



Nevada Site Specific Advisory Board Table of Contents

Administrative Meeting Handouts for Wednesday, May 20, 2020

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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
MEMBERS							
Amina Anderson	√	√					2020
Francis Bonesteel	√	√					2022
William DeWitt	√	√					2024
Karen Eastman	√	√					2020
Pennie Edmond	E	√					2022
Charles Fullen	√	√					2022
Richard Gardner	E	√					2022
Anthony Graham	√	√					2024
Tanya Henderson	E	√					2024
Donald Neill	√	√					2020
Steve Rosenbaum	√	√					2020
Janice Six	√	√					2024
Richard Stephans	√	√					2022
Richard Twiddy	√	√					2022
Dina Williamson-Erdag	E	√					2022
LIAISONS							
Clark County	√	E					
Consolidated Group of Tribes & Organizations	E	E					
Elko County Commission (limited)							
Esmeralda County Commission	U	U					
Lincoln County Commission	U	√					
Nye County Commission	U	√					
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							



**Overview of the
U.S. Department of Energy
Office of Legacy Management**



U.S. DEPARTMENT OF
ENERGY

Legacy
Management

**U.S. Department of Energy (DOE)
Office of Legacy Management (LM)
Presentation for the
Nevada Site Specific Advisory Board Full Board Meeting**

Ken Kreie, LM Nevada Offsites Site Manager

Greg Kuntz, LM Communication, Education, and
Outreach Nevada Offsites Lead

May 20, 2020

Discussion Topics

- LM Background Information
 - LM's origin and goals
 - Mission and sites
 - Stakeholder engagement and records management
- Central Nevada Test Area (CNTA), Nevada, Site
- Project Shoal Area (Shoal), Nevada, Site
- Tonopah Test Range (TTR) Transition to LM



What Is the Office of Legacy Management?

- **We are the caretakers of legacy sites that played a critical role in America's nuclear history**
- Established in 2003, we serve as stewards of cultural, historical, and natural resources
- Our work requires close coordination with other federal, state, local, and tribal governments to ensure public and environmental safety under our regulatory authority



Central Nevada Test Area (CNTA)



Shoal, Nevada, Site



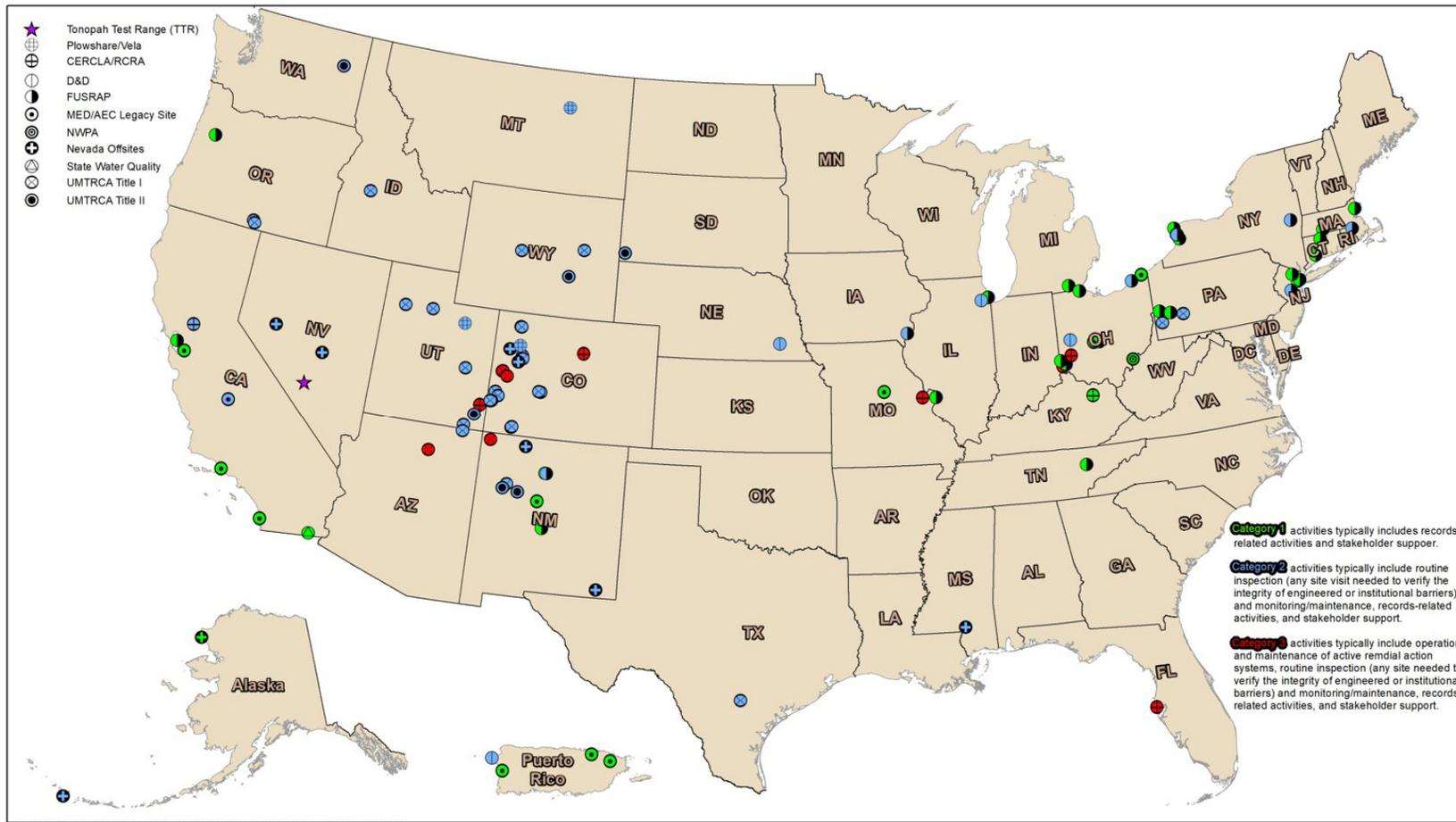
LM Is Dedicated to ...

- Stewardship
 - Manage legacy sites that played a role in our country's nuclear history with a commitment to maintaining the public trust
- Environment
 - Coordinate with federal, state, and local agencies to monitor the impact of sites and maintain compliance with existing environmental laws and regulations
- Safety and Health
 - Provide the public with information they need to be confident in the safety of our sites
- Community
 - Partner and consult with stakeholders — tribal nations, state and local government, community organizations, and individual citizens — who know and are vested in our sites



100 Sites in 29 States and Puerto Rico

- LM expects to oversee 122 sites by the end of 2025



LM Program Responsibilities

- **UMTRCA** – Uranium Mill Tailings Radiation Control Act of 1978
- **CERCLA** – Comprehensive Environmental Response, Compensation, and Liability Act of 1980
- **RCRA** – Resource Conservation and Recovery Act of 1976
- **FUSRAP** – Formerly Utilized Sites Remedial Action Program
- **D&D** – DOE Defense Decontamination and Decommissioning Program sites
- **Nuclear Waste Policy Act of 1982**, and other laws, such as state voluntary cleanup standards and DOE Orders
- **Other** – Nevada Offsites or records-only sites



Working With Stakeholders and Other State and Federal Agencies

- LM achieves its mission with input from state and local governments, affected tribes, and stakeholders
- In Nevada
 - LM is a party to the Federal Facility Agreement and Consent Order (FFACO)
 - LM works with the State of Nevada Division of Environmental Protection (NDEP) to implement closure and post-closure activities at the CNTA and Shoal sites
 - Technical support is received from Desert Research Institute (DRI)



NDEP and DRI scientists visit the Shoal site



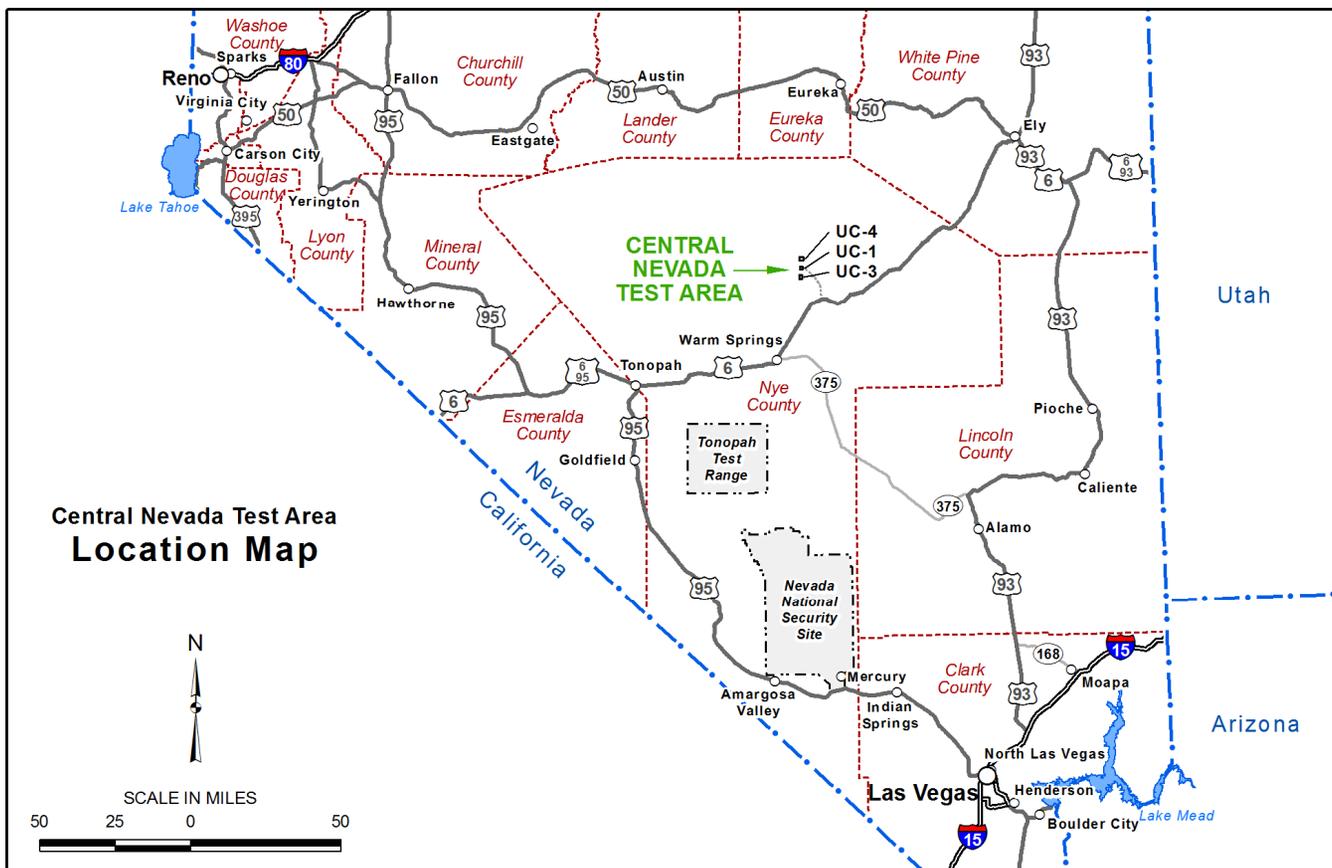
Nevada Offsites Program



\\img\ProjectWorkArea\Sites\Regional\US\ntier\B\LM Sites Map\LM Nevada Offsites.mxd nttierb 02/07/2020 11:53:44 AM



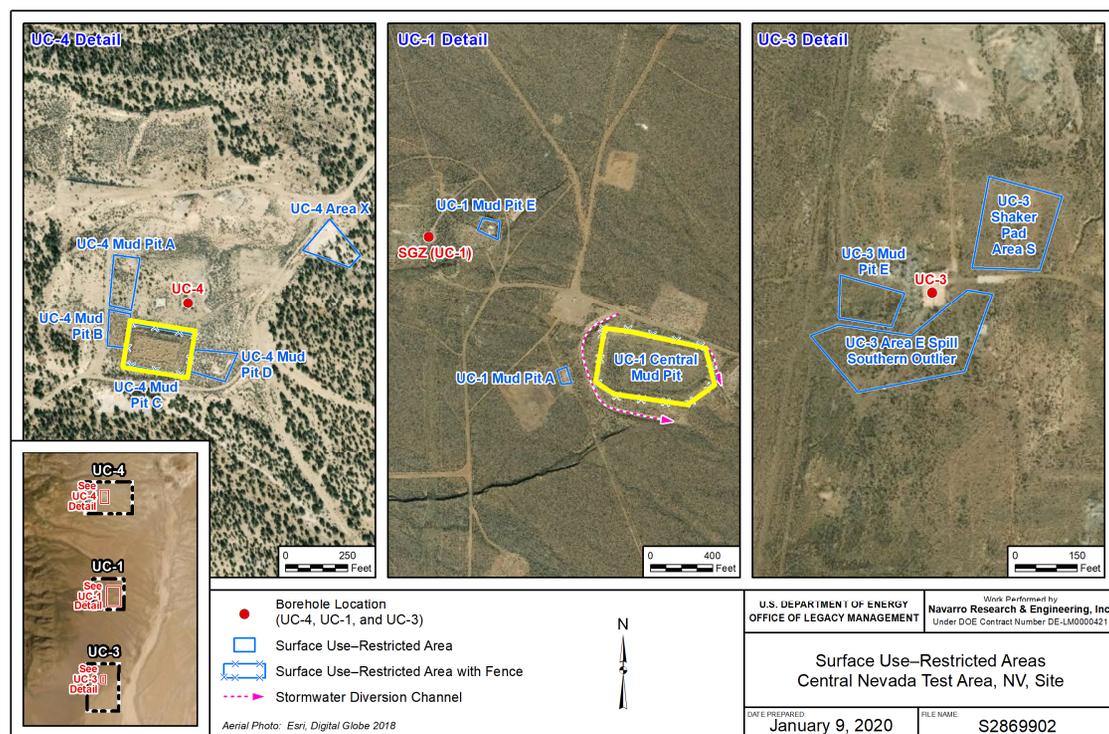
Central Nevada Test Area (CNTA)



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CNTA (continued)

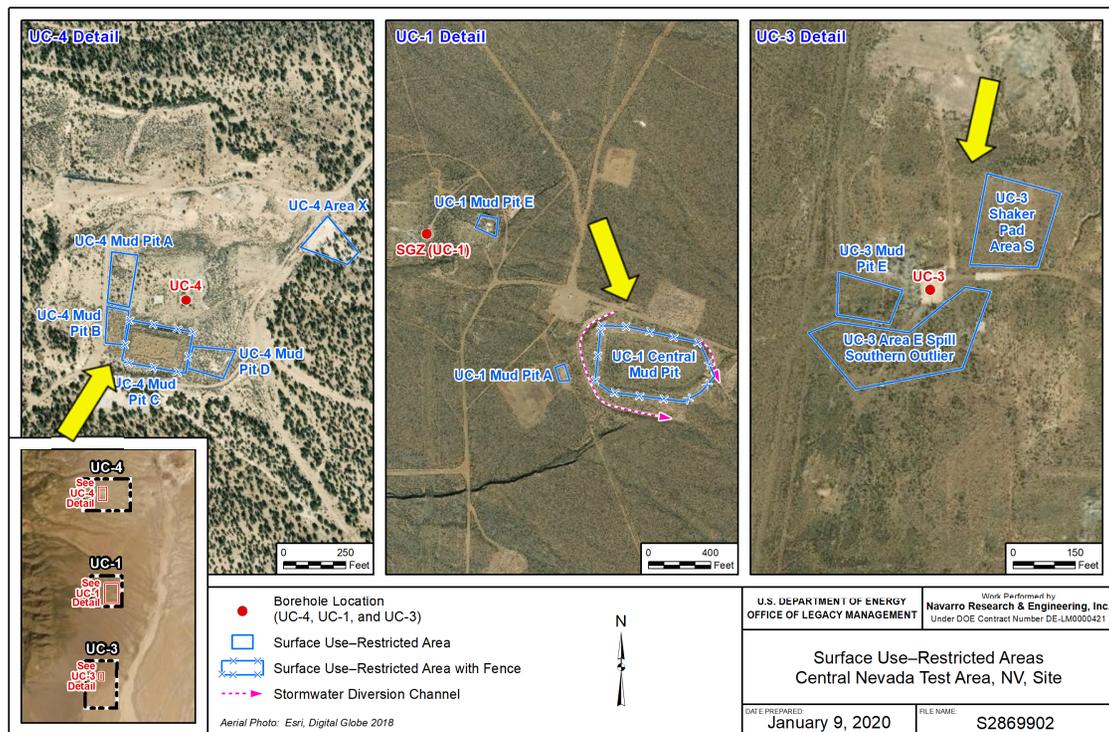


■ Institutional Controls – Surface

- Eleven land-use restrictions were established for areas with soils impacted by diesel fuel, two of these areas are engineered basins constructed to contain impacted soil
 - U.S. Bureau of Land Management (BLM) has administrative rights and the surface use-restricted areas are maintained in their GIS database
 - Monuments, signs, and fences identify the use-restricted areas to the public, stating no excavation, drilling, and/or removal of material is permitted without government approval



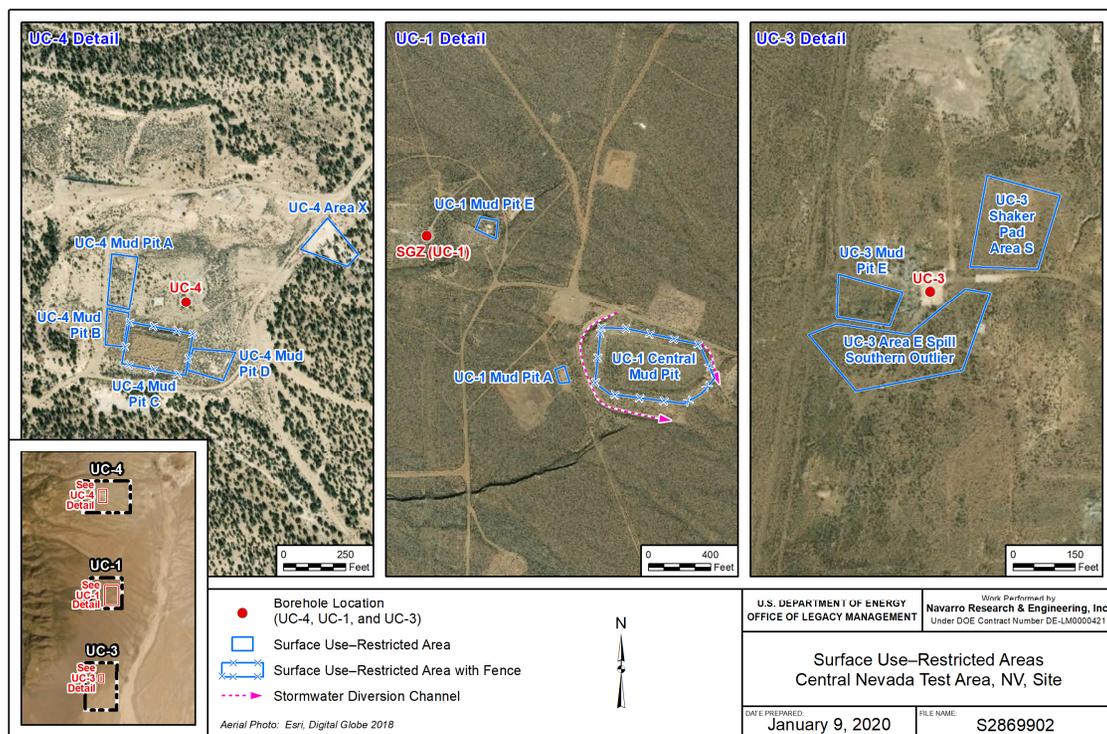
CNTA (continued)



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CNTA (continued)

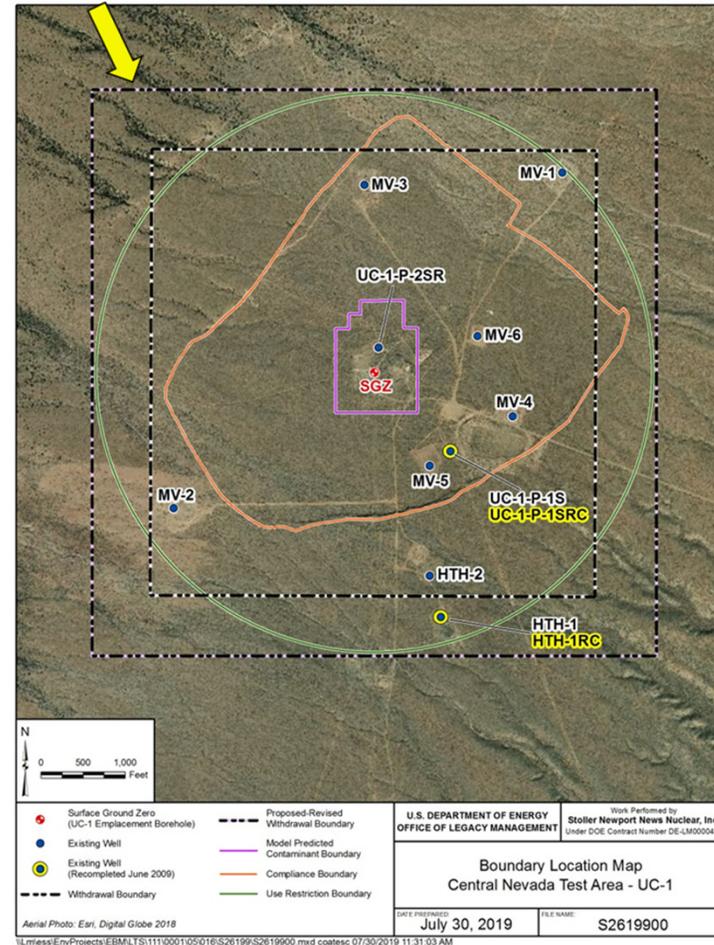


- Postclosure Monitoring – Surface
 - Inspections (annual):
 - Assesses the condition of the engineered mud pit covers, vegetation on the covers, fences, signs, and monuments to ensure institutional controls remain in place and effective
 - Reporting (biennial):
 - Documents the inspection results and provides recommendations to NDEP for any additional monitoring or maintenance at the site



CNTA (continued)

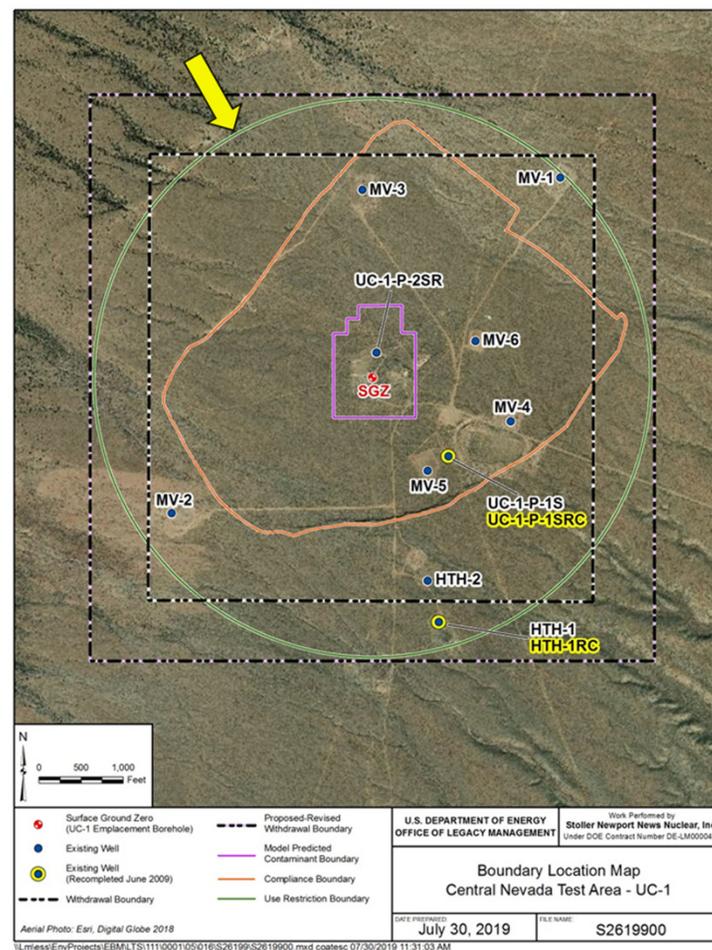
- Institutional Controls – Subsurface
 - The land is under federal jurisdiction and withdrawn from all forms of appropriation associated with mining laws and leasing



CNTA (continued)

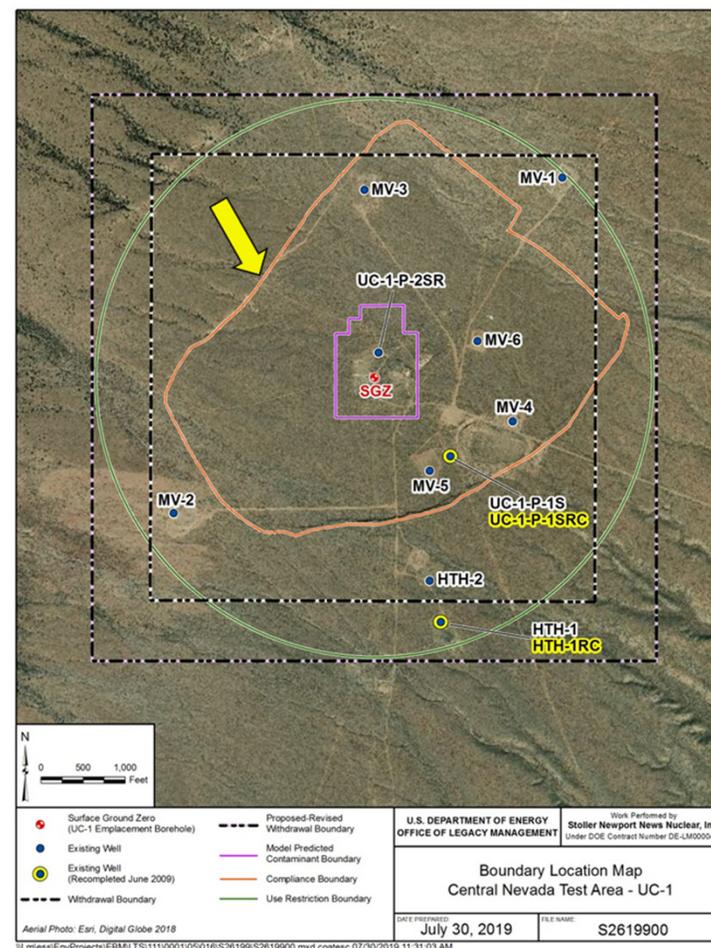
- Institutional Controls – Subsurface

- The land is under federal jurisdiction and withdrawn from all forms of appropriation associated with mining laws and leasing
- Land-use restrictions are in place with BLM to restrict subsurface intrusion while maintaining public access for surface activities
- Monuments and signs notify the public that excavation or digging is prohibited without U.S. Government approval



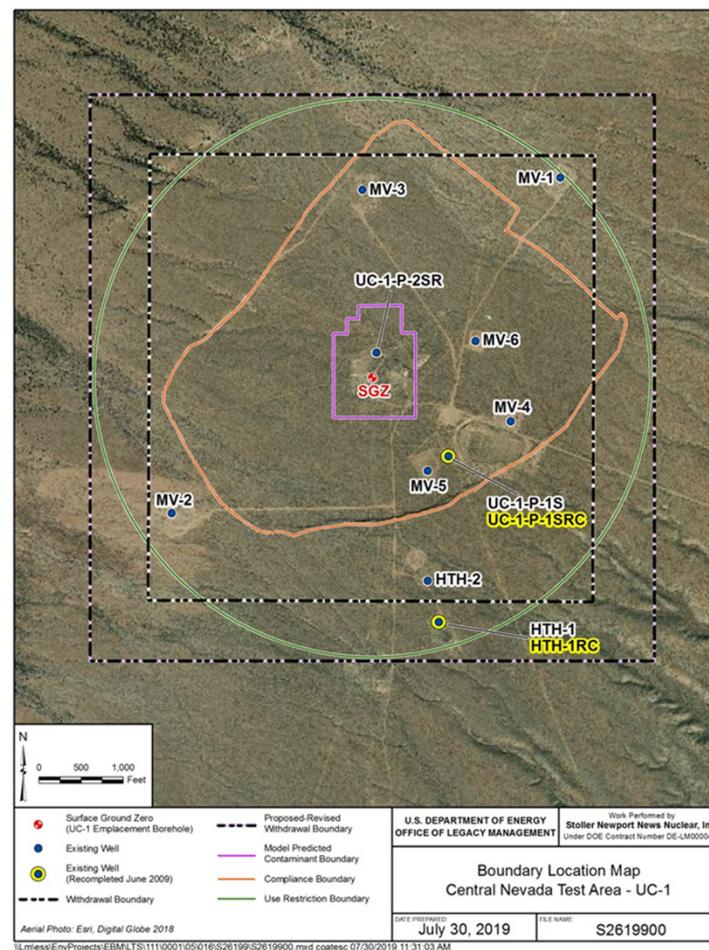
CNTA (continued)

- Institutional Controls – Subsurface
 - The land is under federal jurisdiction and withdrawn from all forms of appropriation associated with mining laws and leasing
 - Land-use restrictions are in place with BLM to restrict subsurface intrusion while maintaining public access for surface activities
 - Monuments and signs notify the public that excavation or digging is prohibited without U.S. Government approval
 - Compliance boundary (regulatory control) – area where contaminant concentrations above Safe Drinking Water Act standards are to remain

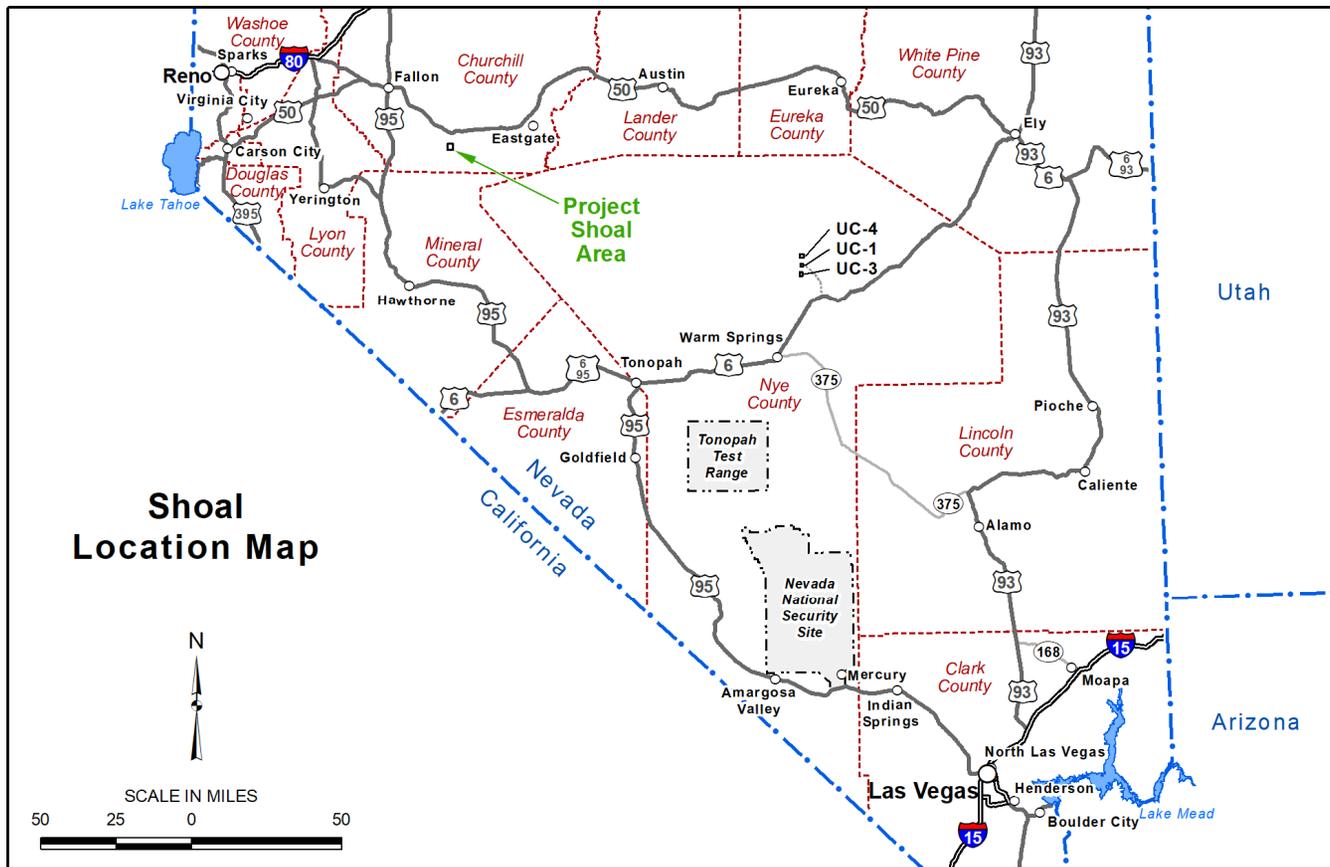


CNTA (continued)

- Postclosure Monitoring – Subsurface
 - Inspections (annual):
 - Assess condition of physical controls (surface features), confirm use restrictions remain in place and effective, and conduct site-monitoring activities
 - Sampling (every three years):
 - Collect groundwater samples to verify that radioisotopes of interest have not migrated
 - Reporting (every three years):
 - Summarizes inspection results, provides recommendations to NDEP for any maintenance, provides a status on institutional controls, describes any change in resource use, and documents the site monitoring results



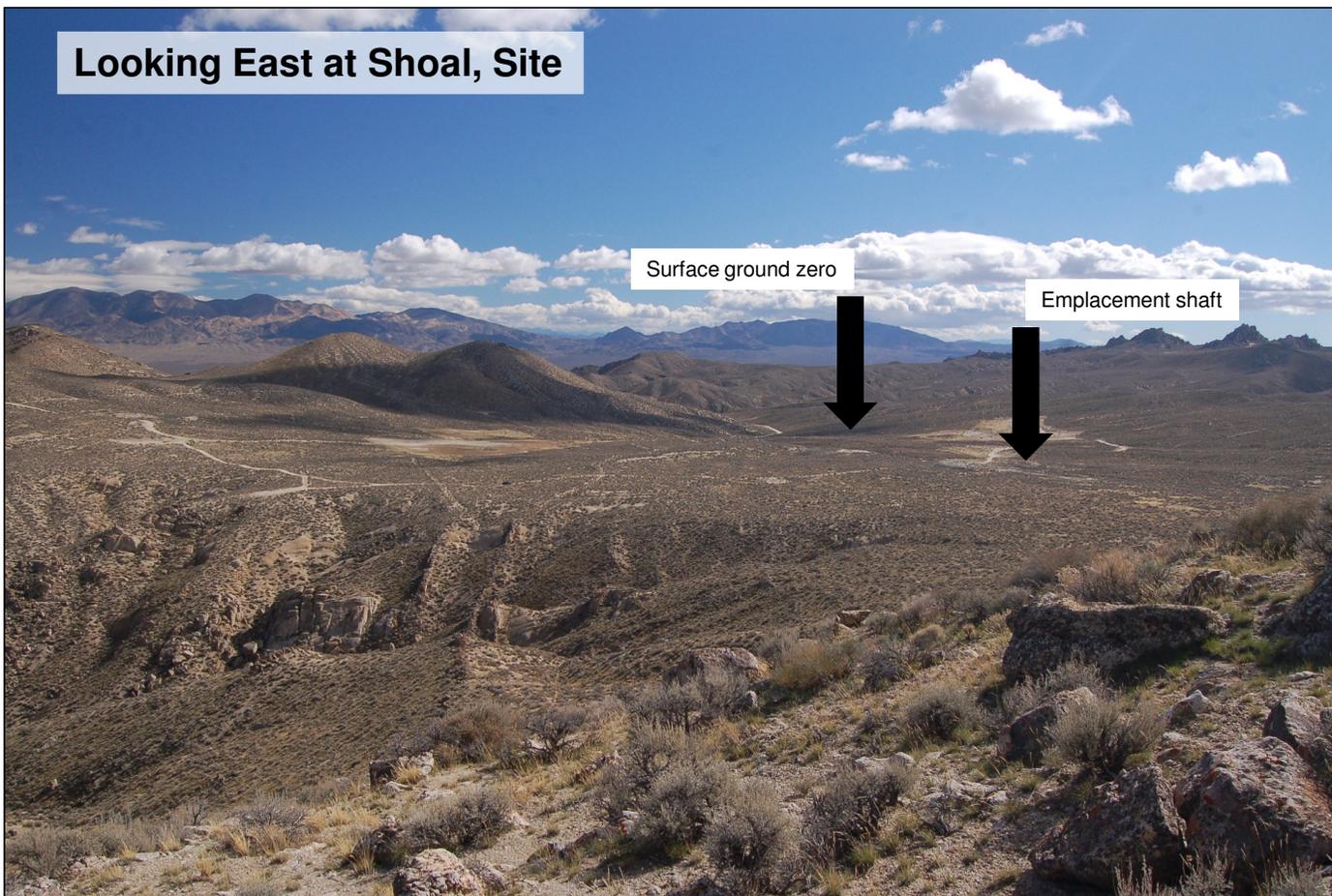
Project Shoal Area (Shoal)



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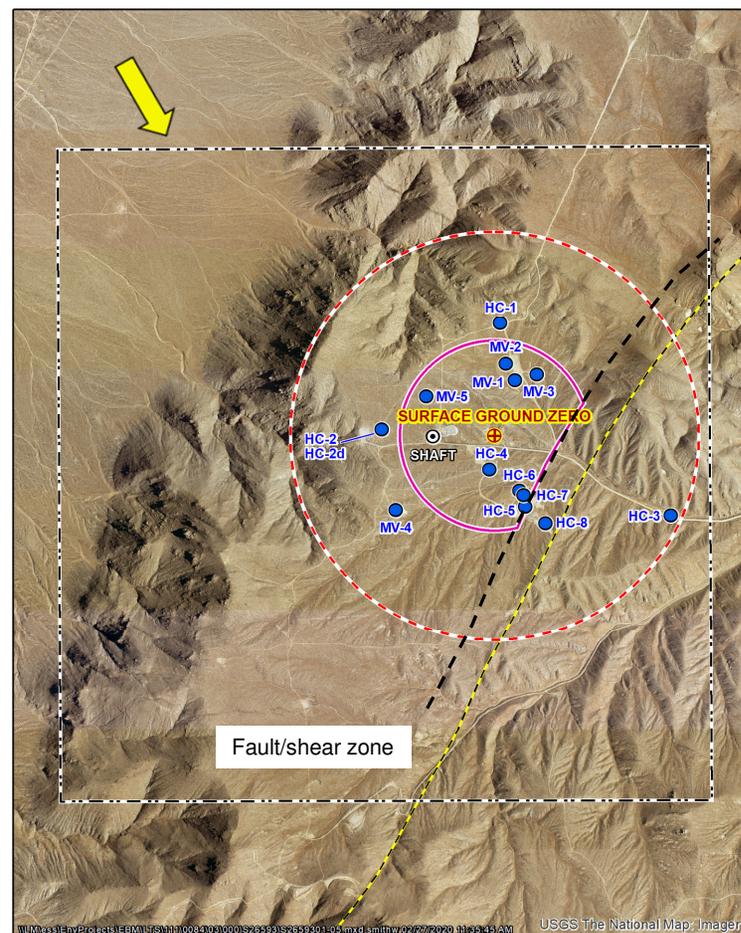


Shoal (continued)



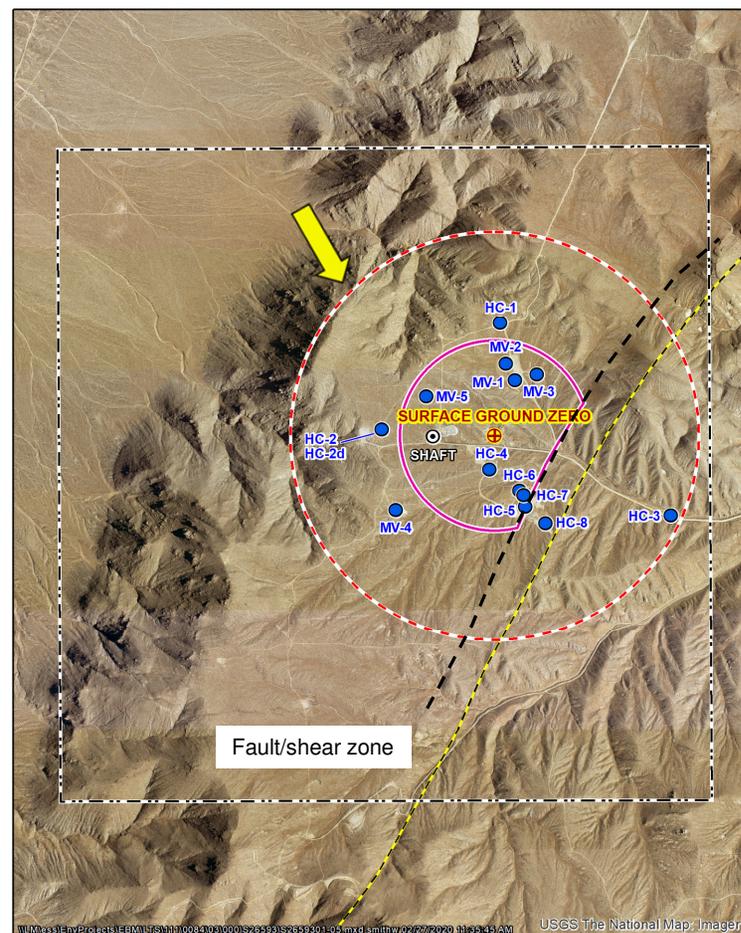
Shoal (continued)

- Institutional Controls – Subsurface
 - The land is under federal jurisdiction and withdrawn from all forms of appropriation associated with mining laws and leasing



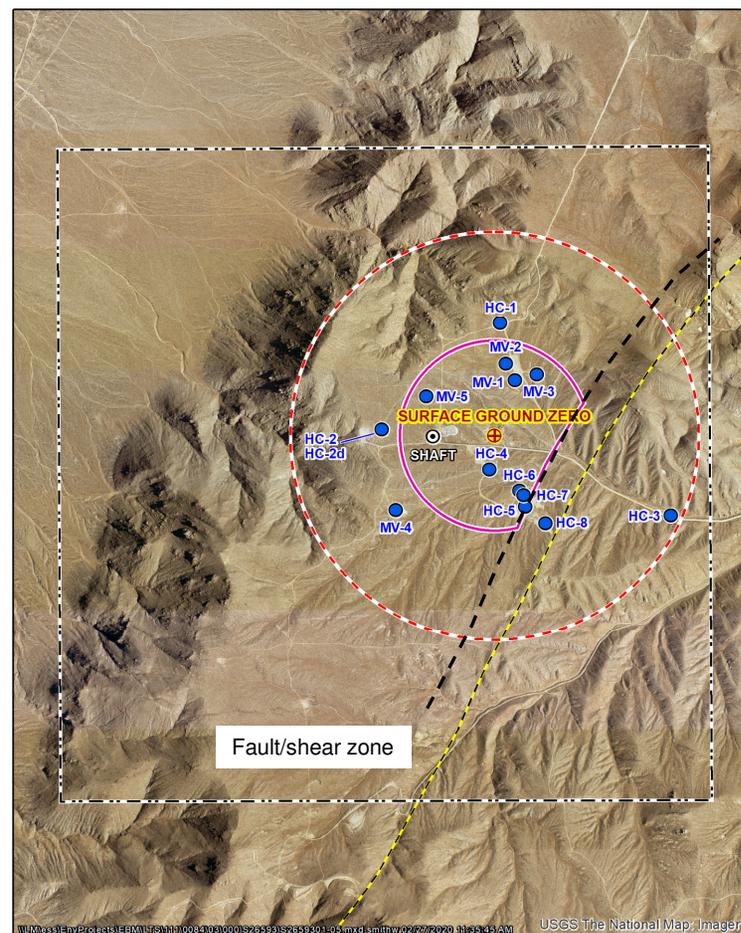
Shoal (continued)

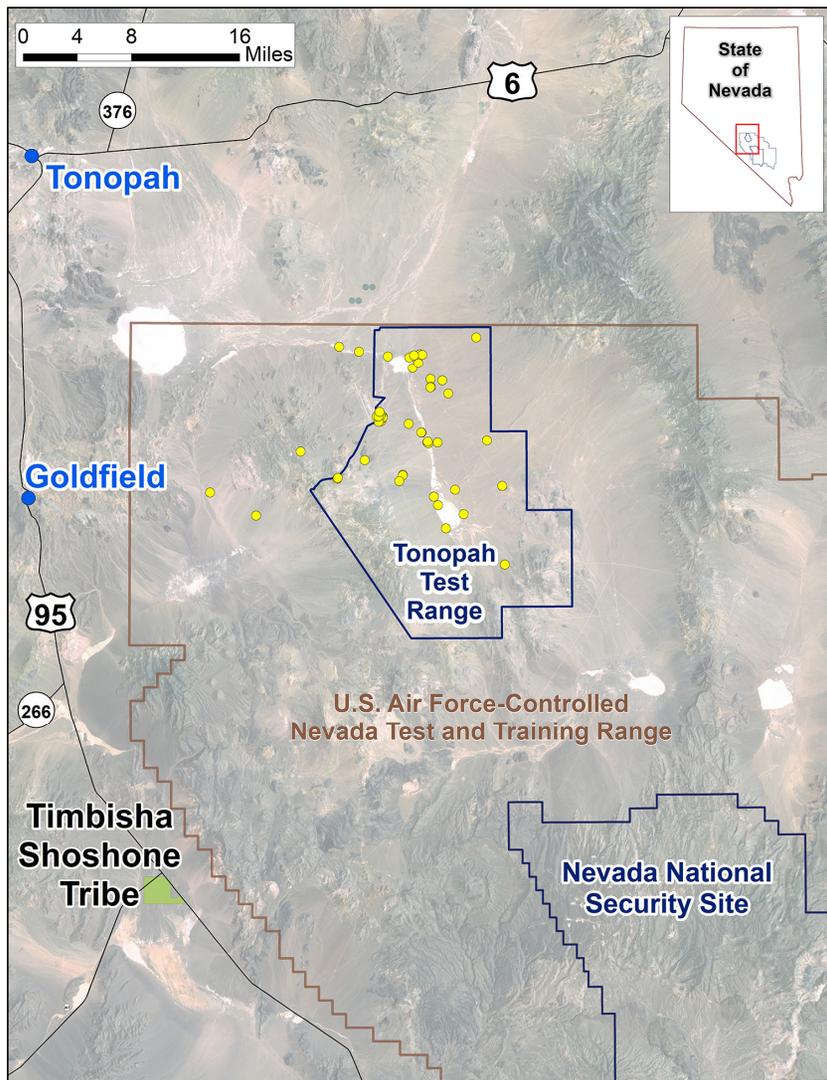
- Institutional Controls – Subsurface
 - The land is under federal jurisdiction and withdrawn from all forms of appropriation associated with mining laws and leasing
 - Land-use restrictions to be in place with BLM and U.S. Navy to restrict subsurface intrusion while maintaining public access for surface activities
 - Compliance boundary (regulatory control) – area where contaminant concentrations above Safe Drinking Water Act standards are to remain
 - Monument – stating no excavation or digging without government approval



Shoal (continued)

- Post-closure Monitoring
 - Inspections (annual):
 - Assess condition of physical controls (site features), confirm the use restriction remains in place and effective, and measure water levels in site wells
 - Sampling (every three years):
 - Collect groundwater samples to verify the radioisotopes of interest have not migrated
 - Reporting (every three years):
 - Summarize inspection results, provide recommendations for any maintenance, status on the institutional controls, describe any change in resource use, and document the monitoring results





NTTR/TTR FFACO Sites

- Sites where surface and shallow subsurface soil and debris were contaminated as a result of historic nuclear weapon system tests and support activities
 - DOE completed environmental corrective actions and is responsible for long-term stewardship per the FFACO
 - Located in south-central Nevada on the Nevada Test and Training Range (NTTR), which includes the TTR
 - Inaccessible to the general public – secured and controlled by U.S. Air Force (active military range)
 - TTR operated by Sandia National Laboratories
- U.S. Air Force use of this land is granted by a Land Use Withdrawal enacted by Congress



Transition of NTTR/TTR FFACO Sites



- DOE Office of Environmental Management (EM) will transfer long-term stewardship responsibility to LM by September 30, 2020
 - Seventy FFACO sites closed under the FFACO with NDEP approval
- LM became a signatory to the FFACO in 2006 for the transfer of Nevada Offsites
- EM Nevada Program is responsible for FFACO compliance until the transfer is complete
- National Nuclear Security Administration/Nevada Field Office is currently responsible for DOE radiological program requirements



Principal TTR Sites Transition Activities

- Transferring paper and electronic records
- Transferring electronic data (GIS, sampling, radiological surveys)
- Negotiating agreements necessary for executing the LM mission (site access, landfill repairs)
- Transferring real or personal property such as fences and monuments
- Coordinating stakeholder communication with the EM Nevada Program



The DOE Office of EM Nevada Program shipped the first collection of records to the LM Business Center in Morgantown, West Virginia, in February 2020



TTR Sites Long-Term Stewardship

- Sixty sites are LM Category 1 sites (records only)
 - No inspections or other monitoring is required
 - LM will be responsible for records management and stakeholder interaction
- Ten sites are LM Category 2 sites with use restrictions
 - LM will be responsible for inspections and maintenance/repairs, records management, and stakeholder interactions
 - LM will be responsible for radiological program compliance at one site with a waste pit containing buried radioactive material



TTR Sites Long-Term Stewardship (continued)

- Surveillance and maintenance at the 10 sites with use restrictions:
 - Annual visual inspections of fences, warning signs, monuments, and soil covers
 - Annual visual inspection of radiological postings at the one site with a waste pit containing buried radioactive material
 - Minor repairs: filling animal burrows (common)
 - Larger repairs: filling subsidence holes or drainage runnels (rare)
- No groundwater monitoring wells
- No sampling



Contact Information

- Ken Kreie, LM Nevada Offsites Site Manager, (970) 248-6036, Ken.Kreie@lm.doe.gov
- Greg Kuntz, LM Communication, Education, and Outreach Nevada Offsites Lead, (202) 923-0218, greg.kuntz@lm.doe.gov

For more information about LM activities contact:

U.S. Department of Energy

Office of Legacy Management

2597 Legacy Way, Grand Junction, CO 81503

(970) 248-6070 (monitored continuously)

(877) 695-5322 (toll-free)

<https://www.energy.gov/lm/office-legacy-management>



Questions?



NYE COUNTY TRITIUM SAMPLING AND MONITORING PROGRAM (TSaMP) 2020 UPDATE

Nye County Nuclear Waste Repository Project Office

John Klenke

May 20, 2020

MATERIAL IN THE FOLLOWING
PRESENTATION SOLELY
REPRESENTS THE VIEW POINT OF
THE AUTHOR AND DOES NOT
REPRESENT DRI OR DOE.

Overview

- ▣ Background
- ▣ Land Status
- ▣ Population
- ▣ Responsibilities
- ▣ CEMP Stations and Focus Area
- ▣ Locations Sampled by DOE
- ▣ Determining Nye County Sample Locations
- ▣ Core Well Sampling Results
- ▣ Sampling Results (2016 - 2019)
- ▣ ER-OV Wells
- ▣ Public Outreach
- ▣ Quality Assurance
- ▣ Town Board Meetings
- ▣ Possible Sampling Locations for 2020 - 2021

Background – Why Are We Here?

- ▣ Nye County has the duty to protect the health and safety of citizens
 - ▣ Through its Nuclear Waste Repository Project Office (NWRPO), Nye County conducted scientific characterization of the area between Yucca Mountain and the Town of Amargosa
 - Drilled and completed approximately 50 wells
 - Conducted numerous aquifer and tracer tests, geophysical surveys, water level measurements, and other specialized testing
 - Data provided to Department of Energy (DOE)
 - ▣ Tritium from former weapons tests has been observed migrating on and off the NNSS
 - Offsite migration is only located on Federally-controlled land and below the SDWA standards
 - ▣ Currently in a seven-year grant with DOE to conduct tritium sampling and analysis at locations downgradient from areas formerly used for nuclear weapons testing *
- * 2-year no cost extension approved by DOE (to 8/16/2022)

Land Status

- ▣ Nye County encompasses 18,199 mi²
 - Largest county (by area) in the state, and the third-largest in contiguous US
- ▣ Approximately 98% of land in Nye County is federally controlled
 - Bureau of Land Management
 - US Forest Service
 - Department of Defense
 - Department of Energy
- ▣ **Nevada National Security Site (NNSS; formerly the Nevada Test Site) is entirely within Nye County; part of the Nevada Test and Training Range (NTTR) lies within Nye County**
- ▣ Nye County population of 44,202 (2017 - U.S. Census Bureau)

Population

Pahrump:

- ▣ Approximately 26 miles south from NNSS
- ▣ Population of 38,000 people (2012)
- ▣ Estimated 73,000 people by 2060 (at 1.5% growth rate - NCWD)

Amargosa:

- ▣ Approximately 9 miles SW from the border of NNSS
- ▣ 50 mile south (downgradient) from Pahute Mesa
- ▣ Population of 1,456 (2010 census)

Population - cont

Beatty:

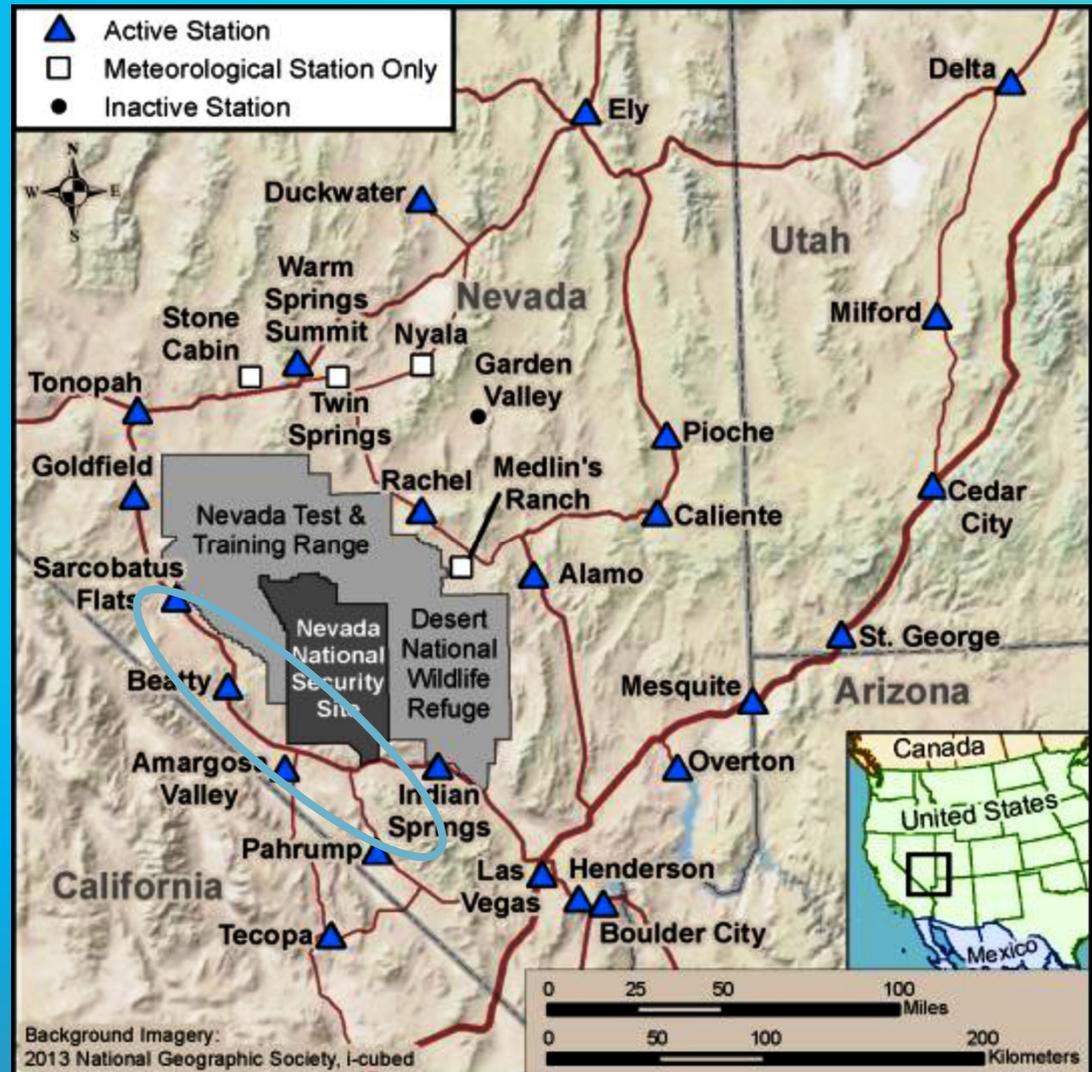
- ▣ Approximately 30 miles southwest (downgradient) from Pahute Mesa
- ▣ Approximately 25 miles southwest of ER-EC-11
 - Offsite well located on the Nevada Test and Training Range
 - ER-EC-11 ; Tritium detected 2009 at 12,000 picocuries per liter (60% of EPA Safe Drinking Water Act), and re-sampled in 2017 at 18,400 (92% of EPA Safe Drinking Water Act)
- ▣ Population of 1,010 people (2010 census)

Responsibilities

- ▣ Nye County is responsible for:
 - Identification of sampling locations (**will consider input from the public**)
 - Developing sampling plans and procedures – ensures systematic, consistent sampling methodology
 - Collection of water samples for tritium analysis
 - Obtaining tritium analysis through **independent laboratories** certified by the State of Nevada
 - Checking the data to ensure quality
 - Providing sampling methodology, data, and quality check results to DOE for inclusion in the Annual NNSS Environmental Report
- ▣ Fact sheets, brochures or handouts
- ▣ Local government awareness
- ▣ Public meetings and community events to ensure public's perspective is represented
- ▣ Data dissemination options include publication on the Nye County website (www.nyecounty.com) and/or continued publication on DRI's CEMP website (www.cemp.dri.edu)

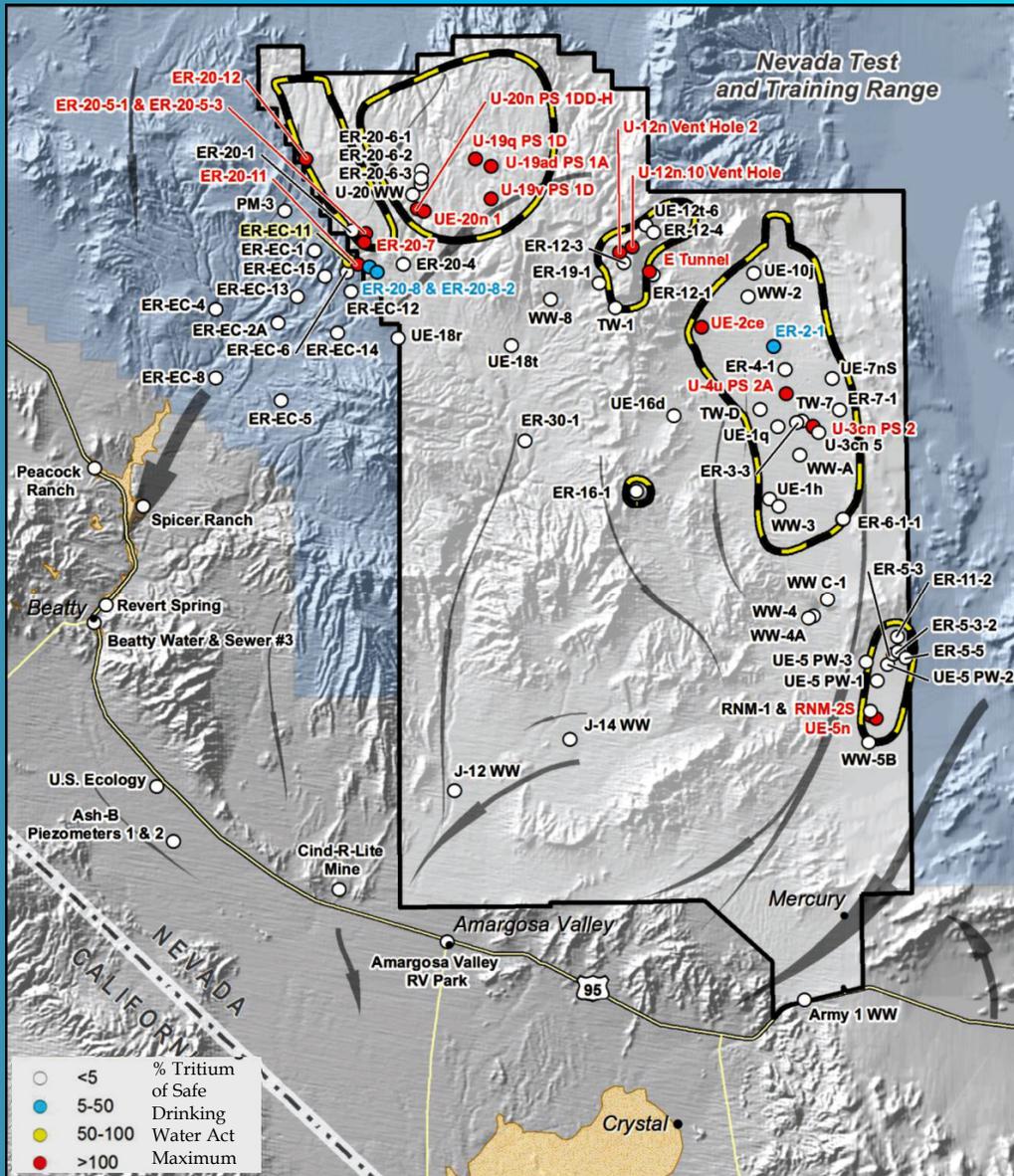
CEMP Stations and Focus Area

- Map at right shows CEMP stations (6/26/18) (www.cemp.dri.edu)
- Regional groundwater flow direction is predominantly north to south
- Downgradient areas outlined in blue
- Note that we are characterizing conditions in offsite areas only



*Image from CEMP website

Locations Sampled By DOE



- Map shows sampled sites under the NNSS Integrated Groundwater Monitoring Program on and off the NNSS and NTR
- Tritium results are represented as a percentage of the Maximum Contaminant Level (20,000 pCi/L, as defined by the US Environmental Protection Agency)
- Note localized variations in the groundwater flow directions

* Fig 5-2, Nevada National Security Site Environmental Report 2018

Determining Nye County Sample Locations

- ▣ Data from the TSaMP water sampling program has allowed us to learn more about:
 - Quality of waters (**tritium**) adjacent to and downgradient from the NNSS and NTTR
 - Changes in water quality with time (**tritium**)
- ▣ Initial screening of candidate sites was based on the following criteria:
 - Proximity to population centers
 - Groundwater gradient (flow directions)
 - Geology/Hydrology
 - ▣ Faults, Rock/Soil types
 - Used results from above sources to locate candidate wells and springs
 - ▣ Availability/ Access, Screened intervals, Casing type and diameter
 - Broadened baseline from locations previously sampled, by including some of the wells drilled by Nye County as part of past scientific characterization programs

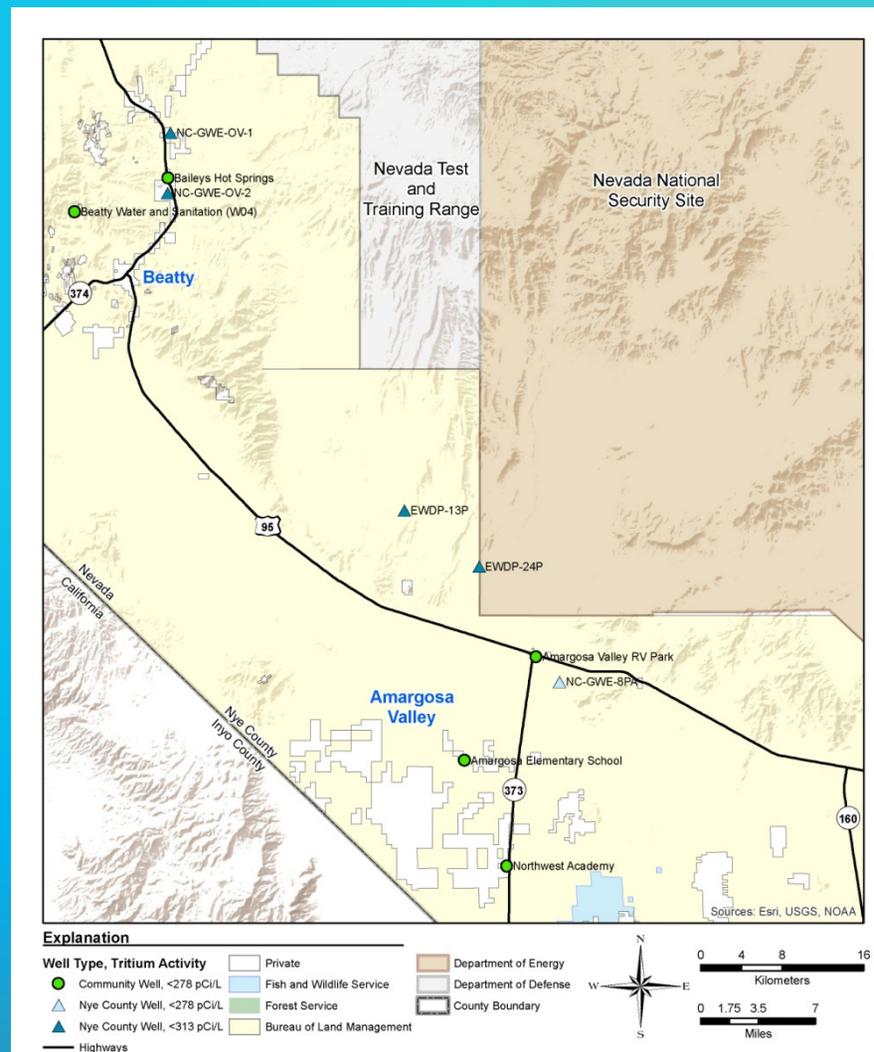
Core Well Sampling Results

- Established 10 core wells in 2015
 - Core wells are sampled every year and considered to be of high sampling priority
 - Amargosa Elementary School*
 - Amargosa Valley RV Park
 - Baileys Hot Springs
 - Beatty Water and Sanitation (W04)
 - EWDP-13P
 - EWDP-24P
 - GWE-OV-1
 - GWE-OV-2
 - GWE-8PA
 - Northwest Academy**
 - Test results showed all 10 core wells had undetectable levels of tritium in 2015 - 2019***

* Well abandoned and replaced by "Amargosa Elementary School-2" in 2019

** Location renamed "Never Give Up" in 2019

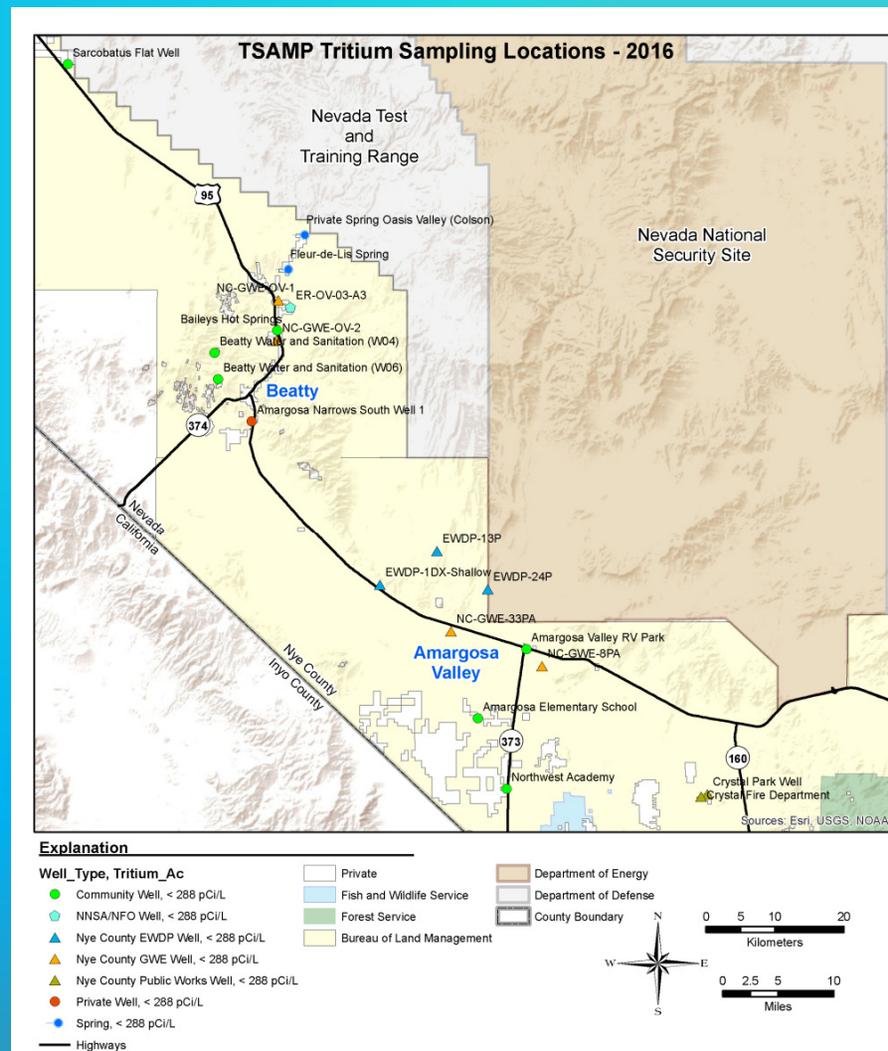
*** RSE is using EPA-approved, unenriched scintillation counting method with MDCs of approximately 300 pCi/L



2016 Sampling Results

- 20 sample locations
 - 10 core well locations; plus
 - Amargosa Narrows South Well 1
 - Beatty Water and Sanitation (W06)
 - Crystal Fire Department
 - Crystal Park Well
 - EWDP-1DX-Shallow
 - ER-OV-03-A3 *
 - Fleur-de-Lis Spring
 - GWE-33PA
 - Private Spring Oasis Valley (Colson)
 - Sarcobatus Flat Well
 - Test results showed all 20 sample locations had undetectable levels of tritium

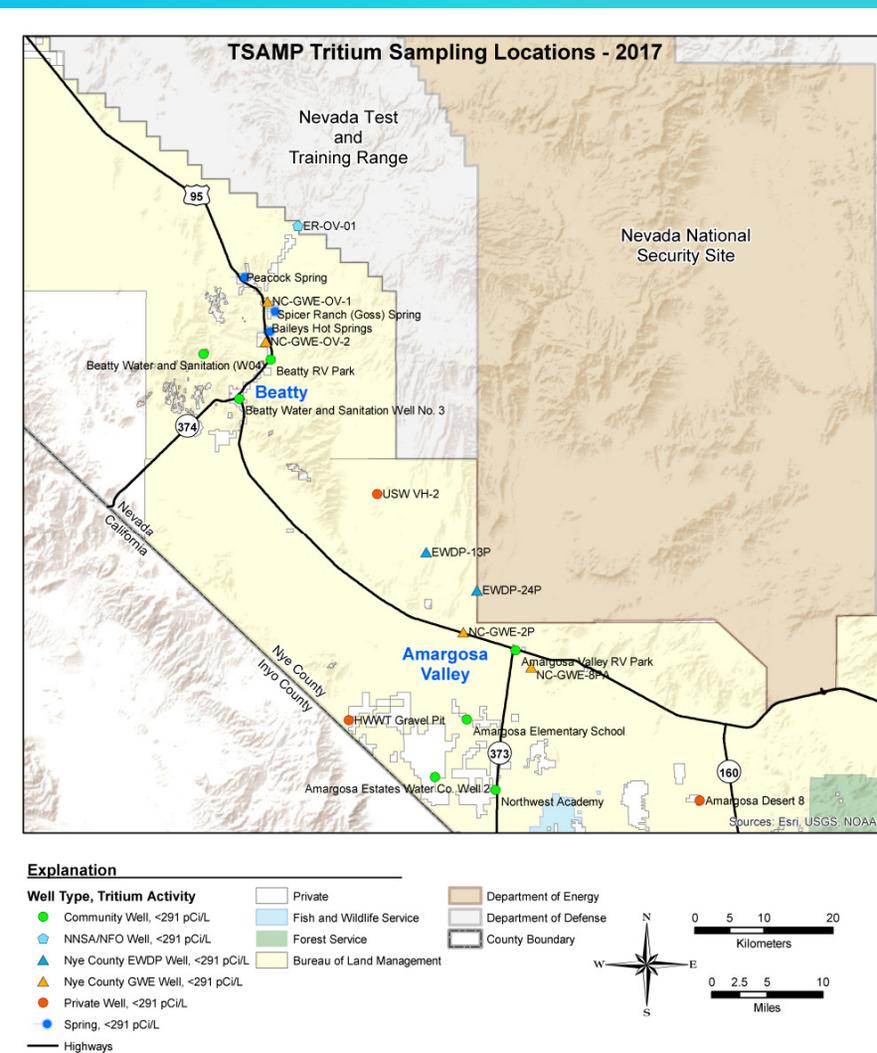
*Nye Co. started sampling ER-OV wells in 2016



2017 Sampling Results

- 20 sample locations
 - 10 core well locations; plus
 - Amargosa Desert 8
 - Amargosa Estates Water Co. Well 2
 - Beatty RV Park
 - Beatty Water and Sanitation Well No. 3*
 - ER-OV-01
 - HWWT Gravel Pit
 - NC-GWE-2P
 - Peacock Spring*
 - Spicer Ranch (Goss) Spring
 - USW VH-2
 - Test results showed all 20 sample locations had undetectable levels of tritium

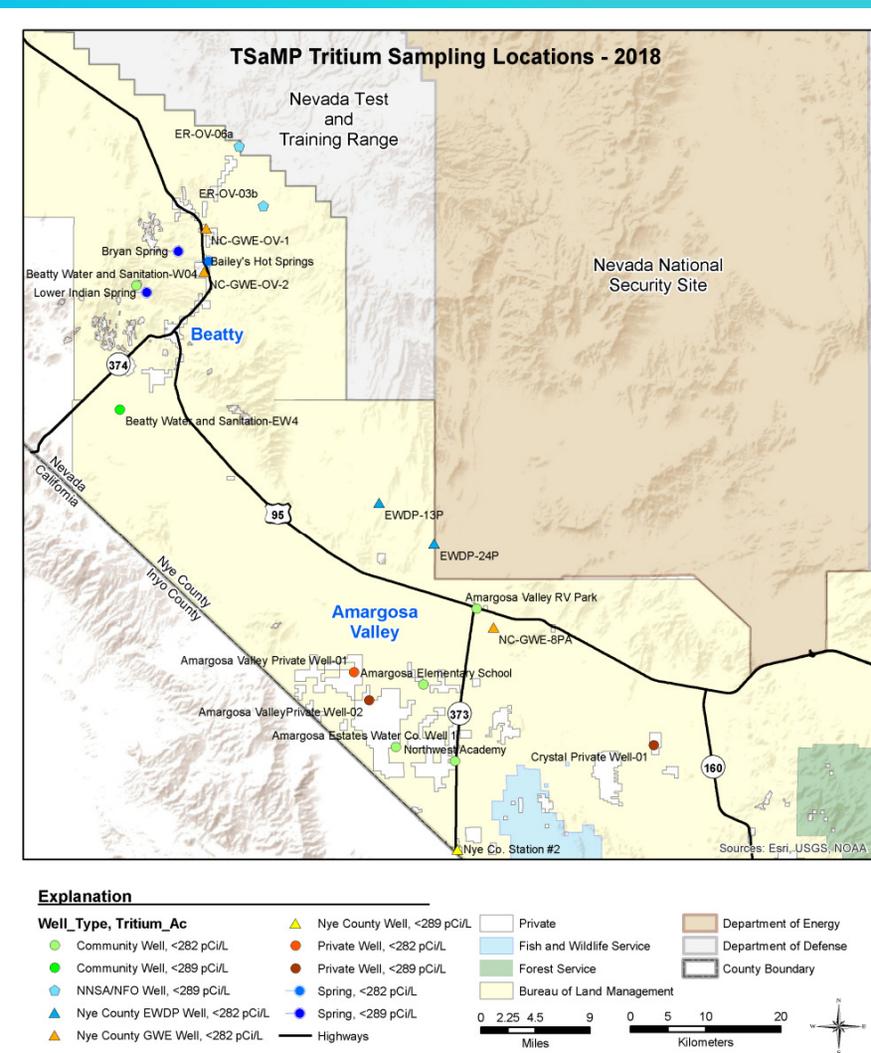
* joint sampling effort with NSTec Ecological & Environmental Monitoring



2018 Sampling Results

- ▣ 20 sample locations
 - 10 core well locations; plus
 - ▣ Amargosa Estates Water Co. Well 1
 - ▣ Amargosa Valley Private Well-01 *
 - ▣ Amargosa Valley Private Well-02-wellhead*
 - ▣ Beatty Water and Sanitation Well EW4
 - ▣ Bryan Spring
 - ▣ Crystal Private Well-01 *
 - ▣ ER-OV-03b
 - ▣ ER-OV-06a
 - ▣ Lower Indian Spring
 - ▣ Nye Co. Station #2
 - Test results showed all 20 sample locations had undetectable levels of tritium

* private well sample – new for 2018 with sequential number assigned for each area (Beatty, Amargosa, and Crystal)



2019 Sampling Results

- ▣ 20 sample locations
 - 10 core well locations; plus
 - ▣ Amargosa Valley Private Well-03
 - ▣ Amargosa Valley Private Well-04
 - ▣ Amargosa Valley USPS
 - ▣ Beatty Water and Sanitation Well 1
 - ▣ Cave Spring
 - ▣ ER-OV-02
 - ▣ ER-OV-03a3
 - ▣ EWDP-7S
 - ▣ NC-GWE-Felderhoff-25-1PA
 - ▣ Revert Springs*
 - Test results showed all 20 sample locations had undetectable levels of tritium

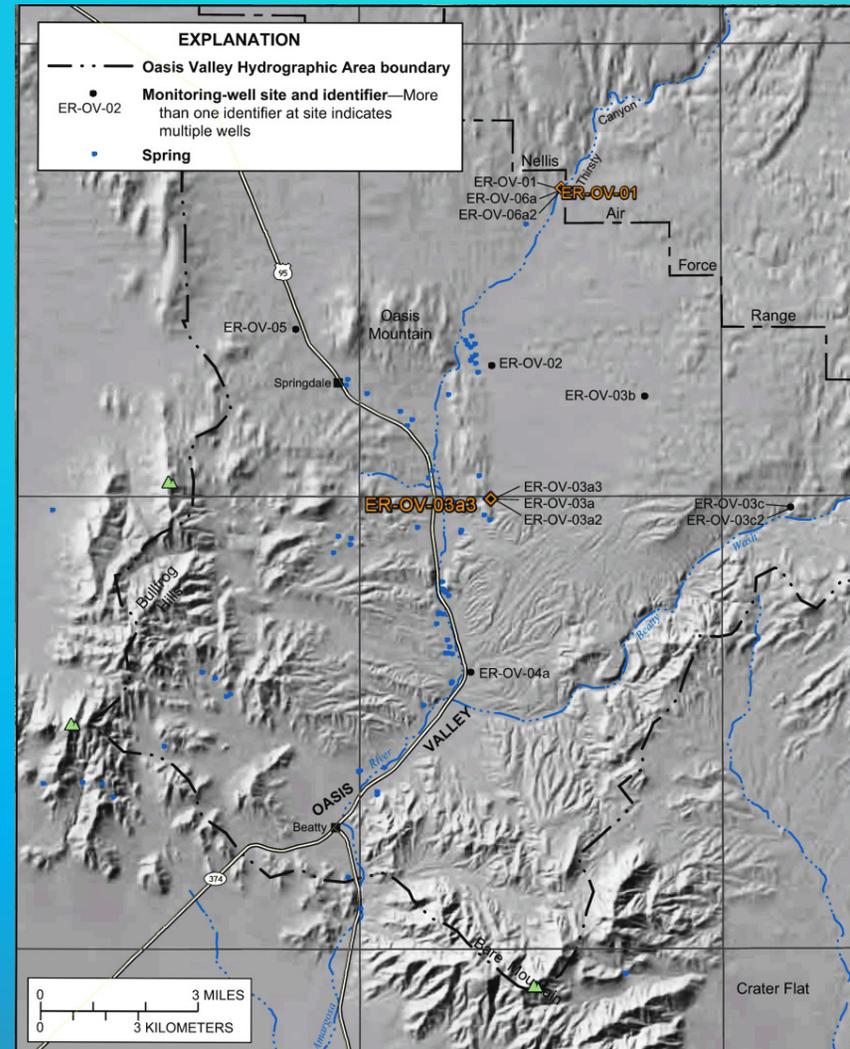
* joint sampling effort with NSTec Ecological & Environmental Monitoring



ER-OV Wells



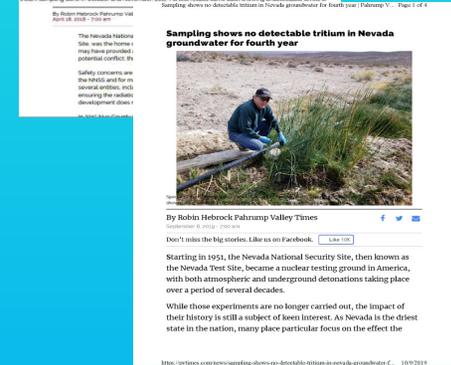
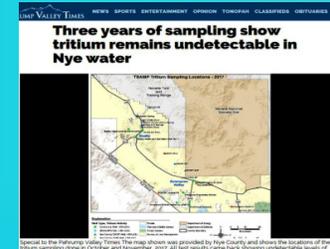
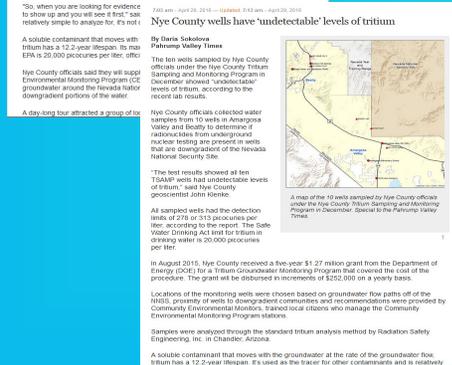
- Adds flexibility to TSaMP program and allows for a coordinated joint sampling effort with DRI
- Nye County will continue sampling at least one ER-OV well each year



* Image from USGS WRIR 98-4184

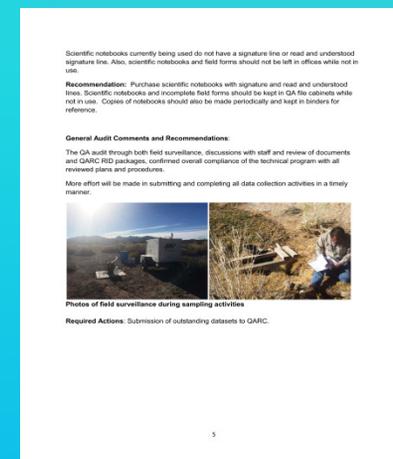
Public Outreach

- Articles run in local newspaper (PVT) summarizing results of sampling for 2015, 2016, 2017, and 2018
- Supplied sampling locations and results for inclusion in NNSER's - 2015, 2016, 2017, 2018, and 2019*
- Presented poster of TSaMP results at DOE Groundwater Open House meetings in Amargosa- July 29, 2016 and October 17, 2019
- Tour for the NSSAB and CEM's (Dec 16th 2015)
 - * Report in progress



Quality Assurance

- Nye County coordinates sampling efforts through Quality Assurance Officer (QAO)
- Nye County conducts annual internal audits to insure integrity of TSaMP data
 - Audit conducted by qualified professional (QAO)
 - Field surveillances
 - Office surveillances
 - Reports submitted to NWRPO
- Since 2016, Nye County has been hosting preliminary reconnaissance fieldtrips with the DOE EM Nevada Program to insure maximum benefits will be gained from site selections



Quality Assurance- cont

- ❑ Navarro conducted independent assessment of TSaMP (11/5/18 - 12/12/18)
- ❑ Four Observations Identified
 - Upper level documents and procedures outdated
 - Lines of communication between participants is not fully documented
 - “Checked By/Date” on Chain of Custody forms not completed.
 - Groundwater Chemistry and Analysis sheet describes using charge balance as part of validation process.
- ❑ Nye County updated all QA documentation (WP-11, TPN 11.8, TP-11.2, and HASP) and addressed all observations prior to the 2019 sampling season.



Town Board Meetings

- ❑ TSaMP presentations were given at Beatty Town Board meetings on 9/25/17, and 11/4/19; and at Amargosa Town Board meetings on 9/27/17, and 11/21/19
- ❑ 2017 presentations resulted in three new sampling locations for 2017, and several potential new sites for future years.
- ❑ 2019 presentations resulted in eight potential new sites for future years.

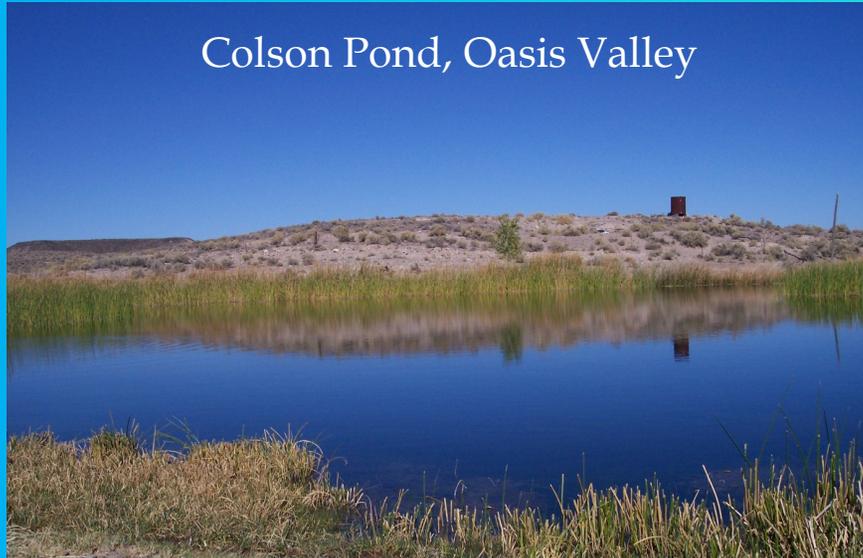


Possible Sampling Locations 2020-2021

- **What are the priorities for well sampling locations?**
 - Wells used by communities?
 - Wells that provide early detection but may not be potable water sources?
- What wells or other locations do members of public consider to be of highest priority?
- **What locations do you feel should be sampled?**
 - 2020 - 2021
- When making your individual recommendation, please consider:
 - Past sampling results
 - Identified flow paths and historic sampling results
 - Age of water (Tritium half-life = 12.32 yrs - less than 1% remaining after 7 half-lives (86 yrs))
- **Would you like to participate in the water sampling?**
- We welcome any participation!

Questions?

Colson Pond, Oasis Valley



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