Complete Station Testing Methodology 2001–2013

TRITIUM RESULTS FROM CEMP OFFSITE WATER TESTS (3H - PCI/L)

Tritium sampling occurred near all stations in the CEMP network.

** denotes sample taken from spring or surface water; ^ denotes sample taken from well water. † denotes sampling at this location discontinued; — denotes there is no data for that table cell. ‡ denotes that in 2008, analyses began to be conducted using enriched gas proportional counting. Prior to that year, gas proportional or liquid scintillation counting was used. The safe drinking water standard for tritium allows 20,000 pCi/L. Source: Nevada Test Site Environmental Reports. MDC 2001–2005= 21 pCi/L (enriched liquid scintillation counting). MDC 2006, 2007= 24 pCi/L, 26.5 pCi/L respectively (gas proportional counting). Some 2007 results were anomalously high and not repeated in subsequent samples. MDC 2008–2013= ~1.0 pCi/L (enriched gas proportional counting).*

LOCATION	2013	2012	2011	2010	2009	2008‡	2007	2006	2005	2004	2003	2002	2001
Adaven Springs*	†	11.0	13.8	13.8	12.4	10.7	9.7	22.6	20	12	16	15	—
Alamo^	<1.12	0.6	0.6	-0.3	0.4	0.8	-6.4	-9.7	-4	-3	-1	2	7
Amargosa Valley^	<1.12	-0.2	0.3	-0.3	-0.1	0.0	6.4	-6.4	-3	-2	3	0.1	3
Beatty^	<1.12	0.8	0.3	0.4	0.1	-0.2	3.2	-12.9	-3	-2	0	2	3
Boulder City*	21.9	21.9	22.2	22.6	21.6	24.1	19.3	35.4	24	29	35	27	34
Caliente^	4.32	3.9	4.8	4.7	4.7	5.4	3.2	-3.2	8	7	5	8	12
Cedar City^	<1.12	0.1	-0.1	-0.2	-0.1	0.2	6.4	0.0	3	-4	-4	-3	1
Delta^	<1.12	0.0	0.0	0.1	-0.1	-0.1	3.2	6.4	-8	2	-1	-0.8	1
Duckwater^	<1.12	0.0	0.2	0.2	0.1	0.3	6.4	—	—	—		—	—
Ely*	2.7	2.1	2.6	2.7	2.7	2.8	16.1	9.7	-2	—	—	—	—
Goldfield^	<1.12	-0.1	-0.3	0.2	0.0	0.4	3.2	-9.7	0	-4	5	-0.3	<1
Henderson*	23.3	22.5	22.7	23.5	22.4	23.2	32.2	16.1	24	27	27	26	34
Indian Springs^	<1.12	0.0	-0.2	0.1	-0.3	0.1	3.2	9.7	-5	-1	4	5	2
Las Vegas^	<1.12	0.2	0.4	0.3	0.8	0.8	12.9	3.2	-5	3	-2	1	<1
Medlin's Ranch*	†	5.8	8.3	8.4	3.8	5.1	3.2	0.0	10	9	9	4	13

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LOCATION	2013	2012	2011	2010	2009	2008‡	2007	2006	2005	2004	2003	2002	2001
Mesquite^	<1.12	0.1	-0.3	0.2	-0.1	0.0	0.0	0.0	—	—	—	—	—
Milford^	<1.12	0.2	-0.2	-0.3	0.0	-0.3	0.0	12.9	1	-5	-2	-1	<1
Nyala Ranch^	†	2.9	1.2	0.0	0.5	0.5	-3.2	9.7	0	-1	-4	-1	—
Overton^	<1.12	-0.4	-0.3	0.0	0.1	-0.1	12.9	6.4	-4	3	2	0.4	1
Pahrump^	<1.12	-0.1	-0.2	0.1	0.1	0.1	0.0	3.2	-5	-1	2	-2.0	1
Pioche^	<1.12	0.0	0.2	-0.2	-0.1	0.1	0.0	6.4	-7	2	-1	4	<1
Rachel^	<1.12	-0.2	-0.1	0.0	-0.1	-0.2	-6.4	3.2	-1	-1	-9	1	<1
Sarcobatus Flats^	<1.12	0.2	0.0	0.4	0.3	0.1	19.3	-3.2	-3	3	-7	-4	—
Stone Cabin Ranch*	†	0.4	0.6	0.6	0.5	0.8	-6.4	0.0	2	-2	3	2	—
St. George*	7.8	9.9	11.8	8.5	9.3	9.4	22.6	9.7	8	-3	4	8	9
Tecopa^	<1.12	0.3	0.4	0.6	0.4	-0.2	—	—	—	—	—	—	—
Tonopah^	<1.12	0.0	0.1	0.0	-0.3	-0.1	9.7	-3.2	-4	-2	4	-2	<1
Twin Springs^	†	0.2	0.1	0.0	0.0	-0.1	-9.7	3.2	-2	-3	-1	0.7	—

Targeted Testing Methodology 2014–Present

TRITIUM RESULTS FROM CEMP OFFSITE WATER TESTS (3 H - PCI/L)

CEMP conducts tritium testing near stations located in the regional groundwater flow system downgradient of the NNSS. All Samples are taken from well water.

LOCATION	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Amargosa Valley	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC
Beatty	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC
Sarcobatus Flats	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC
Tecopa	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC

CONCENTRATION LEVEL THRESHOLDS	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Decision Level (L_c) (pCi/L)	126	192	267	134	239	205	226	219	146	171	186
Minimum Detectable Concentration (MDC) (pCi/L)	255	386	541	273	486	410	445	445	299	349	377

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.

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.

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 LC 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 https://nnss.gov/publication-library/environmental-publications/.

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