

**APPENDIX F**  
**APPROVED ANALYTICAL METHODS**



## **APPENDIX F -- APPROVED ANALYTICAL METHODS FOR THE NEVADA BROWNFIELDS PROGRAM**

The Nevada Laboratory Certification Program (LCP) is administered through the Bureau of Safe Drinking Water (BSDW), Nevada Division of Environmental Protection (NDEP). Nevada is not an accrediting authority for the National Environmental Laboratory Accreditation Conference (NELAC); however, the state does assess laboratories to NELAC standards. Appendix A of this QA Program Plan provides the statutes under the Nevada Administrative Code (NAC) authorizing the authority to certify laboratories.

The State of Nevada certifies laboratories for standard analyses under the Clean Water Act (CWA) and the Safe Drinking Water Act (SDWA), as well as SW-846 under RCRA. Certification of laboratories in Nevada for these standard analyses requires review of the laboratory's QA plan, an initial demonstration of analytical capability (IDC), initial and continuing calibration studies, matrix spikes (MSs), demonstration of method detection limits (MDLs), and analysis of laboratory control samples (LCSs).

The state also approves laboratories for unusual compounds and nonstandard methods, based on reporting limit and MS demonstrations. Standard operating procedures (SOPs), IDCs, CCs, reporting limits (RLs), MDLs, MSs, and sensitivity analysis are required for approval of any performance-based measurement system (PBMS).

### **Bureau of Safe Drinking Water Environmental Laboratory Services (ELS)**

The State of Nevada has primacy to oversee the state's drinking water. As a condition of primacy the State must operate a drinking water laboratory certification program. The regulations governing primacy at 40 CFR 142.10(b)(4) require, as a condition of primary enforcement responsibility (primacy), that a state have laboratory facilities available (the Principal State Laboratory) certified by the regional administrator. In addition, the regulations governing certification (40 CFR 141.28) require that all testing for compliance purposes be performed by certified laboratories except that turbidity, free chlorine residual, temperature, pH, alkalinity, calcium, conductivity, orthophosphate, TOC, SUVA, daily chlorite, and silica may be performed by anyone acceptable to the State.

The authority to certify environmental laboratories for drinking water is granted by NRS 445A.863 Certification of laboratories for analysis of water; requirements for performance of certain analyses. Methods are shown in Table F-1 and F-2.

1. The State Board of Health shall provide by regulation standards for the certification of laboratories for the analysis of water pursuant to NRS 445A.800 to 445A.955, inclusive. An analysis required pursuant to any provision of NRS 445A.800 to 445A.955, inclusive, or required by a lender as a condition precedent to the transfer of real property must be performed by a laboratory that is certified in accordance with the standards adopted by the State Board of Health pursuant to this subsection.

2. The certifying officer shall conduct an evaluation at the site of each laboratory to determine whether the laboratory is using the methods of analysis required by this section in an acceptable manner, applying procedures required by regulation for the control of quality and making results available in a timely manner.
3. For analyses required pursuant to NRS 445A.800 to 445A.955, inclusive, or by a lender as a condition precedent to the transfer of real property, the methods used must comply with the Federal Act. We perform the laboratory certification for the Health Division via an inter-agency agreement.

For the certification of wastewater laboratories the authority is granted by NRS445A.428.

1. The Commission shall provide by regulation standards for the certification of laboratories for the analysis of water pursuant to NRS 445A.300 to 445A.730, inclusive. An analysis required pursuant to any provision of NRS 445A.300 to 445A.730, inclusive, must be performed by a certified laboratory.
2. The certifying officer shall conduct an evaluation at the site of each laboratory to determine whether the laboratory is using the methods of analysis required by this section in an acceptable manner, applying procedures required by regulation for the control of quality and making results available in a timely manner.
3. For analyses required pursuant to NRS 445A.300 to 445A.730, inclusive, the methods of analysis must comply with 40 C.F.R. Part 136.
4. A laboratory may be certified to perform analyses for the presence of one or more specified contaminants, or to perform all analyses required pursuant to NRS 445A.300 to 445A.730, inclusive. (Added to NRS by 1995, 1584)

For hazardous waste testing laboratories the authority is granted by NRS 445A.427  
Analysis to detect hazardous waste or regulated substance to be performed by certified laboratory; exception.

1. Except as otherwise provided in subsection 2, any analysis performed to detect the presence of hazardous waste or a regulated substance in soil or water as required for the purposes of NRS 445A.300 to 445A.730, inclusive, must be performed by a laboratory certified pursuant to the regulations adopted pursuant to NRS 445A.425.
2. The provisions of subsection 1 do not apply to an analysis of waste that is managed by a facility for the management of hazardous waste. (Added to NRS by 2003, 2113)

### **Article 8 - Analytical Methods Developed by the USEPA Office of Ground Water and Drinking Water.**

The Office of Ground Water and Drinking Water's (OGWDW) Technical Support Center (TSC) is one of the many EPA offices responsible for coordinating and developing analytical methods for drinking water. To date, TSC has developed, or participated in the development, of eighteen methods for the analyses of a variety of chemical constituents in water. Nine of these, 504.1, 507, 508, 508.1, 509, 515.1, 531.1, 551.1, and 552.2 can be found in "Methods for the Determination of Organic Chemicals In Drinking Water, Supplement III," available through NTIS by requesting order number PB95-261616.

Eight additional methods, 300.1, 314.0, 317.0, 515.3, 526, 532, 556 (jointly developed with ORD) and 556.1 can be found in "Methods for the Determination of Organic and Inorganic Compounds in Drinking Water, Volume 1" (EPA815-R-00-014) available through NSCEP and individually listed below in downloadable electronic format. The eighteenth, and most recently completed procedure, EPA Method 515.4, has yet to be included in a manual and is currently a stand alone method which is available electronically below.

Some, but not all, of these methods have been promulgated as approved methods for compliance monitoring of specific parameters under the Safe Drinking Water Act. As a result of the recently published, "Analytical Methods for Chemical and Microbiological Contaminants and Revisions to Laboratory Certification Requirements" [64 FR 67449], all of the methods listed in "Methods for the Determination of Organic Chemicals In Drinking Water, Supplement III," except Method 515.1, Rev. 4.1, have been promulgated as approved methods. Also, Method 300.1 has been promulgated as an approved method for bromate and chlorite under the Stage 1 Disinfectants and Disinfection Byproducts Rule (Dec 16, 1998) [63 FR 69389]. Method 314.0 has been promulgated as the approved method [42 FR 11371] for assessment monitoring of perchlorate under the Unregulated Contaminant Monitoring Regulation (UCMR).

The Nevada LCP approves laboratories for analysis of hazardous waste. The EPA publication SW-846, entitled Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, is OSW's official compendium of analytical and sampling methods that have been evaluated and approved for use in complying with the RCRA regulations. SW-846 functions primarily as a guidance document setting forth acceptable, although not required, methods for the regulated and regulatory communities to use in responding to RCRA-related sampling and analysis requirements. EPA guidance for SW-846 and more information can be found at <http://www.epa.gov/sw-846/sw846.htm> and at <http://www.epa.gov/epaoswer/hazwaste/test/pdfs/methstat.pdf>

**Table F-1. EPA SDWA Approved Methods for Organic Chemicals**

Contaminant	EPA method	SM	ASTM	Other
Benzene	<a href="#">502.2</a> , <a href="#">524.2</a>			
Carbon tetrachloride	<a href="#">502.2</a> , <a href="#">524.2</a> , <a href="#">551.1</a>			
Chlorobenzene	<a href="#">502.2</a> , <a href="#">524.2</a>			
1,2-Dichlorobenzene	<a href="#">502.2</a> , <a href="#">524.2</a>			
1,4-Dichlorobenzene	<a href="#">502.2</a> , <a href="#">524.2</a>			
1,2-Dichloroethane	<a href="#">502.2</a> , <a href="#">524.2</a>			
cis-Dichloroethylene	<a href="#">502.2</a> , <a href="#">524.2</a>			
trans-Dichloroethylene	<a href="#">502.2</a> , <a href="#">524.2</a>			
Dichloromethane	<a href="#">502.2</a> , <a href="#">524.2</a>			
1,2-Dichloropropane	<a href="#">502.2</a> , <a href="#">524.2</a>			
Ethylbenzene	<a href="#">502.2</a> , <a href="#">524.2</a>			
Styrene	<a href="#">502.2</a> , <a href="#">524.2</a>			
Tetrachloroethylene	<a href="#">502.2</a> , <a href="#">524.2</a> , <a href="#">551.1</a>			
1,1,1-Trichloroethane	<a href="#">502.2</a> , <a href="#">524.2</a> , <a href="#">551.1</a>			
Trichloroethylene	<a href="#">502.2</a> , <a href="#">524.2</a> , <a href="#">551.1</a>			
Toluene	<a href="#">502.2</a> , <a href="#">524.2</a>			
1,2,4-Trichlorobenzene	<a href="#">502.2</a> , <a href="#">524.2</a>			
1,1-Dichloroethylene	<a href="#">502.2</a> , <a href="#">524.2</a>			
1,1,2-Trichloroethane	<a href="#">502.2</a> , <a href="#">524.2</a> , <a href="#">551.1</a>			
Vinyl chloride	<a href="#">502.2</a> , <a href="#">524.2</a>			
Xylenes (total)	<a href="#">502.2</a> , <a href="#">524.2</a>			
2,3,7,8-TCDD (dioxin)	<a href="#">1613</a>			
2,4-D <sup>3</sup> (as acid, salts and esters)	<a href="#">515.2</a> , <a href="#">555</a> , <a href="#">515.1</a> , <a href="#">515.3</a> , <a href="#">515.4</a>		<a href="#">D5317-93</a>	
2,4,5-TP <sup>3</sup> (Silvex)	<a href="#">515.2</a> , <a href="#">555</a> , <a href="#">515.1</a> , <a href="#">515.3</a> , <a href="#">515.4</a>		<a href="#">D5317-93</a>	
Alachlor <sup>1</sup>	<a href="#">505</a> , <a href="#">507</a> , <a href="#">525.2</a> , <a href="#">508.1</a> , <a href="#">551.1</a>			
Atrazine <sup>1</sup>	<a href="#">505</a> , <a href="#">507</a> , <a href="#">525.2</a> , <a href="#">508.1</a> , <a href="#">551.1</a>			<a href="#">Syngenta AG-625</a>
Benzo(a)pyrene	<a href="#">525.2</a> , <a href="#">550</a> , <a href="#">550.1</a>			
Carbofuran	<a href="#">531.1</a> , <a href="#">531.2</a>	<a href="#">6610</a>		
Chlordane	<a href="#">505</a> , <a href="#">508</a> , <a href="#">525.2</a> , <a href="#">508.1</a>			
Dalapon	<a href="#">552.1</a> , <a href="#">515.1</a> , <a href="#">515.3</a> , <a href="#">552.2</a> , <a href="#">515.4</a>			
Di(2-ethylhexyl)adipate	<a href="#">506</a> , <a href="#">525.2</a>			
Di(2-ethylhexyl)phthalate	<a href="#">506</a> , <a href="#">525.2</a>			
Dibromochloropropane (DBCP)	<a href="#">504.1</a> , <a href="#">551.1</a>			
Dinoseb <sup>3</sup>	<a href="#">515.2</a> , <a href="#">555</a> , <a href="#">515.1</a> , <a href="#">515.3</a> , <a href="#">515.4</a>			
Diquat	<a href="#">549.2</a>			

Endothall	<a href="#">548.1</a>	
Endrin	<a href="#">505, 508, 525.2, 508.1, 551.1</a>	
Ethylene dibromide (EDB)	<a href="#">504.1, 551.1</a>	
Glyphosate	<a href="#">547</a>	<a href="#">6651</a>
Heptachlor	<a href="#">505, 508, 525.2, 508.1, 551.1</a>	
Heptachlor Epoxide	<a href="#">505, 508, 525.2, 508.1, 551.1</a>	
Hexachlorobenzene	<a href="#">505, 508, 525.2, 508.1, 551.1</a>	
Hexachlorocyclopentadiene	<a href="#">505, 508, 525.2, 508.1, 551.1</a>	
Lindane	<a href="#">505, 508, 525.2, 508.1, 551.1</a>	
Methoxychlor	<a href="#">505, 508, 525.2, 508.1, 551.1</a>	
Oxamyl	<a href="#">531.1, 531.2</a>	<a href="#">6610</a>
PCBs (as decachlorobiphenyl) <sup>2</sup>	<a href="#">508A</a>	
PCBs (as Aroclors) <sup>2</sup>	<a href="#">505, 508, 508.1, 525.2</a>	
Pentachlorophenol	<a href="#">515.2, 525.2, 555, 515.1, 515.3, 515.4</a>	<a href="#">D5317-93</a>
Picloram <sup>3</sup>	<a href="#">515.2, 555, 515.1, 515.3, 515.4</a>	<a href="#">D5317-93</a>
Simazine <sup>1</sup>	<a href="#">505, 507, 525.2, 508.1, 551.1</a>	
Toxaphene	<a href="#">505, 508, 508.1 525.2</a>	
Haloacetic acids (five)(HAA5) <sup>4</sup>	<a href="#">552.1, 552.2</a>	<a href="#">6251 B</a>
Total Trihalomethanes <sup>5</sup>	<a href="#">502.2, 524.2, 551.1</a>	

### Footnotes

<sup>1</sup> Substitution of the detector specified in Method 505, 507, 508 or 508.1 for the purpose of achieving lower detection limits is allowed as follows. Either an electron capture or nitrogen phosphorous detector may be used provided all regulatory requirements and quality control criteria are met.

<sup>2</sup> PCBs are qualitatively identified as Aroclors and measured for compliance purposes as decachlorobiphenyl. Users of Method 505 may have more difficulty in achieving the required detection limits than users of Methods 508.1, 525.2 or 508.

<sup>3</sup> Accurate determination of the chlorinated esters requires hydrolysis of the sample as described in EPA Methods 515.1, 515.2, 515.3, 515.4 and 555 and ASTM Method D5317-93.

<sup>4</sup> Five haloacetic acids - monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid.

<sup>5</sup> Total trihalomethanes - chloroform, bromodichloromethane, chlorodibromomethane, and bromoform.

**Table F-2. EPA SDWA Approved Methods for Inorganic Chemicals**

Contaminant	Methodology <sup>13</sup>	EPA	ASTM <sup>3</sup>	SM <sup>4</sup> (18th, 19th ed.)	SM <sup>4</sup> (20th ed.)	Other
Alkalinity	Titrimetric		<a href="#">D1067-92B</a>	<a href="#">2320 B</a>	<a href="#">2320 B</a>	
	Electrometric titration					<a href="#">I-1030-85</a> <sup>5</sup>
Antimony	ICP-Mass Spectrometry	<a href="#">200.8</a> <sup>2</sup>				
	Hydride-Atomic Absorption		<a href="#">D3697-92</a>			
	Atomic Absorption; Platform	<a href="#">200.9</a> <sup>2</sup>				
	Atomic Absorption; Furnace			<a href="#">3113 B</a>		
Arsenic <sup>14</sup>	Inductively Coupled Plasma <sup>15</sup>	<a href="#">200.7</a> <sup>2</sup>		<a href="#">3120 B</a>	<a href="#">3120 B</a>	
	ICP-Mass Spectrometry	<a href="#">200.8</a> <sup>2</sup>				
	Atomic Absorption; Platform	<a href="#">200.9</a> <sup>2</sup>				
	Atomic Absorption; Furnace		<a href="#">D2972-97C</a>	<a href="#">3113 B</a>		
	Hydride Atomic Absorption		<a href="#">D2972-97B</a>	<a href="#">3114 B</a>		
Asbestos	Transmission Electron Microscopy	<a href="#">100.1</a> <sup>9</sup>				
	Transmission Electron Microscopy	<a href="#">100.2</a> <sup>10</sup>				
Barium	Inductively Coupled Plasma	<a href="#">200.7</a> <sup>2</sup>		<a href="#">3120 B</a>	<a href="#">3120 B</a>	
	ICP-Mass Spectrometry	<a href="#">200.8</a> <sup>2</sup>				
	Atomic Absorption; Direct			<a href="#">3111 D</a>		
	Atomic Absorption; Furnace			<a href="#">3113 B</a>		
Beryllium	Inductively Coupled Plasma	<a href="#">200.7</a> <sup>2</sup>		<a href="#">3120 B</a>	<a href="#">3120 B</a>	
	ICP-Mass Spectrometry	<a href="#">200.8</a> <sup>2</sup>				
	Atomic Absorption; Platform	<a href="#">200.9</a> <sup>2</sup>				
	Atomic Absorption; Furnace		<a href="#">D3645-97B</a>	<a href="#">3113 B</a>		
Bromate	Ion Chromatography	<a href="#">300.1</a>				
Cadmium	Inductively Coupled Plasma	<a href="#">200.7</a> <sup>2</sup>				
	ICP-Mass Spectrometry	<a href="#">200.8</a> <sup>2</sup>				
	Atomic Absorption; Platform	<a href="#">200.9</a> <sup>2</sup>				

	Atomic Absorption; Furnace			<a href="#">3113 B</a>	
Calcium	EDTA titrimetric		<a href="#">D511-93A</a>	<a href="#">3500-Ca D</a>	<a href="#">3500-Ca B</a>
	Atomic Absorption; Direct Aspiration		<a href="#">D511-93B</a>	<a href="#">3111 B</a>	
	Inductively Coupled Plasma	<a href="#">200.7<sup>2</sup></a>		<a href="#">3120 B</a>	<a href="#">3120 B</a>
Chlorite (daily monitoring) <sup>19</sup>	Ion Chromatography	<a href="#">300.0</a> <a href="#">300.1</a>			
	Amperometric Titration (SM 19th Ed. only)			<a href="#">4500-CIO<sub>2</sub> E</a>	
Chlorite (distribution system monitoring) <sup>19</sup>	Ion Chromatography	<a href="#">300.0</a> <a href="#">300.1</a>			
Chromium	Inductively Coupled Plasma	<a href="#">200.7<sup>2</sup></a>		<a href="#">3120 B</a>	<a href="#">3120 B</a>
	ICP-Mass Spectrometry	<a href="#">200.8<sup>2</sup></a>			
	Atomic Absorption; Platform	<a href="#">200.9<sup>2</sup></a>			
	Atomic Absorption; Furnace			<a href="#">3113 B</a>	
Copper	Atomic Absorption; Furnace		<a href="#">D1688-95C</a>	<a href="#">3113 B</a>	
	Atomic Absorption; Direct Aspiration		<a href="#">D1688-95A</a>	<a href="#">3111 B</a>	
	Inductively Coupled Plasma	<a href="#">200.7<sup>2</sup></a>		<a href="#">3120 B</a>	<a href="#">3120 B</a>
	ICP - Mass Spectrometry	<a href="#">200.8</a>			
	Atomic Absorption; Platform	<a href="#">200.9</a>			
Conductivity	Conductance		<a href="#">D1125-95A</a>	<a href="#">2510 B</a>	<a href="#">2510 B</a>
Cyanide	Preliminary Distillation Step		<a href="#">D2036-98A</a>	<a href="#">4500-CN-C</a>	<a href="#">4500-CN-C</a>
	Spectrophotometric Manual		<a href="#">D2036-98A</a>	<a href="#">4500-CN-E</a>	<a href="#">4500-CN-E</a>
	Spectrophotometric Semi-automated	<a href="#">335.4<sup>6</sup></a>			
	Spectrophotometric, Amenable		<a href="#">D2036-98B</a>	<a href="#">4500-CN-G</a>	<a href="#">4500-CN-G</a>
	Selective Electrode			<a href="#">4500-CN-F</a>	<a href="#">4500-CN-F</a>
	UV/Distillation/Spectrophotometric				
	Distillation/Spectrophotometric				
Fluoride	Ion Chromatography	<a href="#">300.0<sup>6</sup></a>	<a href="#">D4327-97</a>	<a href="#">4110 B</a>	<a href="#">4110 B</a>
	Preliminary Distillation Step; Colorimetric SPADNS			<a href="#">4500-F-B,D</a>	<a href="#">4500-F-B,D</a>

	Manual Electrode		<a href="#">D1179-93B</a>	<a href="#">4500-F-C</a>	<a href="#">4500-F-C</a>	
	Automated Electrode					<a href="#">380-75WE</a> <sup>11</sup>
	Automated Alizarin			<a href="#">4500-F-E</a>	<a href="#">4500-F-E</a>	<a href="#">129-71W</a> <sup>11</sup>
Lead	Atomic Absorption; Furnace		<a href="#">D3559-96D</a>	<a href="#">3113 B</a>		
	ICP-Mass spectrometry	<a href="#">200.8</a> <sup>2</sup>				
	Atomic Absorption; Platform	<a href="#">200.9</a> <sup>2</sup>				
	Differential Pulse Anodic Stripping Voltammetry					<a href="#">Method 1001</a> <sup>16</sup>
Magnesium	Atomic Absorption		<a href="#">D511-93B</a>	<a href="#">3111 B</a>		
	ICP	<a href="#">200.7</a> <sup>2</sup>		<a href="#">3120 B</a>	<a href="#">3120 B</a>	
	Complexation Titrimetric Methods		<a href="#">D511-93A</a>	<a href="#">3500-Mg E</a>	<a href="#">3500-Mg B</a>	
Mercury	Manual, Cold Vapor	<a href="#">245.1</a> <sup>2</sup>	<a href="#">D3223-97</a>	<a href="#">3112 B</a>		
	Automated, Cold Vapor	<a href="#">245.2</a> <sup>1</sup>				
	ICP-Mass Spectrometry	<a href="#">200.8</a> <sup>2</sup>				
Nickel	Inductively Coupled Plasma	<a href="#">200.7</a> <sup>2</sup>		<a href="#">3120 B</a>	<a href="#">3120 B</a>	
	ICP-Mass Spectrometry	<a href="#">200.8</a> <sup>2</sup>				
	Atomic Absorption; Platform	<a href="#">200.9</a> <sup>2</sup>				
	Atomic Absorption; Direct			<a href="#">3111 B</a>		
	Atomic Absorption; Furnace			<a href="#">3113 B</a>		
Nitrate	Ion Chromatography	<a href="#">300.0</a> <sup>6</sup>	<a href="#">D4327-97</a>	<a href="#">4110 B</a>	<a href="#">4110 B</a>	<a href="#">B-1011</a> <sup>8</sup>
	Automated Cadmium Reduction	<a href="#">353.2</a> <sup>6</sup>	<a href="#">D3867-90A</a>	<a href="#">4500-NO3-F</a>	<a href="#">4500-NO3-F</a>	
	Ion Selective Electrode			<a href="#">4500-NO3-D</a>	<a href="#">4500-NO3-D</a>	<a href="#">601</a> <sup>7</sup>
	Manual Cadmium Reduction		<a href="#">D3867-90B</a>	<a href="#">4500-NO3-E</a>	<a href="#">4500-NO3-E</a>	
Nitrite	Ion Chromatography	<a href="#">300.0</a> <sup>6</sup>	<a href="#">D4327-97</a>	<a href="#">4110 B</a>	<a href="#">4110 B</a>	<a href="#">B-1011</a> <sup>8</sup>
	Automated Cadmium Reduction	<a href="#">353.2</a> <sup>6</sup>	<a href="#">D3867-90A</a>	<a href="#">4500-NO3-F</a>	<a href="#">4500-NO3-F</a>	<a href="#">B-1011</a> <sup>8</sup>
	Manual Cadmium Reduction		<a href="#">D3867-90B</a>	<a href="#">4500-NO3-E</a>	<a href="#">4500-NO3-E</a>	
	Spectrophotometric			<a href="#">4500-NO2-B</a>	<a href="#">4500-NO2-B</a>	
Ortho-phosphate <sup>12</sup>	Colorimetric, Automated, Ascorbic Acid	<a href="#">365.1</a> <sup>6</sup>		<a href="#">4500-P F</a>	<a href="#">4500-P F</a>	
	Colorimetric, Ascorbic acid, single reagent		<a href="#">D515-88A</a>	<a href="#">4500-P E</a>	<a href="#">4500-P E</a>	
	Colorimetric Phosphomolybdate					<a href="#">I-1601-85</a> <sup>5</sup>

	Automated-segmented Flow					<a href="#">I-2601-90</a> <sup>5</sup>
	Automated Discrete					<a href="#">I-2598-85</a> <sup>5</sup>
	Ion Chromatography	<a href="#">300.0</a> <sup>6</sup>	<a href="#">D4327-97</a>	<a href="#">4110 B</a>	<a href="#">4110 B</a>	
pH	Electrometric	<a href="#">150.1</a> <sup>1</sup> <a href="#">150.2</a> <sup>1</sup>	<a href="#">D1293-95</a>	<a href="#">4500-H+ B</a>	<a href="#">4500-H+ B</a>	
Selenium	Hydride-Atomic Absorption		<a href="#">D3859-98A</a>	<a href="#">3114 B</a>		
	ICP-Mass Spectrometry	<a href="#">200.8</a> <sup>2</sup>				
	Atomic Absorption; Platform	<a href="#">200.9</a> <sup>2</sup>				
	Atomic Absorption; Furnace		<a href="#">D3859-98B</a>	<a href="#">3113 B</a>		
Silica	Colorimetric, Molybdate Blue					<a href="#">I-1700-85</a> <sup>5</sup>
	Automated-segmented Flow					<a href="#">I-2700-85</a> <sup>5</sup>
	Colorimetric		<a href="#">D859-95</a>			
	Molybdosilicate			<a href="#">4500-Si D</a>	<a href="#">4500-SiO2 C</a>	
	Heteropoly Blue			<a href="#">4500-Si E</a>	<a href="#">4500-SiO2 D</a>	
	Automated for Molybdate-reactive Silica			<a href="#">4500-Si E</a>	<a href="#">4500-SiO2 E</a>	
	Inductively Coupled Plasma	<a href="#">200.7</a> <sup>2</sup>		<a href="#">3120 B</a>	<a href="#">3120 B</a>	
Sodium	Inductively Coupled Plasma	<a href="#">200.7</a> <sup>2</sup>				
	Atomic absorption; Direct Aspiration			<a href="#">3111 B</a>		
Temperature	Thermometric			<a href="#">2550</a>	<a href="#">2550</a>	
Thallium	ICP-Mass Spectrometry	<a href="#">200.8</a> <sup>2</sup>				
	Atomic Absorption; Platform	<a href="#">200.9</a> <sup>2</sup>				

### Footnotes

The procedures shall be done in accordance with the documents listed below. The incorporation by reference of the following documents listed in footnotes 1-11 and 16 was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at 800-426-4791.

Documents may be inspected at EPA's Drinking Water Docket, EPA West, 1301 Constitution Avenue, NW, Room B135, Washington, DC, telephone 202-566-2426; or at the Office of the Federal Register, 800 North Capitol Street, NW, Suite 700, Washington, DC.

<sup>1</sup> "Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79/020, March 1983. Available at [\(NTIS\)](#), PB84-128677.

<sup>2</sup> "Methods for the Determination of Metals in Environmental Samples-Supplement I", EPA/600/R-94/111, May 1994. Available at [\(NTIS\)](#), PB95-125472.

<sup>3</sup> *Annual Book of ASTM Standards*, 1994, 1996 or 1999, Vols. 11.01 and 11.02, American Society for Testing and Materials International ([ASTM](#)); any year containing the cited version of the method may be used. The previous versions of D1688-95A, D1688-95C (copper), D3559-95D (lead), D1293-95 (pH), D1125-91A (conductivity) and D859-94 (silica) are also approved. These previous versions D1688-90A, C; D3559-90D, D1293-84, D1125-91A and D859-88, respectively are located in the *Annual Book of ASTM Standards*, 1994, Vol. 11.01. Copies may be obtained from

ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

- <sup>4</sup> *Standard Methods for the Examination of Water and Wastewater*, 18th edition (1992), 19th edition (1995), or 20th edition (1998). American Public Health Association ([APHA](#)), 1015 Fifteenth Street, NW, Washington, DC 20005. The cited methods published in any of these three editions may be used, except that the versions of 3111 B, 3111 D, 3113 B and 3114 B in the 20th edition may not be used.
- <sup>5</sup> Method I-2601-90, *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; for Methods I-1030-85; I-1601-85; I-1700-85; I-2598-85; I-2700-85; and I-3300-85 see *Techniques of Water Resources Investigation of the U.S. Geological Survey*, Book 5, Chapter A-1, 3rd ed., 1989; available from Information Services, [U.S. Geological Survey](#), Federal Center, Box 25286, Denver, CO 80225-0425.
- <sup>6</sup> "Methods for the Determination of Inorganic Substances in Environmental Samples," EPA/600/R-93/100, August 1993. Available at ([NTIS](#)), PB94-120821.
- <sup>7</sup> The procedure shall be done in accordance with the Technical Bulletin 601 "Standard Method of Test for Nitrate in Drinking Water," July 1994, PN 221890-001, Analytical Technology, Inc. Copies may be obtained from [ATI Orion](#), 529 Main Street, Boston, MA 02129
- <sup>8</sup> Method B-1011, "Waters Test Method for Determination of Nitrite/Nitrate in Water Using Single Column Ion Chromatography," August 1987. Copies may be obtained from [Waters Corporation](#), Technical Services Division, 34 Maple Street, Milford, MA 01757.
- <sup>9</sup> Method 100.1, "Analytical Method For Determination of Asbestos Fibers in Water," EPA/600/4-83/043, September 1983. Available at ([NTIS](#)), PB83-260471.
- <sup>10</sup> Method 100.2, "Determination of Asbestos Structure Over 10µm In Length In Drinking Water," EPA/600/R-94/134, June 1994. Available at ([NTIS](#)), PB94-201902.
- <sup>11</sup> Industrial Method No. 129-71W, "Fluoride in Water and Wastewater," December 1972, and Method No. 380-75WE, "Fluoride in Water and Wastewater," February 1976, [Technicon Industrial Systems](#). Copies may be obtained from Bran and Luebbe, 1025 Busch Parkway, Buffalo Grove, IL 60089.
- <sup>12</sup> Unfiltered, no digestion or hydrolysis.
- <sup>13</sup> Because MDLs reported in EPA Methods 200.7 and 200.9 were determined using a 2X preconcentration step during sample digestion, MDLs determined when samples are analyzed by direct analysis (i.e., no sample digestion) will be higher. For direct analysis of cadmium and arsenic by Method 200.7, and arsenic by Method 3120 B sample preconcentration using pneumatic nebulization may be required to achieve lower detection limits. Preconcentration may also be required for direct analysis of antimony, lead, and thallium by Method 200.9; antimony and lead by Method 3113 B; and lead by Method D3559-90D unless multiple in-furnace depositions are made.
- <sup>14</sup> If ultrasonic nebulization is used in the determination of arsenic by Methods 200.7, 200.8, or SM 3120 B, the arsenic must be in the pentavalent state to provide uniform signal response. For Methods 200.7 and 3120 B, both samples and standards must be diluted in the same mixed acid matrix concentration of nitric and hydrochloric acid with the addition of 100µl of 30% hydrogen peroxide per 100ml of solution. For direct analysis of arsenic with Method 200.8 using ultrasonic nebulization, samples and standards must contain one mg/L of sodium hypochlorite.
- <sup>15</sup> After January 23, 2006 analytical methods using the ICP-AES technology, may not be used because the detection limits for these methods are 0.008 mg/L or higher. This restriction means that the two ICP-AES methods (EPA Method 200.7 and SM 3120 B) approved for use for the MCL of 0.05 mg/L may not be used for compliance determinations for the revised MCL of 0.010 mg/L. However, prior to 2005 systems may have compliance samples analyzed with these less sensitive methods.
- <sup>16</sup> The description for Method Number 1001 for lead is available from [Palintest](#), LTD, 21 Kenton Lands Road, P.O. Box 18395, Erlanger, KY 41018. Or from the [Hach](#) Company, P.O. Box 389, Loveland, CO 80539.
- <sup>17</sup> The description for the Kelada 01 Method, "Kelada Automated Test Methods for Total Cyanide, Acid Dissociable Cyanide, and Thiocyanate," Revision 1.2, August 2001, EPA 821-B-01-009 for cyanide is available from the National Technical Information Service ([NTIS](#)), PB 2001-108275, 5285 Port Royal Road, Springfield, VA 22161. The toll free telephone number is 800-553-6847.
- <sup>18</sup> The description for the QuikChem Method 10-24-00-1-X, "Digestion and distillation of total cyanide in drinking and wastewaters using MICRO DIST and determination of cyanide by flow injection analysis," Revision 2.1, November 30, 2000 for cyanide is available from [Lachat Instruments](#), 6645 W. Mill Rd., Milwaukee, WI 53218. Telephone 414-358-4200.
- <sup>19</sup> Amperometric titration may be used for routine daily monitoring of chlorite at the entrance to the distribution system, as prescribed in §141.132(b)(2)(i)(A). Ion chromatography must be used for routine monthly monitoring of chlorite and additional monitoring of chlorite in the distribution system, as prescribed in 141.132(b)(2)(i)(B) and (b)(2)(ii).