

Evolution of the Community Environmental Monitoring Program (CEMP)



C.E. Russell

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CEMP



Station in Caliente, NV



Locations of CEMP stations



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Evolving Nature of the CEMP

- The CEMP was initiated in response to a desire to actively integrate the public in the monitoring of test-derived radioactivity and radionuclides in their communities
- CEMP and its predecessors have and continue to evolve in response to changes in the mission of the Nevada National Security Site (NNSS), changes in funding, and changes to the concerns of the surrounding populace



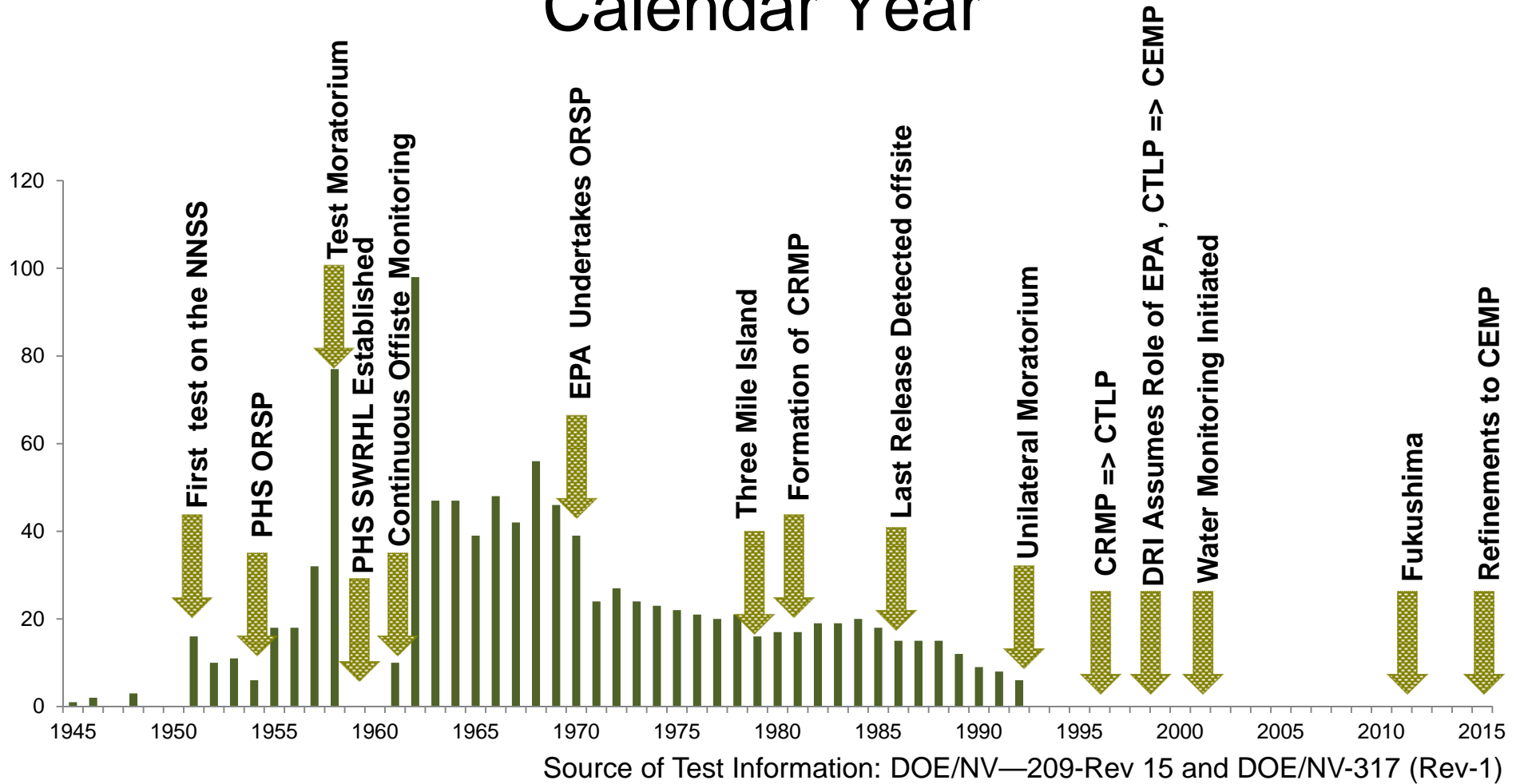
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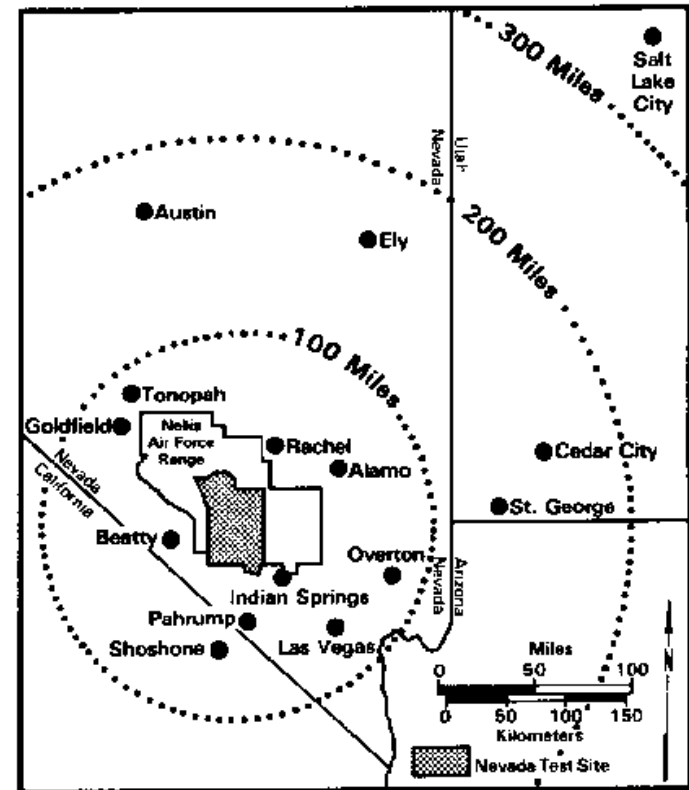
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Nuclear Tests and Offsite Monitoring Activity by Calendar Year



1981 to 1996 - Community Radiation Monitoring Program (CRMP)

- Community monitors were selected from the communities and trained by EPA personnel
- Monitoring conducted initially at 15 stations:
 - Air particulate sampling (gross alpha, gross beta, gamma spectroscopy), reactive gas sampling (activated charcoal for iodine gas), radioactive noble gases (Kr, Xe), TLD, tritium vapor, gamma radiation (PIC), and barometric pressure



Initial CRMP Stations



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1996 to 1999 - Community Technical Liaison Program

- Monitoring for active venting no longer a priority but resumption of testing a possibility
- CRMP renamed the Community Technical Liaison Program (CTLTP)
 - Objective was to maintain test readiness and to act as a source of information for ongoing activities on the NNSS
- Number of stations reduced and stations sampled less frequently



Station located in Delta, Utah



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1999 to Present - CEMP



Portable Environmental Monitoring Station

- Funding significantly reduced
- DRI undertakes EPA responsibilities
- Program renamed CEMP
- Current objective is to monitor and communicate environmental data relevant to the safety and well-being of participating communities and their surrounding areas. The program is viewed by DOE as a nonregulatory public information and outreach program



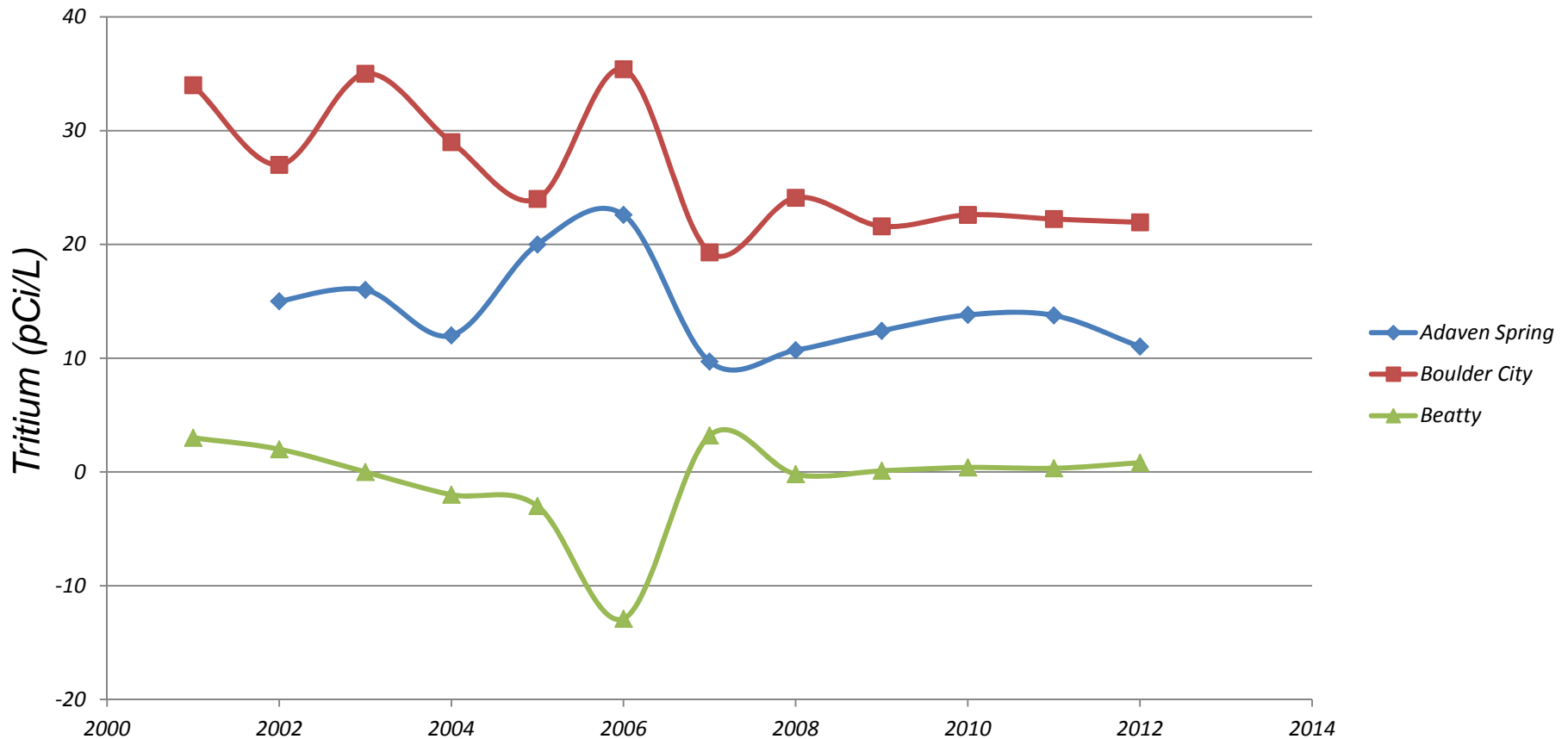
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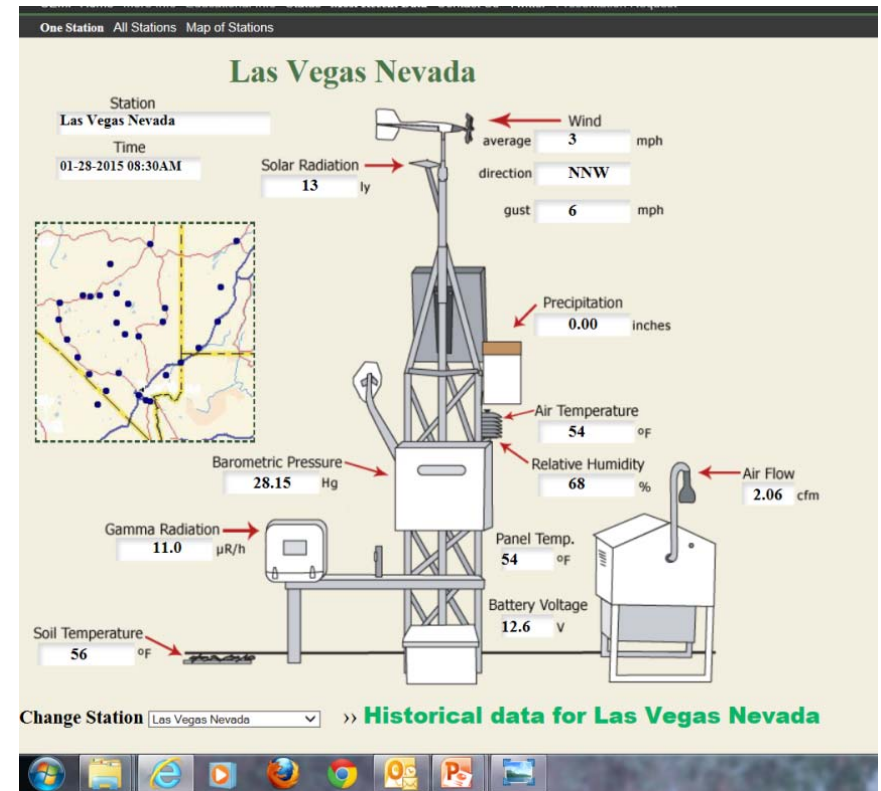
2001 - CEMP Water Monitoring



Tritium time series for three CEMP communities

CEMP Near Real-Time Information

- Information available in near real-time at <http://www.cemp.dri.edu>
- Posting data to the Internet enhances transparency and promotes public involvement
- Near real-time feedback allows for remote troubleshooting and enhances the efficiency of the operations
- E-mail alarms are transmitted for elevated gamma readings
- E-mail alarms are transmitted for low battery voltage



Website showing graphical display of recent results from the Las Vegas CEMP station



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Community Environmental Monitors (CEMs)



Station managers for Boulder City

- Members of the local communities are hired as CEMs
- They become lay experts in their communities
- They handle minor repairs and maintenance and process air filters weekly, post monthly summaries, and serve as points of contacts in their communities
- Their enhanced duties reduce travel and time in the field by DRI technicians to once-a-month visits



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Community Involvement

- CEMP staff also participate in local events (community fairs, council meetings):
 - Give presentations to civic and religious organizations
 - Provide classroom presentations and seminars



Various community activities participated in by CEMP members



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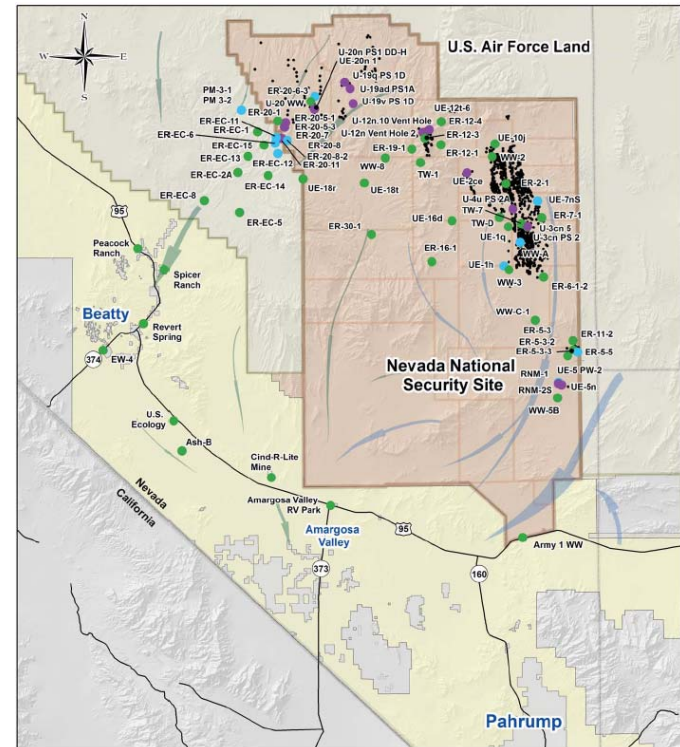
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Circumstances Mandate Change

- Current nuclear test program lacks ability for release to the atmosphere
- Budgets are stagnant or declining
- Air particulate monitoring and radiation measurements results remain well within background levels observed in other parts of the U.S.
- Tritium has been detected in groundwater on federal lands in Nye County just off the boundaries of the NNSS
- Nye County has submitted a request to implement a community-based groundwater monitoring system



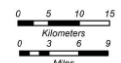
Explanation

Tritium Levels

- Non-Detect
- Below Safe Drinking Water Limit
- At or Above Safe Drinking Water Limit

- Underground Nuclear Test Location
- U.S. Bureau of Land Management

Groundwater flow direction – Arrow width indicates relative flow volume. Green and blue colors denote alluvial-volcanic and carbonate flow systems, respectively. Source: Modified from USGS_PP_1771 (2010)



Tritium results for the NNSS



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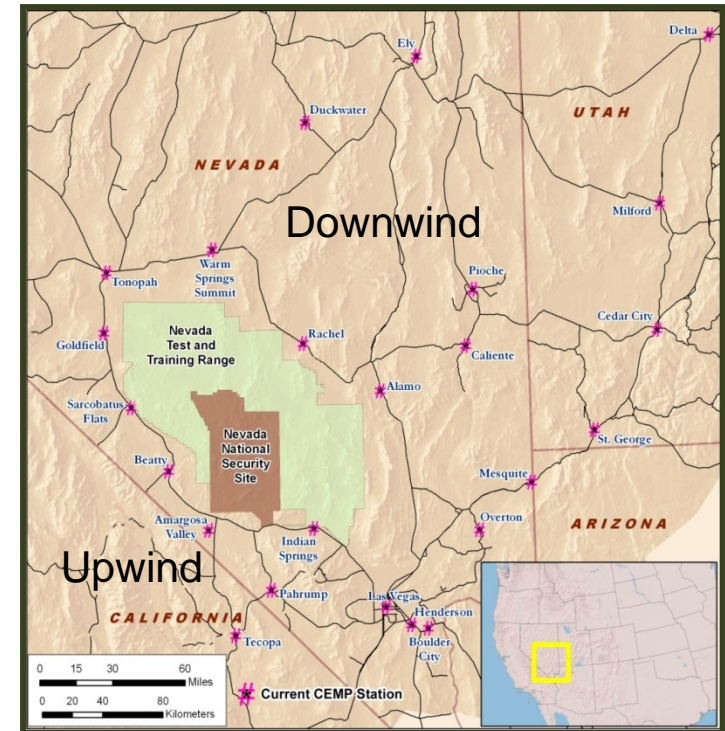
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Recent Changes to Air Monitoring

- The frequency of air sampling at upwind stations was reduced from monthly to quarterly in 2013
 - Upwind communities were exposed to a smaller amount of airborne radiological effluents emanating from the NNSS
 - More frequent sampling in downwind communities relative to upwind communities ensures relevancy while still cutting costs



Location of upwind and downwind CEMP communities



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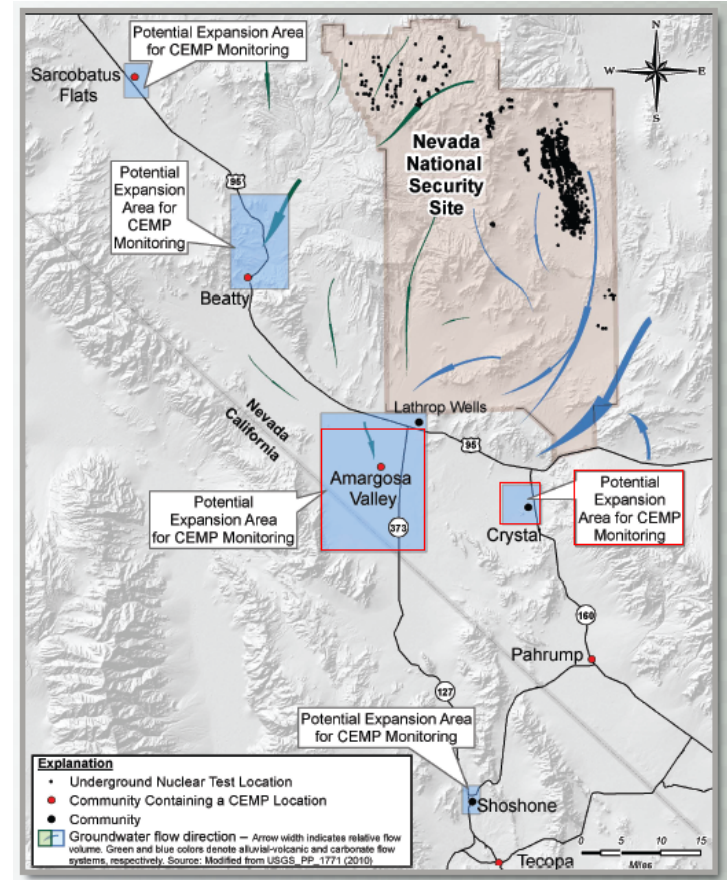
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Recent Changes to Water Monitoring

- Discontinue groundwater monitoring in communities:
 - Upgradient of the NNSS
 - In hydrologic flow systems disconnected from the system in which the NNSS resides
- Focus additional monitoring in downgradient stations



Locations of proposed expansion of groundwater monitoring



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Net Impact of Proposed Changes

- Maintain relevancy
- Demonstrate flexibility
- Increase stakeholder participation
- Reduce cost



CEMP station in Delta, UT



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Contacts

- Ted Hartwell - DRI Program Manager for CEMP, (702) 862-5419
 - Kathryn Knapp - NNSA Program Manager for CEMP, (702) 295-5795
 - Darwin Morgan - NNSA Office of Public Affairs, (702) 295-1755
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- CEMP website <http://cemp.dri.edu/>



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