

Table 4. Analytical methods used for chemical and microbial constituents in ground-water samples collected in the Southern Sacramento Valley Ground-Water Ambient Monitoring and Assessment (GAMA) study unit, California, 2005.

[GAMA, Ground-Water Ambient Monitoring and Assessment; MI agar, supplemented nutrient agar that cause coliforms (total and *Escherichia*) to produce distinctly different fluorescence under ultraviolet lighting, thus aiding in their detection and enumeration; USEPA, U.S. Environmental Protection Agency; USGS, U.S. Geological Survey; UV, ultraviolet; VIS, visible]

| Analyte | Method | Laboratory | References |
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| Volatile organic compounds | Purge and trap capillary gas chromatography/mass spectrometry | USGS National Water Quality Laboratory | Connor and others, 1998 |
| Gasoline oxygenates | Heated purge and trap/gas chromatography/mass spectrometry | USGS National Water Quality Laboratory | Rose and Sandstrom, 2003 |
| Pesticides | Solid-phase extraction and chromatography/mass spectrometry | USGS National Water Quality Laboratory | Furlong and others, 2001; Sandstrom and others, 2001 |
| Nutrients | Colorimetry | USGS National Water Quality Laboratory | Patton and Truitt (1992), Fishman (1993) |
| Dissolved organic carbon | UV-promoted persulfate oxidation and infrared spectrometry | USGS National Water Quality Laboratory | Brenton and Arnett, 1993 |
| Major ions | Atomic absorption spectrometry, colorimetry, ion-exchange chromatography, inductively-coupled plasma atomic emission spectrometry, and mass spectrometry | USGS National Water Quality Laboratory | Fishman and Friedman, 1989; Fishman, 1993; Faires, 1993; McLain, 1993; Garbarino, 1999; Garbarino and Damrau, 2001; Patton and Kryskalla, 2003 |
| Trace elements | Atomic absorption spectrometry and inductively-coupled plasma atomic emission spectrometry | USGS National Water Quality Laboratory | Faires, 1993 |
| <i>N</i> -Nitrosodimethylamine | Chromatography and mass spectrometry; USEPA method 1625, modified | Montgomery Watson Harza Laboratory | U.S. Environmental Protection Agency, 1996; U.S. Environmental Protection Agency, 1999 |
| Perchlorate | Chromatography and mass spectrometry; USEPA method 314 | Montgomery Watson Harza Laboratory | Hautman and others, 1999 |
| 1,2,3-Trichloropropane | Gas chromatography/electron capture detector; USEPA method 524.2, modified | Montgomery Watson Harza Laboratory | U.S. Environmental Protection Agency, 1995 |
| Chromium, arsenic, and iron speciation | Various techniques of UV-VIS spectrophotometry and atomic absorbance spectroscopy | USGS National Research Program Laboratory, Boulder, Colorado | Stookey, 1970; To and others, 1998; Ball and McCleskey, 2003a and 2003b; McCleskey and others, 2003 |
| Carbon isotopes | Accelerator mass spectrometry | University of Waterloo Isotope Laboratory and the University of Arizona Accelerated Mass Spectrometry Laboratory | Donahue and others, 1990; Jull and others, 2004 |
| Deuterium/hydrogen | Hydrogen equilibrium and mass spectrometry | USGS Reston Stable Isotope Laboratory | Coplen and others, 1991 |
| Oxygen-18/oxygen-16 | Carbon dioxide equilibrium | USGS Reston Stable Isotope Laboratory | Epstein and Mayeda, 1953 |
| Gross alpha and beta radioactivity | USEPA method 900.0, modified | Eberline Analytical Services | U.S. Environmental Protection Agency, 1980 |
| Radium-226 | Radon emanation method, USEPA method 903.1 | Eberline Analytical Services | U.S. Environmental Protection Agency, 1980 |
| Radium-228 | USEPA method 904.0, modified | Eberline Analytical Services | U.S. Environmental Protection Agency, 1980 |
| Radon-222 | Liquid scintillation counting | USGS National Water Quality Laboratory | American Society for Testing and Materials, 1992 |

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| Analyte | Method | Laboratory | References |
|----------------------------------|--|--|---|
| Tritium (USGS) | Electrolytic enrichment-liquid scintillation | USGS National Research Program laboratory Menlo Park, California | Thatcher and others, 1977 |
| Tritium and noble gases | Helium in-growth (Tritium) and accelerator mass spectrometry (noble gases) | Lawrence Livermore National Laboratory | Moran and others, 2002 |
| F-specific and somatic coliphage | Single-agar layer and two-step enrichment methods | USGS Ohio Microbiology Laboratory | U.S. Environmental Protection Agency, 2000a |
| Total and escherichia coliform | MI agar | USGS field personel | U.S. Environmental Protection Agency, 2002b |