

**Table 3J.** Isotopic and radioactive constituents, comparative thresholds, and reporting information for laboratories.

[The five-digit USGS parameter code is used to uniquely identify a specific constituent or property. Laboratory entity codes are listed in the footnotes. Stable isotope ratios are reported in the standard delta notation ( $\delta$ ), the ratio of a heavier isotope to more common lighter isotope of that element, relative to a standard reference material. CAS, Chemical Abstract Service; CSU, combined standard uncertainty; CV, critical value; MCL-CA, California Department of Public Health maximum contaminant level; MCL-US, U.S. Environmental Protection Agency maximum contaminant level; MRL, minimum reporting level; MU, method uncertainty; na, not available; pCi/L, picocuries per liter; SSMDC, sample specific minimum detectable concentration; D, detected in ground-water samples (tables 13 and 14)]

Constituent	USGS parameter code	CAS number	Reporting level type	Reporting level or uncertainty	Threshold type <sup>1</sup>	Threshold value	Detection
Stable isotope ratios (per mil)							
$\delta^2\text{H}$ of water <sup>2</sup>	82082	na	MU	2	na	na	D
$\delta^{18}\text{O}$ of water <sup>2</sup>	82085	na	MU	0.20	na	na	D
$\delta^{13}\text{C}$ of dissolved carbonates <sup>3</sup>	82081	na	1 sigma	0.05	na	na	D
Radioactive constituents (percent modern)							
Carbon-14 <sup>4</sup>	49933	14762-75-5	1 sigma	0.002	na	na	D
Radioactive constituents (pCi/L)							
Radon-222 <sup>5</sup>	82303	14859-67-7	SSMDC	CSU and CV	Prop. MCL-US	<sup>6</sup> 300 (4,000)	D
Tritium <sup>7</sup>	07000	10028-17-8	MRL	1	MCL-CA	20,000	D
Gross-alpha radioactivity, 72-hour and 30-day counts <sup>8</sup>	62636, 62639	12587-46-1	SSMDC	CSU and CV	MCL-US	15	D
Gross-beta radioactivity, 72-hour and 30-day counts <sup>8</sup>	62642, 62645	12587-47-2	SSMDC	CSU and CV	MCL-CA	50	D
Radium-226 <sup>8</sup>	09511	13982-63-3	SSMDC	CSU and CV	MCL-US	<sup>9</sup> 5	D
Radium-228 <sup>8</sup>	81366	15262-20-1	SSMDC	CSU and CV	MCL-US	<sup>9</sup> 5	D

<sup>1</sup>Maximum contaminant level thresholds are listed as MCL-US when the MCL-US and MCL-CA are identical, and as MCL-CA when the MCL-CA is lower than the MCL-US or no MCL-US exists.

<sup>2</sup>USGS Stable Isotope Laboratory, Reston, Virginia (USGSSIVA).

<sup>3</sup>University of Waterloo (contract laboratory) (CAN-UWIL).

<sup>4</sup>University of Arizona, Accelerator Mass Spectrometry Laboratory (contract laboratory) (AZ-UAMSL).

<sup>5</sup>USGS National Water Quality Laboratory (USGSNWQL).

<sup>6</sup>Two MCLs have been proposed for Radon-222. The proposed Alternative MCL is in parentheses.

<sup>7</sup>USGS Stable Isotope and Tritium Laboratory, Menlo Park, California (USGSH3CA).

<sup>8</sup>Eberline Analytical Services (contract laboratory) (CA-EBERL).

<sup>9</sup>The MCL-US threshold for radium is the sum of radium-226 and radium-228.