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NEVADA NATIONAL NNSS SECURITY SITE

Environmental Report 2015

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5.1.2 *Nye County Tritium Sampling and Monitoring Program*

In 2014, NNSA/NFO began to investigate expanding its support of offsite community-based monitoring of wells in Nye County in response to the county's request to become involved. As a result, the Nye County Tritium Sampling and Monitoring Program was initiated in 2015. The DOE Environmental Management (EM) office issued a 5-year grant to Nye County for this program to monitor tritium in wells downgradient from the NNSS. The grant supports annual sampling of 10 wells in the first year and up to 20 wells every year thereafter. It also supports Nye County's involvement in technical reviews of the UGTA corrective action program (see Chapter 11). To help determine sample well locations, Nye County has committed to coordinate with DRI, who conducts the CEMP (see Chapter 7), with the CEMP's Community Environmental Monitors (CEMs), and with Nye County citizens. Due to the CEMP's success at involving and educating local communities, the DOE EM grant requests that data administration and communication to the public of Nye County's monitoring program be conducted through the CEMP. Nye County's results will also be published annually in this report.

In 2015, Nye County selected and sampled ten wells (Table 5-6). Sample locations (Figure 5-4) were selected based upon groundwater flow paths off of the NNSS, proximity of wells to downgradient communities and recommendations provided by CEMs. Five of these wells are classified as Nye County Distal Monitoring Wells (Table 5-6) and were sampled using an air powered submersible positive displacement pump. A minimum of three well volumes (16 to 163 gallons) was pumped from each well prior to sampling in order to purge water from the pump tubing and well annulus. This process ensured that the resultant samples were representative of local groundwater conditions. The five other wells are classified as Nye County Community Wells (Table 5-6) and are either operating domestic or municipal wells, which were sampled from the dedicated pump discharge. These wells were purged prior to sampling to insure that representative water samples were being obtained.

The collected samples were analyzed for tritium by Radiation Safety Engineering, Inc., in Chandler, Arizona using an EPA-approved, unenriched scintillation counting method. The sample MDCs for this counting process were 278 or 313 pCi/L (depending upon the sample), which are less than 2% of the EPA limit for tritium in drinking water of 20,000 pCi/L. Analytical methods included the use of quality control samples such as duplicates, blanks, and spikes. Nye County's quality assurance procedures for the tritium sampling is documented in Test

Plan TPN-11.8, "Groundwater Sampling and Analysis for the Nye County Tritium Sampling And Monitoring Program," and Work Plan WP-11, "Groundwater Chemistry Sampling and Analysis" (available upon request).

Table 5-6 presents the sample analysis results for each well, the well locations, and the date each well was sampled. All tritium analysis results were quantifiably below background (≤ the MDC). Similar to the CEMP water sampling results (Chapter 7, Section 7.2) and those of the Community wells within NNSA/NFO's water sampling network (Section 5.1.1.3.5), Nye County's monitoring confirms that tritium from historical underground nuclear testing on the NNSS is not present in these wells. Public access to the 2015 monitoring data is available on the DRI CEMP website at http://www.cemp.dri.edu/.

Table 5-6. Nye County water wells sampled in 2015

Sample Location	Latitude	Longitude	Date Sampled	Tritium Concentration (pCi/L)
Nye County Distal Monitoring Wells				
NC-GWE-OV-1	37.0061820	-116.7207580	12/10/15	<313
			12/10/15 FD[a]	<278
NC-GWE-OV-2	36.9645540	-116.7229820	12/17/15	<313
EWDP-13P	36.7444070	-116.5139540	12/9/15	<313
EWDP-24P	36.7046597	-116.4479878	12/7/15	<313
NC-GWE-8PA	36.6244220	-116.3770836	12/8/15	<278
Nye County Community Wells				
Amargosa Elementary School	36.5696120	-116.4609460	12/21/15	<278
			12/21/15 FD	<313
Amargosa Valley RV Park	36.6417350	-116.3974740	12/16/15	<278
Beatty Water and Sanitation (W04)	36.9514580	-116.8050020	12/16/15	<278
Northwest Academy	36.4961660	-116.4235630	12/21/15	<278
Baileys Hot Springs	36.9747200	-116.7225000	12/16/15	<278
			12/16/15 FB[b]	<313

(a) Field duplicate
(b) Field blank

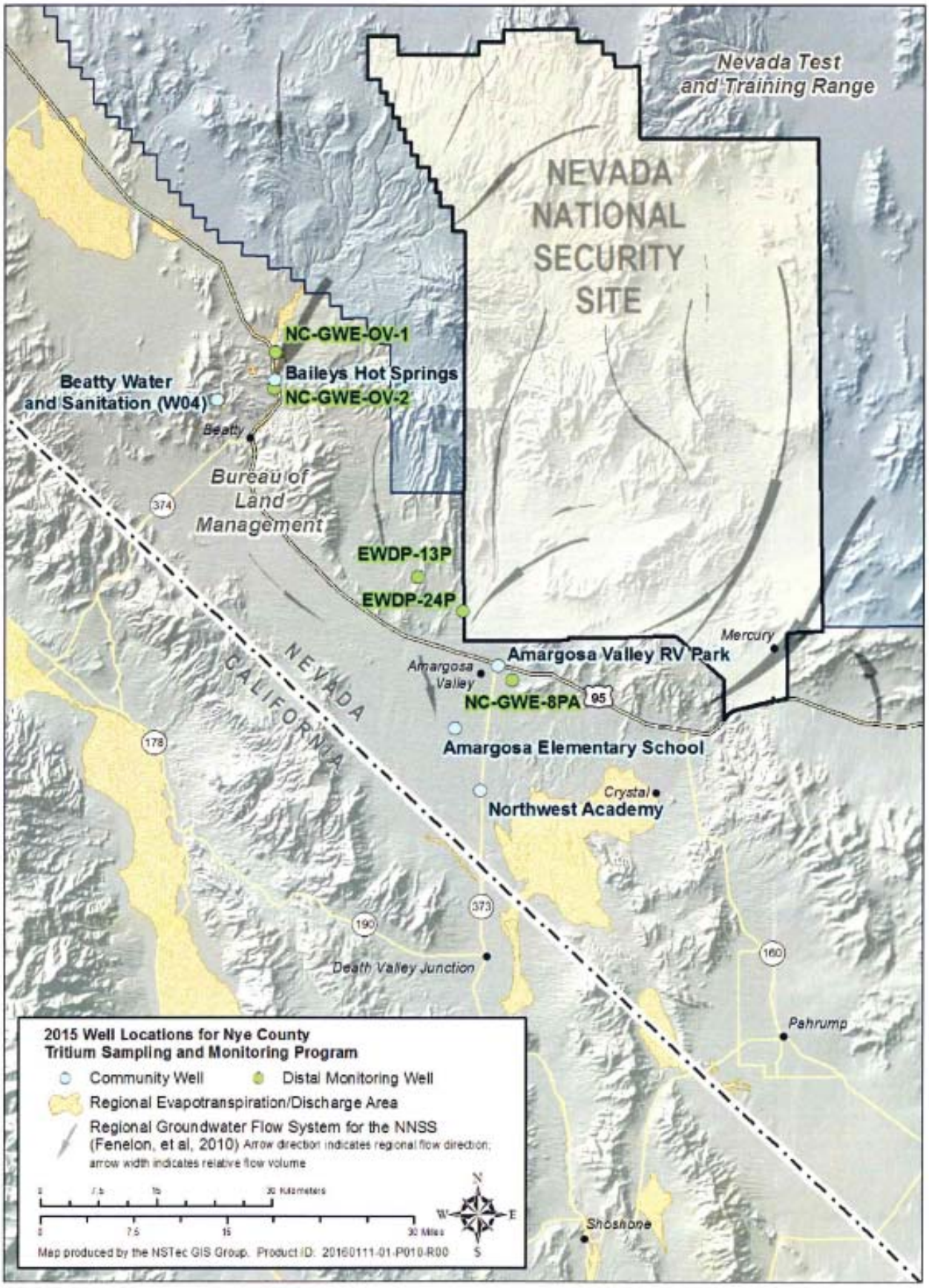

Figure 5-4 Nye County water sampling locations