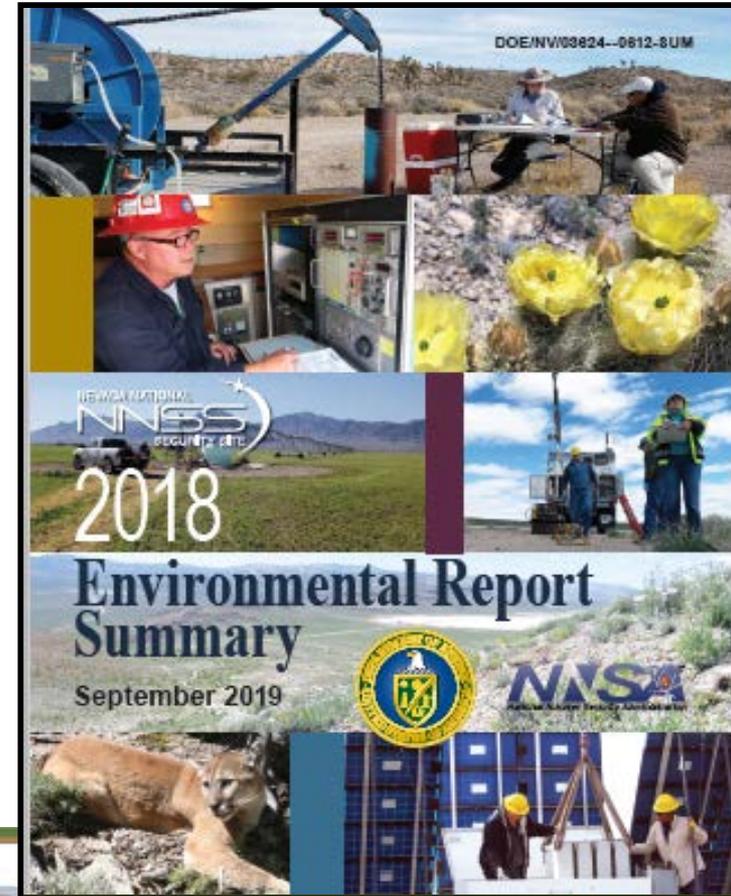
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# Reporting

- Results reported in NNS Environmental Annual Report at [www.nnss.gov/pages/resources/library/NNSSER.html](http://www.nnss.gov/pages/resources/library/NNSSER.html)
- Long-term monitoring reports completed, submitted to NDEP, and made publicly available
  - Periodic evaluation will be performed and documented every twelve years
  - Determine whether monitoring network is meeting expectations
  - Identify whether monitoring results are consistent with conceptual and/or numerical models



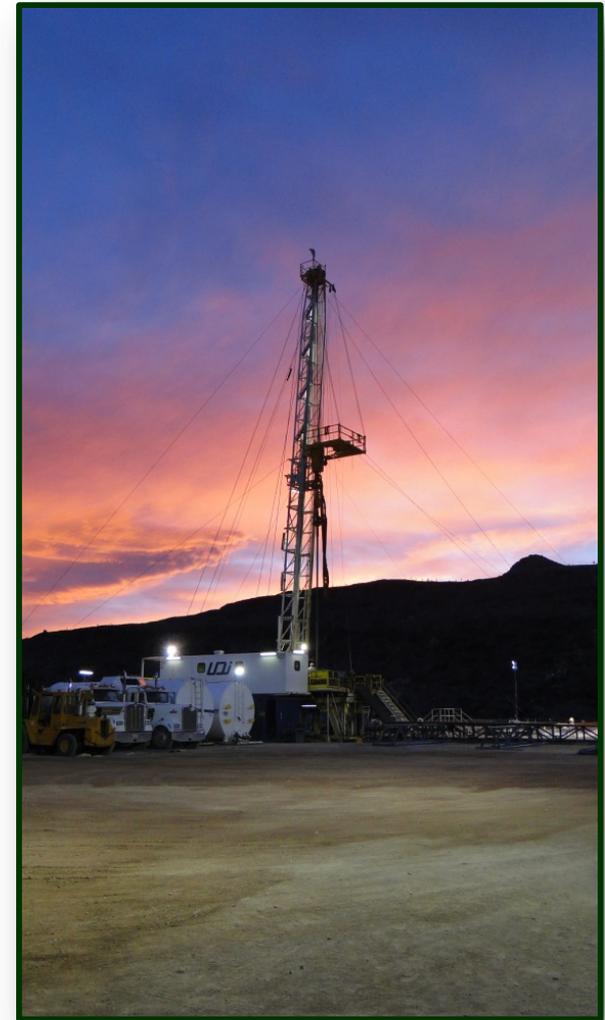
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# Key Messages (reiterated)

- Groundwater contamination resulting from historic underground nuclear testing in YF/CM is not expected to leave the boundaries of the NNSS
- Only potential (but unlikely) pathway out of the Yucca Flat basin is in LCA
- Contamination exceeding SDWA MCL in the LCA has only been observed in a single isolated location at Well UE-2ce
- Groundwater monitoring will provide early detection of contamination in LCA

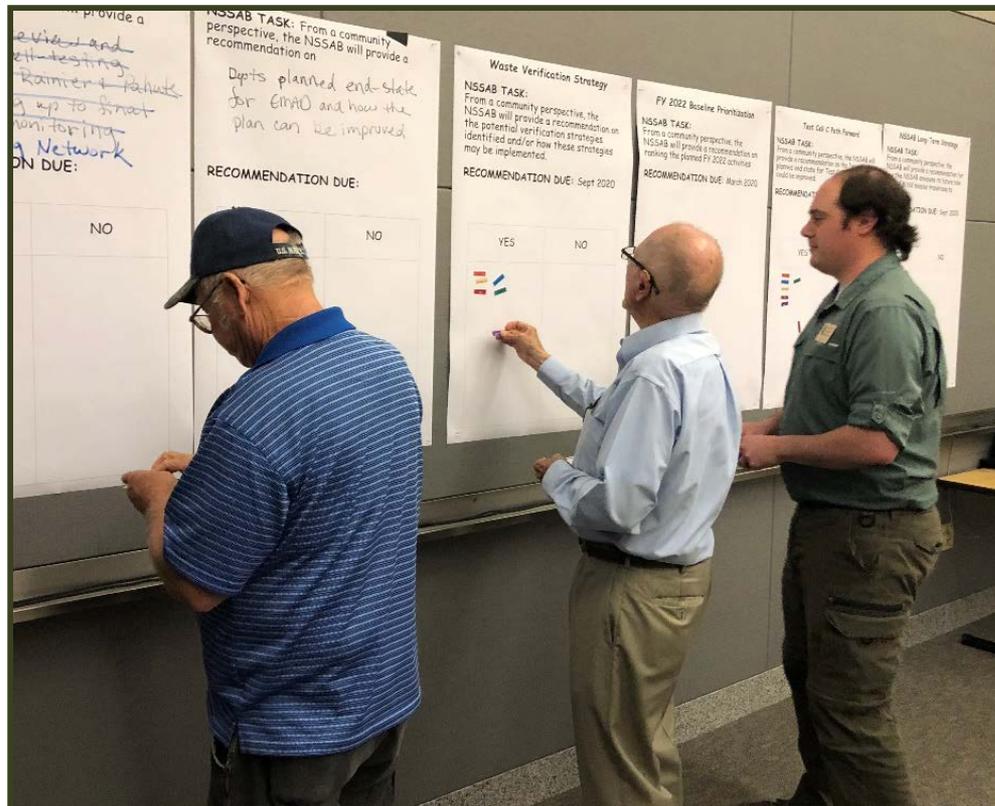


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# Path Forward



- From a community perspective, the NSSAB to provide a recommendation to the EM Nevada Program if they support the proposed YF/CM long-term monitoring network and recommend how it could be enhanced
- NSSAB recommendation is due tonight



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# ENVIRONMENTAL MANAGEMENT SITE-SPECIFIC ADVISORY BOARD

## CHAIRS MEETING RECOMMENDATION

October 30, 2019

Sun Valley, Idaho

### **Recommendation on Improving EM SSAB and Public Engagement in the DOE Environmental Management Budget Process**

Each Department of Energy Office of Environmental Management (DOE-EM) site is unique in its stage of cleanup – some are smaller, some are closer to the end of their cleanup and some have decades to go. Because of the uniqueness, difference in size, complexity, Federal Facility Agreements and length of cleanup the level of budget detail needed by each board may be different.

The eight citizen advisory boards that make up the EM Site-Specific Advisory Board (SSAB) that provide recommendations, advice and public perspectives to their local DOE-EM management believe that it is important to provide well-informed and timely recommendations, advice and comments regarding priorities at their sites. In order to do that they need to have an adequate level of priority planning detail provided in time to deliberate, develop and transmit timely recommendations to their respective local DOE-EM management. Consideration of our recommendations while the local EM offices are developing their priorities and budget requests and prior to local offices transmitting their priorities and budget request to DOE-EM HQ is in the spirit of transparency and collaboration.

The EM SSAB recommends:

1. DOE engage the local boards that make up the EM SSAB in the December-January-February timeframe in the budget process to ensure adequate time for the boards to be able to provide informed advice/recommendations for submittal to their local DOE EM management for review and consideration as local priorities and budget requests are being developed.
2. Local EM site offices work with their advisory board early in the December-January-February timeframe to identify the level of priority and budget detail that each Board needs to discuss and develop informed

advice/recommendations in time for DOE consideration as they develop their budget request submittal to DOE-EM HQ. For larger sites with multiple cleanup actions the detail should include an integrated priority planning list that identifies those cleanup activities that would be delayed if funding levels are not sufficient or if unplanned/emerging issues must be addressed.

3. DOE-EM HQ relay to the local EM offices whatever guidance is required in the December-January-February timeframe to ensure that the information local advisory boards need in order to understand and develop priorities and budget advice, recommendations are submitted to local EM management for review and consideration prior to their budget request submittal to HQ deadlines.

### **Who We Are**

*The EM SSAB is the DOE-EM's most effective vehicle for fostering two-way communication between DOE-EM and the communities it serves. The EM program is the world's largest environmental cleanup program, and the EM SSAB its only citizen advisory board. For more than 20 years, the volunteer citizens of the EM SSAB have partnered with EM officials at both the local and national levels to ensure that the public has a meaningful voice in cleanup decisions.*

*Public participation is required/recommended as part of a number of environmental regulations. It is also good business practice, resulting in better decisions that often result in improved cleanup. Over the past two decades, EM SSAB members have volunteered over 48,000 hours of their time and submitted to EM officials over 1500 recommendations, 88% of which have been fully or partially implemented, resulting in improved cleanup decisions.*

*The EM SSAB comprises approximately 200 people from communities in Georgia, Idaho, Kentucky, Nevada, New Mexico, Ohio, Oregon, South Carolina, Tennessee and Washington. The Board is cumulatively representative of a stakeholder population totaling millions of people who are affected by generator sites, transportation routes and disposal sites. As we move forward, the EM SSAB welcomes the opportunity to highlight the value of this unique volunteer board and discuss its priorities during the months and years ahead.*

## ENVIRONMENTAL MANAGEMENT SITE-SPECIFIC ADVISORY BOARD

### CHAIRS MEETING RECOMMENDATION

October 30, 2019  
Sun Valley, Idaho

#### **Recommendation on the Disposition and Transport of Nuclear Material**

The Waste Isolation Pilot Project transport program has been incredibly successful in helping accomplish the task of safe movement of transuranic (TRU) waste, to Carlsbad, New Mexico, from multiple Department of Energy's Environmental Management (DOE-EM) sites, beginning in the spring of 1999.

As members of the EM Site-Specific Advisory Board (EM SSAB), we laud the collaborative work between DOE and the Western states in the development and execution of this plan and the ongoing cleanup, transportation and disposition of TRU waste and other shipments thus far. We understand that the program includes common sense elements that exceed regulatory requirements.

The EM SSAB Chairs agree that safe transport of waste material to its permanent disposition addresses one of the most important goals that the DOE-EM complex has undertaken. We urge you not to undervalue the importance of this program which will be needed far into the future in order to address remaining TRU at all DOE-EM sites.

DOE activities are funded by Congress through its annual appropriation process. Within that appropriation framework, DOE requests funds necessary to support long-term obligations within its statutory and regulatory requirements.

It is important to the EM SSAB Chairs that DOE-EM, when dispositioning waste off-site, strive to move all DOE-EM regulated waste material, including TRU waste, once to its final disposition.

We appreciate this opportunity to share our observations and applaud DOE-EM's continued focus on solutions for nuclear waste disposition and safe transport to permanent repositories.

It is recommended that DOE-EM:

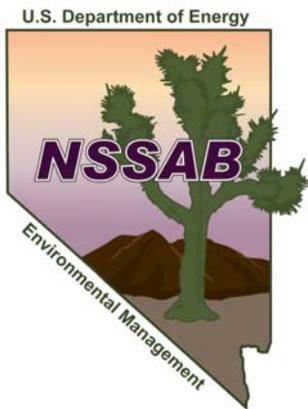
- Prioritize development of final disposition sites with the goal of reducing the interim storage footprint at each of the sites.
- Specify Waste Acceptance Criteria for all forms of waste and Spent Nuclear Fuel in a manner that will allow all sites to proceed with waste processing confidently, efficiently, and without delay.
- Continue to insist on a compliant budget that will provide sufficient funding to act without delay, nor impediment, to prepare waste for shipment.
- Create a transportation program for the safe and uneventful shipment of all EM waste material.

### ***Who We Are***

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# Nevada Site Specific Advisory Board

September 25, 2019

Mr. Kevin Cabble, DOE RWAP Manager  
U.S. Department of Energy  
Environmental Management (EM) Nevada Program  
P.O. Box 98518  
Las Vegas, NV 89193-8518

SUBJECT: Recommendation for Low-Level Waste (LLW) Visual  
Verification (Work Plan Item #5)

Dear Mr. Cabble,

The Nevada Site Specific Advisory Board (NSSAB) was asked to provide a recommendation, from a community perspective, to the U.S. Department of Energy (DOE) for how the Radioactive Waste Acceptance Program's (RWAP) visual verifications could be enhanced.

In support of this work plan item, NSSAB members, Anthony Graham and Steve Rosenbaum, observed a LLW visual verification at a Nevada National Security Site generator in July 2019. In August 2019, NSSAB members, Frank Bonesteel and Steve Rosenbaum, observed a LLW visual verification at a Los Alamos National Laboratory generator.

After NSSAB member reports and Board deliberation, the NSSAB provides the following recommendation for RWAP's LLW visual verifications:

- RWAP should continue performing visual verifications to ensure engineering and physical work is done properly at the generator site.

Additionally, the NSSAB suggests the following best management practice be considered at all sites:

- Use modern equipment to assist with sealing waste containers.

The NSSAB thanks Jhon Carilli, EM Nevada Program's LLW Activity Lead, and the RWAP Team for assisting and answering questions during the NSSAB's observations of the LLW visual verifications.

Sincerely,

Frank Bonesteel, Chair

cc: David Borak, DOE/HQ (EM-4.32)  
Michelle Hudson, DOE/HQ (EM-4.32)  
Marilew Bartling, Navarro  
Barbara Ulmer, Navarro  
NSSAB Members and Liaisons  
Robert Boehlecke, EM  
Jhon Carilli, EM  
Catherine Hampton, EM  
Kelly Snyder, EM  
Bill Wilborn, EM

## Members

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**Frank Bonesteel (Chair)**  
William DeWitt  
Karen Eastman  
Pennie Edmond  
Charles Fullen  
Richard Gardner  
Anthony Graham  
Tanya Henderson  
Donald Neill  
**Steve Rosenbaum (Vice-Chair)**  
Janice Six  
Richard Stephans  
Richard Twiddy  
Dina Williamson-Erdag  
Connie Wissmiller

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Consolidated Group of Tribes  
and Organizations  
Esmeralda County Commission  
Lincoln County Commission  
Nye County Commission  
Nye County Emergency  
Management  
Nye County Nuclear Waste  
Repository Project Office  
State of Nevada Division of  
Environmental Protection  
U.S. National Park Service  
White Pine County Commission

## Administration

Kelly Snyder, Deputy Designated  
Federal Officer (DDFO)  
U.S. Department of Energy,  
EM Nevada Program  
Barbara Ulmer, Administrator  
Navarro, Contractor for the U.S.  
Department of Energy,  
EM Nevada Program



U.S. Department of Energy  
Environmental Management  
Nevada Program  
100 N. City Parkway, Suite 1750  
Las Vegas, NV 89106

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OCT 17 2019

Frank Bonesteel, Chair  
Nevada Site Specific Advisory Board  
100 N. City Parkway, Suite 1750  
Las Vegas, NV 89106

RESPONSE TO THE NEVADA SITE SPECIFIC ADVISORY BOARD (NSSAB)  
RECOMMENDATION FOR LOW-LEVEL WASTE (LLW) VISUAL VERIFICATION  
(WORK PLAN ITEM #5)

Reference: Ltr Bonesteel to Cabbie, dtd 9/25/2019

I would like to thank the NSSAB for its recommendation on the LLW Visual Verification work plan item in the above-mentioned letter. The U.S. Department of Energy (DOE), Environmental Management (EM) Nevada Program appreciates the time that NSSAB members spent traveling to observe LLW visual verifications conducted by the Radioactive Waste Acceptance Program (RWAP) Team at generator sites in Nevada and New Mexico.

Below are responses to the NSSAB recommendation and best management practice for enhancements to RWAP's LLW visual verifications:

**NSSAB Recommendation:** RWAP should continue performing visual verifications to ensure engineering and physical work is done properly at the generator site.

**EM NV Response:** DOE agrees with NSSAB that performing visual verifications ensures engineering and physical work is done properly at the generator site. The RWAP team will continue to perform visual verifications at the generator sites.

**NSSAB Suggestion for Best Management Practice at all Generator Sites:** Use modern equipment to assist with sealing waste containers.

**EM NV Response:** The EM Nevada Program will communicate this NSSAB suggestion with generators.

Again, thank you for learning more about RWAP's LLW visual verifications and providing recommendations for enhancements.

Frank Bonesteel

-2-

OCT 17 2019

Please contact Kelly Snyder at (702) 724-0834 if further information on this matter is needed.

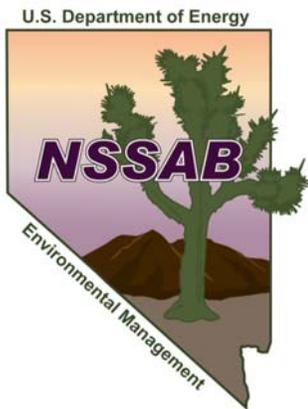


Kevin J. Cabbie  
RWAP Manager  
EM Nevada Program

EMO:14019.KC

cc via email:

David Borak, DOE/HQ (EM-4.32)  
Michelle Hudson, DOE/HQ (EM-4.32)  
Marilew Bartling, Navarro  
Barbara Ulmer, Navarro  
NSSAB Members and Liaisons  
Rob Boehlecke, EM  
Jhon Carilli, EM  
Catherine Hampton, EM  
Kelly Snyder, EM  
Bill Wilborn, EM



# Nevada Site Specific Advisory Board

August 14, 2019

Ms. Kelly Snyder, Deputy Designated Federal Officer  
U.S. Department of Energy (DOE)  
Environmental Management (EM) Nevada Program  
P.O. Box 98518  
Las Vegas, NV 89193-8518

SUBJECT: Recommendation for Additional National Environmental Policy Act (NEPA) Communication

Dear Ms. Snyder,

Recently, the Nevada Site Specific Advisory Board (NSSAB) discussed NEPA and the Board's awareness of NEPA actions. The Board is satisfied with the Nevada-controlled NEPA actions (those NEPA actions that the Nevada National Security Site (NNSS) is responsible for conducting). However, we are concerned that the Board may not be made aware of all NEPA actions at other DOE locations that could impact the NNSS. Additionally, the information provided is often too technical or complex to fully understand or be of benefit to stakeholders. Lastly, when the NSSAB is made aware of NEPA actions, both locally and at other DOE locations, we are often not able to provide comments within the established public comment deadline. The reason being all recommendations must be discussed and voted on during Full Board meetings and the NSSAB typically meets bi-monthly.

Therefore, the NSSAB recommends DOE do the following:

- Notify the NSSAB on any NEPA actions that may have a potential impact to the NNSS. This should include both Nevada -derived actions and actions at other DOE locations.
- Provide a briefing explaining the NEPA actions during a NSSAB Full Board meeting prior to the public comment period closing. For NEPA actions that do not have a public comment period, a presentation should be provided in a timely manner for informational purposes.

Thank you for your consideration of this recommendation. Timely notification and presentations will provide an opportunity for the NSSAB to be educated on these activities and the ability to provide comments on actions that could have a significant impact in the state of Nevada.

Sincerely,

Frank Bonesteel, Chair

## Members

Amina Anderson  
**Frank Bonesteel (Chair)**  
William DeWitt  
Karen Eastman  
Pennie Edmond  
Charles Fullen  
Richard Gardner  
Anthony Graham  
Tanya Henderson  
Hepburn Klemm  
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Connie Wissmiller

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Nye County Nuclear Waste  
Repository Project Office  
State of Nevada Division of  
Environmental Protection  
U.S. National Park Service  
White Pine County Commission

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Kelly Snyder, Deputy Designated  
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U.S. Department of Energy,  
EM Nevada Program  
Barbara Ulmer, Administrator  
Navarro, Contractor for the U.S.  
Department of Energy,  
EM Nevada Program

Page 2  
August 14, 2019  
Recommendation for Additional NEPA Communication

cc: David Borak, DOE/HQ (EM-4.32)  
Michelle Hudson, DOE/HQ (EM-4.32)  
Barbara Ulmer, Navarro  
NSSAB Members and Liaisons  
Robert Boehlecke, EM  
Catherine Hampton, EM  
Bill Wilborn, EM



U.S. Department of Energy  
Environmental Management  
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100. N. City Parkway, Suite #1750  
Las Vegas, NV 89106

---

October 2, 2019

Frank Bonesteel  
NSSAB Chair  
232 Energy Way  
N. Las Vegas, NV 89030

RESPONSE TO AUGUST 14, 2019 NEVADA SITE SPECIFIC ADVISORY BOARD  
(NSSAB) RECOMMENDATION REGARDING NATIONAL ENVIRONMENTAL POLICY  
ACT (NEPA) ACTIONS

Thank you for taking the time to discuss NEPA related actions and providing the Environmental Management (EM) Nevada Program recommendations on how improvements could be made in order to enhance the NSSAB's ability to providing comments to open NEPA actions. The NSSAB recommended the following:

NSSAB Recommendation: Notify the NSSAB on any NEPA actions that may have a potential impact to the NNSS. This should include both Nevada-derived actions and actions at other DOE locations.

NSSAB Recommendation: Provide a briefing explaining the NEPA actions during a NSSAB Full Board meeting prior to the public comment period closing. For NEPA actions that do not have a public comment period, a presentation should be provided in a timely manner for informational purposes.

Many NEPA actions that potentially could impact the NNSS originate outside the EM Nevada Program and may be outside the purview of the Department's Office of EM. Therefore, EM Nevada cannot commit to providing briefings on all NEPA actions that may impact the NNSS. However, EM Nevada remains committed to communicating EM Nevada Program originated NEPA actions that are available for public comment to the NSSAB in a timely manner which will allow the NSSAB time to discuss and comment on those actions. During times where the NSSAB meeting schedule does not allow the Board to comment during the public comment period, the NSSAB can still provide comments to EM Nevada through the standard recommendation process. The recommendation/comment will be addressed outside of the NEPA process and will receive a response like all NSSAB recommendations.

Most importantly, EM Nevada commits to sharing your recommendation with EM Headquarters to ensure personnel are aware of the Board's recommendation and can take it into consideration for other EM-related NEPA actions that originate at non-EM Nevada locations.

Please contact Kelly Snyder at (702) 295-2836 if further information on this matter is needed.



Robert F. Boehlecke  
Program Manager  
EM Nevada Program

EMOS:13379.KKS

cc via email:

David Borak, DOE/HQ (EM-4.32)  
Michelle Hudson, DOE/HQ (EM-4.32)  
Barbara Ulmer, Navarro  
NSSAB Members and Liaisons  
Tiffany Gamero, EM  
Catherine Hampton, EM  
Kelly Snyder, EM  
Bill Wilborn, EM  
Carrie Stewart, NNSA/NFO  
NFO Read File