

Allowable Analytical Methods for LCR Compliance Samples

Analyte Name & Code ₁	Units [EDD Units]	EPA	ASTM ₂	Standard Methods for the Examination of Water and Wastewater ₃
Copper (Analyte code 1022)	mg/L [MG/L]	200.5 ₄ 200.7 ₅ 200.8 ₅ 200.9 ₅	D1688 A D1688 C	3111 B 3113 B 3120 B
Lead, mg/L (Analyte code 1030)	mg/L [MG/L]	200.5 ₄ 200.8 ₅ 200.9 ₅	D3559 D	3113 B

- Analyses of lead and copper must be conducted using methods listed in 40 CFR Part 141 or Appendix A to Subpart C of Part 141
- Multiple editions of Annual Book of ASTM Standards, Volume 1 may be used. Available from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 or <http://astm.org>. Refer to <<https://www.epa.gov/dwanalyticalmethods>>
- Multiple editions of Standard Methods for the Examination of Water and Wastewater may be used. Copies may be obtained from the American Public Health Association, 1015 Fifteenth Street NW, Washington, DC 20005. Standard Methods Online, American Public Health Association, 800 I Street NW., Washington, DC 20001, available at <http://www.standardmethods.org>. Refer to <<https://www.epa.gov/dwanalyticalmethods>>
- EPA Method 200.5, Revision 4.2. "Determination of Trace Elements in Drinking Water by Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry." 2003. EPA/600/R-06/115. (Available at <http://www.epa.gov/water-research/epa-drinking-water-research-methods>.)
- "Methods for the Determination of Metals in Environmental Samples—Supplement I," EPA/600/R-94/111, May 1994. Available at NTIS, PB95-125472.

Note: It is the responsibility of the participating PWSSP laboratory to ensure the revision/version of method used is allowable under the SDWA. Method versions are verified during onsite accreditation assessments.

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Allowable Methods for WQP Sample Analysis^{8,9}

Parameter	Units [EDD Units]	EPA	ASTM ³	SM ²	Other	Approval/ Accreditation Requirement
Temperature (Analyte code 1996)	°C [C]			2550		Approval
pH (Analyte code 1925)	pH units [PH]	150.1 150.2 ¹² 150.3 ¹³	D1293	4500-H+B		Approval
Alkalinity-CaCO ₃ (Analyte code 1927)	mg/L [MG/L]		D1067 B	2320B	I-1030-85 ¹	Approval
Calcium-Ca (Analyte code 1919)	mg/L [MG/L]	200.5 ⁴ 200.7 ⁵	D511 A D511 B D6919	3111B 3120B 3500Ca-B 3500Ca-D		Approval
Conductivity (Analyte code 1064)	umhos/cm [UMHO/CM]		D1125 A	2510B		Approval
Ortho phosphate-P (Analyte code 1044)	mg/L [MG/L]	300.0 ⁶ 300.1 ⁷ 365.1 ⁶	D515 A D4327 D6508	4110B 4500-P E 4500-P F	I-1601-85 ¹ I-2598-85 ¹ I-2601-90 ¹ Thermo Fisher Discrete Analyzer ¹¹	Approval
Silica (Analyte code 1049)	mg/L [MG/L]	200.5 ⁴ 200.7 ⁵	D859	3120B 4500-Si D 4500-Si E 4500-Si F 4500-SiO ₂ C 4500-SiO ₂ D 4500-SiO ₂ E	I-1700-85 ¹ I-2700-85 ¹	Approval
Chloride (Analyte code 1017)	mg/L [MG/L]	300.0 ⁶		4500CL-B		Accreditation
Hardness-CaCO ₃ (Analyte code 1915)	mg/L [MG/L]			2340C 2340B ¹⁰		Accreditation and Approval
Iron (Analyte code 1028)	mg/L [MG/L]	200.7 ⁵				Accreditation
Manganese (Analyte code 1032)	mg/L [MG/L]	200.7 ⁵ 200.8 ⁵				Accreditation
Sodium (Analyte code 1052)	mg/L [MG/L]	200.5 ⁴ 200.7 ⁵		3111B		Accreditation
Sulfate-SO ₄ (Analyte code 1055)	mg/L [MG/L]	300.0 ⁶	D516			Accreditation

Allowable Methods for WQP Sample Analysis^{8,9}

Parameter	Units [EDD Units]	EPA	ASTM ³	SM ²	Other	Approval/ Accreditation Requirement
TDS (dried at 180°C) (Analyte code 1930)	mg/L [MG/L]			2540C		Accreditation

1. U.S. Geological Survey, Federal Center, Box 25286, Denver, CO 80225-0425; Methods for Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of Inorganic and Organic Constituents in Water and Fluvial Sediment, Open File Report 93-125, 1993; Techniques of Water Resources Investigation of the U.S. Geological Survey, Book 5, Chapter A-1, 3rd edition, 1989
2. Standard Methods for the Examination of Water and Wastewater, American Public Health Association, 800 I Street NW., Washington, DC 20001-3710; Standard Methods for the Examination of Water and Wastewater, 18th edition (1992); Standard Methods for the Examination of Water and Wastewater, 19th edition (1995); Standard Methods for the Examination of Water and Wastewater, 20th edition (1998). The following methods from this edition cannot be used: 3111 B, 3111 D, 3113 B, and 3114 B. Standard Methods Online, American Public Health Association, 800 I Street NW., Washington, DC 20001, available at <http://www.standardmethods.org>.
3. Annual Book of ASTM Standards, ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428, <http://www.astm.org>; Annual Book of ASTM Standards 1994, Vols. 11.01 and 11.02; Annual Book of ASTM Standards 1996, Vols. 11.01 and 11.02; Annual Book of ASTM Standards 1999, Vols. 11.01 and 11.02; Annual Book of ASTM Standards 2003, Vols. 11.01 and 11.02.
4. EPA Method 200.5, Revision 4.2. "Determination of Trace Elements in Drinking Water by Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry." 2003. EPA/600/R-06/115. (Available at <http://www.epa.gov/water-research/epa-drinking-water-research-methods>.)
5. "Methods for the Determination of Metals in Environmental Samples—Supplement I," EPA/600/R-94/111, May 1994. Available at NTIS, PB95-125472.
6. "Methods for the Determination of Inorganic Substances in Environmental Samples," EPA/600/R-93/100, August 1993. Available as Technical Report PB94-120821 at National Technical Information Service (NTIS), 5301 Shawnee Road, Alexandria, VA 22312. <http://www.ntis.gov>.
7. "Methods for the Determination of Organic and Inorganic Compounds in Drinking Water," Vol. 1, EPA 815-R-00-014, August 2000. Available as Technical Report PB2000-106981 at National Technical Information Service (NTIS), 5301 Shawnee Road, Alexandria, VA 22312. <http://www.ntis.gov>. Methods for Chemical Analysis of Water and Wastes <<http://www.nemi.gov>>
8. Analyses of alkalinity, calcium, conductivity, pH, ortho-phosphate, silica, sodium, and temperature must be conducted using methods listed in 40 CFR Part 141 or Appendix A to Subpart C of Part 141. Analyses of chloride, iron, manganese, sulfate, and total dissolved solids must be conducted using the methods list in 40 CFR Part 143 or Appendix A to Subpart C of Part 141. Note: The analysis of hardness is included in the expanded list of WQPs. The method reference for hardness is 40 CFR Part 136.
9. For the "direct analysis" of total recoverable metal analytes in drinking water samples containing turbidity of less than one nephelometric turbidity units (NTU), the laboratory must treat an unfiltered acid preserved sample aliquot using the sample preparation procedure described in the method while making allowance for sample dilution in the data calculation. For the determination of total recoverable analytes in aqueous samples where turbidity is greater than one NTU, sample digestion is required using the procedure described in the method. Samples processed in this way and those "directly analyzed" are reported to the TCEQ using the same analyte codes as those not digested.
10. Hardness can also be calculated according to Standard Methods 2340 B. This requires TCEQ Laboratory Approval for calcium and TCEQ Laboratory Accreditation for magnesium.
11. Thermo Fisher. "Thermo Fisher Scientific Drinking Water Orthophosphate Method for Thermo Scientific Gallery Discrete Analyzer," February 2016. Revision 5. Thermo Fisher Scientific, Ratastie 2, 01620 Vantaa, Finland.
12. "Methods for Chemical Analysis of Water and Wastes," EPA/600/4-79/020, March 1983. Available at NTIS, PB84-128677.
13. EPA Method 150.3. "Determination of pH in Drinking Water," February 2017. EPA 815-B-17-001. Available at the National Service Center for Environmental Publications (EPA Method 150.3)

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