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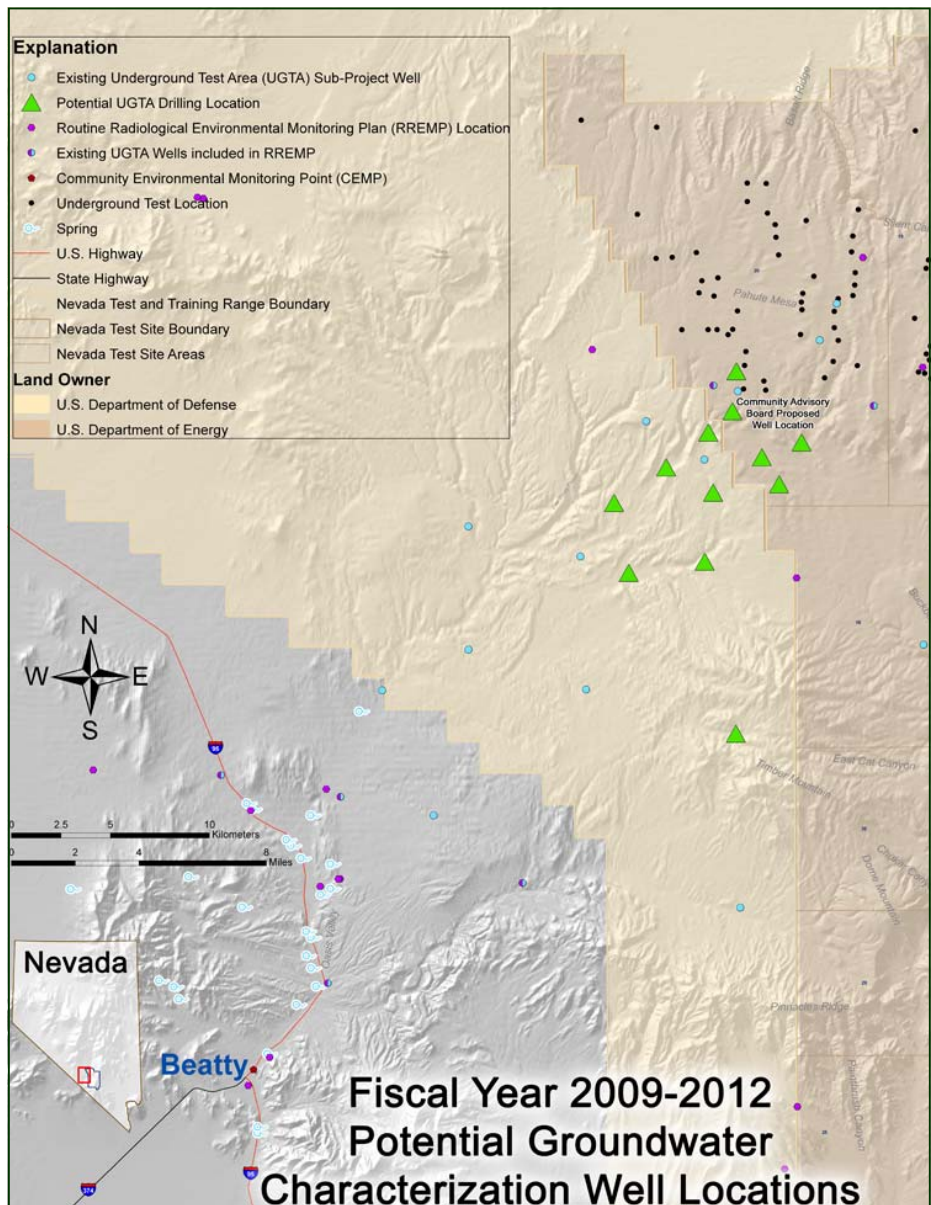
Nevada Site Office Environmental Management

EM NEWS FLASH

Digging Deeper into Nevada Test Site Groundwater

The U.S. Department of Energy National Nuclear Security Administration Nevada Site Office is demonstrating its ongoing commitment to protecting the public by drilling nine new groundwater characterization wells. The wells will be installed at various locations in the vicinity of Pahute Mesa, both on and adjacent to the Nevada Test Site where 82 underground nuclear tests were conducted between February 1966 and March 1992. These wells will supplement an existing network of wells on and around the Nevada Test Site.

The Nevada Site Office identified the need for more wells to obtain additional information critical to refining a contaminant transport model. The transport model is a three-dimensional computerized prediction of where and how quickly radioactive contamination is moving in the complex geologic subsurface of the Nevada Test Site, which is dominated by rock deposits from ancient volcanic eruptions. The transport model includes a flow model to project groundwater movement and a source term model identifying types and amounts of contaminants. Hydrologic data collected from drilling related to past nuclear testing and subsequent well sampling were used to develop these models.



The well locations have been prioritized based upon the need for more specific information in the transport model. Critical information, such as geology and water chemistry, pressure levels, and temperature, will be gathered and evaluated to ensure that the next well to be drilled is in the most beneficial location to acquire the information needed for a comprehensive understanding of the subsurface environment. Analysis of this information will continue after well drilling in order to refine the transport model and the model predictions.

Results from previous sampling on the Nevada Test Site have indicated groundwater contamination near locations of historic nuclear tests. The first of nine new wells to be drilled is located on the Nevada Test Site adjacent to an existing underground test site. "The expectation is the first well drilled will show detectable levels of tritium, and the appropriate safeguards are currently planned," assures Bill Wilborn, the Nevada Site Office Federal Sub-Project Director responsible for the drilling campaign and groundwater characterization strategy.

The Federal Facility Agreement and Consent Order (FFACO) provides a regulatory framework for addressing the 828 historical underground nuclear detonations at the Nevada Test Site. In accordance with this Agreement, the Nevada Site Office has committed to the State of Nevada to begin mobilization of well construction by May 28, 2009.

Radiological and safety considerations are a priority and have been extensively integrated into planning efforts. Other requirements for well drilling include the construction of a pad (foundation) for drill rigs and equipment, and the excavation and lining of sumps used to contain drilling fluids purged from the drill hole and into which groundwater is pumped. Some locations will also need new roads built in order to reach the remote and rough terrain in areas between Pahute Mesa and Oasis Valley. Each well will be drilled to a depth between 2,500 and 3,700 feet in order to reach the water table and additional aquifers located below the water table, depending on specific data needs. All of these factors contribute to the construction cost of \$5 million to \$7 million for each well. Funding will be provided, in part, through the American Recovery and Reinvestment Act of 2009. This will allow for an accelerated campaign with completion of all nine wells within three years.

The drilling of new wells, an improved transport model, and input from stakeholders are the foundation for a long-term monitoring network for the protection of the public. In fact, the publication of the Phase I Transport Model of Corrective Action Units 101 and 102: Central and Western Pahute Mesa, Nevada Test Site, Nye County, Nevada was the subject of a February 2009 Open House in Beatty, Nevada to address questions from residents in nearby communities, such as Oasis and Amargosa Valleys.

In addition to these residents, significant stakeholder input has been received through the Community Advisory Board for Nevada Test Site Programs (CAB). The CAB recommended the Nevada Site Office obtain a peer review/validation of its groundwater strategy, which includes well drilling, sampling, computer modeling and long-term monitoring. The CAB spent considerable time conducting its own review of the strategy, identifying and recommending sites where future wells should be constructed. The first of the nine new wells will be drilled at a site recommended by the CAB, and their well site selection process was incorporated by the Nevada Site Office to identify 12 other potential locations.

Residents in communities surrounding the Nevada Test Site have long been participating in the long-term monitoring process through the Community Environmental Monitoring Program (CEMP). The CEMP, administered by the Desert Research Institute, samples the water supply yearly to test for the presence of man-made radioactivity. The Routine Radiological Environmental Monitoring Program, conducted by National Security Technologies, also monitors wells on and off of the Nevada Test Site. Results are published annually in the *Nevada Test Site Environmental Report*.

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