Inorganic and Microbiology Section - Methods and Reporting Limits (PQLs)

North Carolina Division of Water Resources, Laboratory Section

Parameter	EPA Methods	APHA Methods	Other Methods	Practical Quantitation Limit (PQL)	PQL Revision Date
Microbiology					
Alkalinity to pH 8.3		SM 2320 B-1997		1 mg/L	3/13/2001
Alkalinity to pH 4.5		SM 2320 B-1997		1 mg/L	3/13/2001
BOD_5 (5-Day)		SM 5210 B-2001		2.0 mg/L	3/13/2001
$CBOD_5$ (5-Day)		SM 5210 B-2001		2.0 mg/L	6/5/2007
Coliform, MF Fecal		SM 9222 D-1997		1 colony/100 mL	3/13/2001
Coliform, MF Total		SM 9222 B-1997		1 colony/100 mL	3/13/2001
Coliform, Tube Fecal/Total		SM 9221 B-2006		MPN/100 mL	3/13/2001
Coliform, Fecal Strep		SM 9230 C-2007		1 colony/100 mL	3/13/2001
Conductivity @ 25°C (Specific Conductance)		SM 2510 B-1997		14.9 µmhos/cm	3/30/2001
TOC/DOC (Organic Carbon)		SM 5310 B-2000		2 mg/L	3/8/2012
Turbidity	EPA 180.1 Rev. 2.0 (1993)	SM 2130 B-2001		1 NTU	3/13/2001

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Parameter	EPA Methods	APHA Methods	Other Methods	Practical Quantitation Limit (PQL)	PQL Revision Date
Metals					
Hardness by Titration	EPA 200.7 Rev. 4.4 (1994)	SM 2430 C-1997		1.00 mg/L	6/3/2010
Aluminum (Al)	EPA 200.7 Rev. 4.4 (1994)			50 µg/L	3/13/2001
Antimony (Sb)	EPA 200.8 Rev. 5.4 (1994)			10 µg/L	9/2/2008
Arsenic (As)	EPA 200.8 Rev. 5.4 (1994) EPA 200.9 Rev. 2.2 (1994)$			2 µg/L	11/10/2008
Barium (Ba)	EPA 200.7 Rev. 4.4 (1994)			10 µg/L	7/24/2001
Beryllium (Be)	EPA 200.7 Rev. 4.4 (1994)			5 µg/L	1/2/2007
Boron (B)	EPA 200.7 Rev. 4.4 (1994)			50 µg/L	1/12/2009
Cadmium (Cd)	EPA 200.8 Rev. 5.4 (1994) EPA 200.9 Rev. 2.2 (1994)$			0.50 µg/L	3/1/2013
Calcium (Ca)	EPA 200.7 Rev. 4.4 (1994)			0.10 mg/L	3/13/2001
Chromium (Cr), Total	EPA 200.8 Rev. 5.4 (1994) EPA 200.7 Rev. 4.4 (1994)$			10 µg/L	1/2/2007
Cobalt (Co)	EPA 200.7 Rev. 4.4 (1994)			50 µg/L	3/13/2001
Copper (Cu)	EPA 200.8 Rev. 5.4 (1994) EPA 200.9 Rev. 2.2 (1994)$			2.0 µg/L	3/13/2001
Iron (Fe)	EPA 200.7 Rev. 4.4 (1994)			50 µg/L	3/13/2001
Lead (Pb)	EPA 200.8 Rev. 5.4 (1994) EPA 200.9 Rev. 2.2 (1994)$			2.0 µg/L	3/1/2011

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Lithium (Li)	EPA 200.7 Rev. 4.4 (1994)			25 µg/L	3/13/2001
Magnesium (Mg)	EPA 200.7 Rev. 4.4 (1994)			0.10 mg/L	3/13/2001
Manganese (Mn)	EPA 200.8 Rev. 5.4 (1994)$ EPA 200.7 Rev. 4.4 (1994)			10 µg/L	3/13/2001
Mercury (Hg)	EPA 245.1 Rev. 3.0 (1994)			0.2 µg/L	3/13/2001
Mercury - trace level	EPA 1631 E			1.00 ng/L	1/2/2007
Molybdenum (Mo)	EPA 200.8 Rev. 5.4 (1994)			10 µg/L	9/2/2008
Nickel (Ni)	EPA 200.8 Rev. 5.4 (1994) EPA 200.9 Rev. 2.2 (1994)$			2.0 µg/L	3/1/2011
Potassium (K)	EPA 200.7 Rev. 4.4 (1994)			0.10 mg/L	7/24/2001
Selenium (Se)	EPA 200.8 Rev. 5.4 (1994) EPA 200.9 Rev. 2.2 (1994)$			5 µg/L	3/13/2001
Silver (Ag)	EPA 200.8 Rev. 5.4 (1994)			1.0 µg/L	3/1/2013
Sodium (Na)	EPA 200.7 Rev. 4.4 (1994)			0.10 mg/L	3/13/2001
Thallium (Tl)	EPA 200.8 Rev. 5.4 (1994)			2.0 µg/L	3/1/2013
Tin (Sn)	EPA 200.8 Rev. 5.4 (1994)			10 µg/L	5/30/2008
Titanium (Ti)	EPA 200.7 Rev. 4.4 (1994)			10 µg/L	9/8/2008
Vanadium (V)	EPA 200.7 Rev. 4.4 (1994)			25 µg/L	7/24/2001
Zinc (Zn)	EPA 200.8 Rev. 5.4 (1994) EPA 200.7 Rev. 4.4 (1994)$			10 µg/L	3/13/2001

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Parameter	EPA Methods	APHA Methods	Other Methods	Practical Quantitation Limit (PQL)	PQL Revision Date
Nutrients					
NH3 as N	EPA 350.1 Rev. 2.0 (1993)		QUIK CHEM 10-107-06-1-J$	0.02 mg/L	3/1/2009
NO2 + NO3 as N	EPA 353.2 Rev. 2.0 (1993)		QUIK CHEM 10-107-04-1-C$	0.02 mg/L	3/1/2009
NO2 as N	EPA 353.2 Rev. 2.0 (1993)		QUIK CHEM 10-107-04-1-C$	0.01 mg/L	3/1/2009
P, Total as P	EPA 365.1 Rev. 2.0 (1993)		QUIK CHEM 10-115-01-1-EF$	0.02 mg/L	6/1/2008
PO4 as P	EPA 365.1 Rev. 2.0 (1993)		QUIK CHEM 10-115-01-1-A$	0.02 mg/L	3/1/2009
TKN as N	EPA 351.2 Rev. 2.0 (1993)		QUIK CHEM 10-107-06-2-H$	0.20 mg/L	3/1/2009
Note: Methods and PQL's for Nutrients parameters are applicable for regular samples and dissolved (filtered) samples.					
Wet Chemistry					
Chloride	EPA 300.0 Rev. 2.1 (1993)			0.5 mg/L	1/3/2013
Chlorophyll *a*	EPA 445.0 (modified option)			1 µg/L	3/13/2001
COD			HACH 8000	20 mg/L	9/5/2002
Color: Platinum Cobalt (true)		SM 2120 B-2001		5 color units	3/13/2001
Color: ADMI		SM 2120 E-1993		10 color units	1/3/2013
Cyanide, Total	EPA 335.4 Rev. 1.0 (1993)$		QUIK CHEM 10-204-00-1-A QUIK CHEM 10-204-00-1-X	0.02 mg/L	4/22/2002
Fluoride	EPA 300.0 Rev. 2.1 (1993)			0.2 mg/L	1/3/2013

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Parameter	EPA Methods	APHA Methods	Other Methods	Practical Quantitation Limit (PQL)	PQL Revision Date
Formaldehyde			APHA, 1972 Method 111	0.2 mg/L	2/21/2003
HEM (Oil and Grease)	EPA 1664 A			10 mg/L	11/1/2005
HEM (Oil and Grease) sludge, sediment and solid samples			SW-846 9071 B	1000 mg/Kg	11/1/2005
Hexavalent Chromium		SM3500-Cr B-2009		50 µg/L	4/22/2002
MBAS (surfactants)		SM 5540 C-2000		0.1 mg/L	3/13/2001
pH		SM 4500-H+ B-2000		0.01 units from 4.01-9.18 s.u.	3/13/2001
Phenols	EPA 420.4 Rev. 1.0 (1993)		QUIK CHEM 10-210-00-1-A$	10 µg/L	7/20/2004
Silica		SM 4500-SiO2 C-1997	QUIK CHEM 10-114-27-1-A$	2 mg/L	4/16/2002
Sulfate	EPA 300.0 Rev. 2.1 (1993)			1.0 mg/L	1/3/2013
Sulfide		SM 4500-S2 D-2000		0.1 mg/L	3/13/2001
Suspended Fixed Residue	EPA 160.4			6.2 mg/L	6/1/2007
Suspended Volatile Residue	EPA 160.4			6.2 mg/L	6/1/2007
Tannin & Lignin		SM 5550 B-2010		0.2 mg/L	9/5/2003
Total Dissolved Residue		SM 2540 C-1997		12 mg/L	6/1/2007
Total Residue		SM 2540 B-1997		12 mg/L	6/1/2007
Total Suspended Residue		SM 2540 D-1997		6.2 mg/L	6/1/2007
Total Volatile Residue	EPA 160.4			12 mg/L	6/1/2007

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Total Fixed Residue	EPA 160.4			12 mg/L	6/1/2007

NOTES:

EPA refers to *Methods for Chemical Analysis of Water and Wastes* , USEPA Office of Research and Development, Rev. 3/83 (unless otherwise specified). Cincinnati, OH; EPA 600/4-79-020. otherwise specified).

SW-846 refers to *Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods* ; 3rd edition (9/86), USEPA Office of Solid Waste and emergency Response, Washington, D.C.

HACH refers to Hach Chemical Company, PO Box 389, Loveland, CO 80537.

QUIK CHEM refers to HACH Company/Lachat Instruments, Milwaukee, WI, 53219.

* - under evaluation

$ - secondary method reference

Revised: 12/05/2013