

3.1.3.6 NTS Sewage Lagoons

Each sewage lagoon at the NTS is part of a closed system used for the evaporative treatment of sanitary sewage. In recent years, sewage storage and treatment at the NTS has transitioned from lagoons to septic systems at several locations. A few permitted sewage lagoons remain: Area 6 Yucca, Area 12 Camp, and Area 23 Mercury. The permits for these lagoons do not require that the water or sediments be monitored for radioactivity (see Section 3.2.4 below). However, to more completely demonstrate the proper management of effluents on the NTS, limited radiological analyses are conducted for these lagoons. Due to periods of inactivity and limited fluid, the Area 12 Camp lagoon is only sampled intermittently.

The lagoon water samples were analyzed for tritium using standard (un-enriched) analyses and by gamma spectroscopy for other radionuclides. No tritium was detected at concentrations above their MDCs in the lagoon water samples (Table 3-8).

Table 3-8. Tritium water monitoring results for NTS sewage lagoons in 2003

Monitoring Location	Date Sampled	$^3\text{H} \pm \text{Uncertainty}^{(a)}$ (MDC) (pCi/L)
Area 6 Yucca	4/9/2003	16 \pm 210 (352)
	7/1/2003	169 \pm 219 (357)
	10/1/2003	-151 \pm 120 (218)
Area 12 Camp	7/1/2003	-17 \pm 213 (357)
Area 23 Mercury	4/9/2003	-171 \pm 206 (352)
	7/1/2003	-93.9 \pm 211 (357)
	10/1/2003	-34 \pm 130 (225)

(a) \pm 2 standard deviations

3.1.4 UGTA Wells

Preliminary (pre-development) groundwater characterization samples were collected from each of three newly drilled wells: ER-12-2, ER-7-1, and ER-2-1 (Figure 3-5). Tritium was noted at Well ER-2-1 during drilling in the vadose zone at 328.0 to 490.7 m (1,076 to 1,610 ft) and again in the saturated section at 743.7 to 765.0 m (2,440 to 2,510 ft) depth. Activity levels were less than 8,700 pCi/L in these two intervals, and returned to background levels elsewhere. The amount of tritium detected (less than one-half the Safe Drinking Water Act level) was much less than expected. No other radionuclides above background have been identified to date in groundwater produced from Well ER-2-1. All fluids produced during the construction of Well ER-2-1 were contained in two lined sumps.

Groundwater characterization samples were also collected from Wells ER-5-4#2 and ER-6-1#2 following hydraulic testing activities. The UGTA Project also sampled eight characterization wells drilled in 1999 for the Western Pahute Mesa – Oasis Valley study area. The wells sampled included: ER-EC-1, ER-EC-2A, ER-EC-4, ER-EC-5, ER-EC-6, ER-EC-7, ER-EC-8, and ER-18-2 (Figure 3-5). No tritium or other man-made radionuclides were detected while drilling (except as noted at Well ER-2-1) or sampling any of these wells. The data are maintained in updated versions of the UGTA Project geochemical database by Stoller-Navarro Joint Venture, Las Vegas, NV.

In 2003, the UGTA Program sampled four post-shot/cavity wells, or “Hot Wells”: U-4t PS#3A, U-19q PS#1D, U-19v PS#1DS, and U-20n PS#1DDH (Figure 3-5). These wells access cavities from the underground nuclear tests GASCON, CAMEBERT, ALMENDRO, and CHESHIRE, respectively. A multi-agency team consisting of personnel from the USGS, Los Alamos National Laboratory (LANL), and LLNL collected fluid samples at these wells using a downhole sampling pump.