

Targeted Testing Methodology 2014 – Present

CEMP conducts tritium testing near stations located in the regional groundwater flow system down-gradient of the NNSS. All samples are taken from well water.

Location	Tritium Results from CEMP offsite water tests (³ H - pCi/L)									
	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Amargosa Valley	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC
Beatty	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC
Sarcobatus Flats	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC
Tecopa	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC
Decision Level (L_c) (pCi/L)	192	267	134	239	205	226	219	146	171	186
Minimum Detectable Concentration (MDC) (pCi/L)	386	541	273	486	410	445	445	299	349	377

L_c: the counts of radioactivity (or concentration level of a radionuclide) in a sample that must be exceeded before there is a specified level of confidence (typically 95 or 99 percent) that the sample contains radioactive material above the background; called the Critical Level or the decision level.

MDC: minimum detectable concentration – also known as the lower limit of detection, the smallest amount of radioactive material in a sample that can be quantitatively distinguished from background radiation in the sample with 95 percent confidence.

pCi/L: Picocuries per liter. A standard unit for measuring radioactive concentrations.

The samples are analyzed using unenriched scintillation counting. The decision level (L_c) for this counting process is established solely based on the variability of multiple measures of samples used to establish laboratory background. If a sample exceeds this threshold, then it is considered to be distinguishable from background. The MDC for tritium is a more rigorous threshold that dictates that the sample be distinguishable from background at a confidence of 95%. The MDC considers both the variability associated with multiple measures of the background as well as the variability associated with multiple measures of the sample itself. The L_c and the MDC are less than 1% and 2% of the EPA limit for tritium in drinking water of 20,000 pCi/L, respectively.

For additional information, see the most recent Nevada National Security Site Environmental Report, available at <http://www.nnss.gov/pages/resources/library/NNSSER.html>.