SUBJECT	DATE	PAGE	ITEM NO.
Required Detection Limits	02/11/19	1 of 13	280

The required detection limit is generally that of the approved method's detection limit and a value less than the regulatory limit for the analyte.

"For the Drinking Water Category, the Program has adopted the required detection limits (RDL) listed in the Code of Federal Regulations (CFR) Part 141.23 (Inorganic's) and 141.24 (Organics). **Whenever possible, laboratories must target their reporting limit to meet the RDL for each certified potable water method associated with the listed technology. The maximum contaminant level goals (MCLGs) listed in the EPA Manual for the Certification of Laboratories Analyzing Drinking Water – Criteria and Procedures for Quality Assurance (5th Edition) may also be referenced.**

The maximum contaminant level (MCL), if established, for each of the regulated contaminants or contaminant groups can be found in NYCRR Part 5, Subpart 5-1 Public Water Systems – Tables, and 40 CFR Part 141 and 143. They have been included in this table for ease of reference, and will be updated as changes are made to either the state or federal regulations. "

In order to declare the contaminant as absent from the potable water sample, the analysis must establish that the contaminant is absent at the levels indicated below. It is important for laboratories to achieve these detection levels because reporting to these levels will impact required sampling frequencies.

Detection Limits for Inorganic Contaminants

Contaminant	Methodology	Detection Limit
Non-Metals		RDL (mg/L)
Note: The monitoring trigger for the inorganics is the MCL except for nitrate and nitrite, which are 1/2 the MCL in CFR Part 141 to composite.		
Asbestos	Transmission Electron Microscopy	1.4 MFL
[7MFL;>10um]		
Bromate	EPA 317.0 rev. 2, 326.0	0.0010
[0.010]	All other methods	0.0050
Chlorite		0.020
[1.0]		

Detection Limits for Inorganic Contaminants

Contaminant	Methodology	Detection Limit
Cyanide (as free)	Distillation, Visible Molecular Absorption Spectrometry	0.02
[0.2]	Distillation, Automated, Visible Molecular Absorption Spectrometry	0.005
	Distillation, Amenable, Visible Molecular Absorption Spectrometry	0.02
	Distillation, Potentiometry (Ion – Selective Electrode)	0.05
	UV, Distillation, Visible Molecular Absorption Spectrometry	0.0005
	Micro Distillation, Flow Injection, Visible Molecular Absorption Spectrometry	0.0006
	Ligand Exchange with Amperometry	0.0005
Nitrate	Manual Cadmium Reduction	0.01
[10 as N]	Auto Analyzer Hydrazine Reduction	0.01
	Auto Analyzer Cadmium Reduction	0.05
	Potentiometry (Ion – Selective Electrode)	1
	Ion Chromatography	0.01
	Capillary Ion Electrophoresis	0.076
Nitrite	Visible molecular absorption spectrometry	0.01
[1 as N]	Auto Analyzer Cadmium Reduction	0.05
	Manual Cadmium Reduction	0.01
	Ion Chromatography	0.004

Detection Limits for Inorganic Contaminants

Contaminant	Methodology	Detection Limit
	Capillary Ion Electrophoresis	0.103
Total Nitrate-Nitrite	All	Not specified in CFR
[10 as N]		
Metals		RDL (ug/L)

Note: The monitoring trigger for metals is the MCL unless compositing, then 1/5 the MCL is required.

Antimony	Graphite Furnace Atomic Absorption Spectrometry – Wall	3
[0.006]	Graphite Furnace Atomic Absorption Spectrometry – Platform	0.8
	Inductively Coupled Plasma – Mass Spectrometry	0.4
	Hydride Generation Atomic Absorption Spectrometry	1
Arsenic	Graphite Furnace Atomic Absorption Spectrometry – Wall	1
[0.010]	Graphite Furnace Atomic Absorption Spectrometry – Platform	0.5
	Inductively Coupled Plasma – Mass Spectrometry	1.4
	Hydride Generation Atomic Absorption Spectrometry	1
Barium	Graphite Furnace Atomic Absorption Spectrometry – Wall	2
[2.00]	Flame Atomic Absorption Spectrometry	100

Detection Limits for Inorganic Contaminants

Contaminant	Methodology	Detection Limit
	Inductively Coupled Plasma – Atomic Emission Spectrometry	2
Beryllium [0.004]	Graphite Furnace Atomic Absorption Spectrometry – Wall	0.2
	Graphite Furnace Atomic Absorption Spectrometry – Platform	0.02
	Inductively Coupled Plasma – Atomic Emission Spectrometry	0.3
	Inductively Coupled Plasma – Mass Spectrometry	0.3
Cadmium [0.005]	Graphite Furnace Atomic Absorption Spectrometry – Wall	0.1
	Inductively Coupled Plasma – Atomic Emission Spectrometry	1
Chromium [0.10]	Graphite Furnace Atomic Absorption Spectrometry – Wall	1
	Inductively Coupled Plasma – Atomic Emission Spectrometry	7
Copper [Treatment Technique; Action Level = 1.3]	Not Specified	50
Lead [Treatment Technique;	Not Specified	1

Detection Limits for Inorganic Contaminants

Contaminant	Methodology	Detection Limit
Action Level = 0.015]		
Iron [0.3* - NYS]	All	Not specified in CFR
Manganese [0.05] [0.3* - NYS]	All	Not specified in CFR

*"If Fe and Mn are present, the total concentration of both should not exceed 0.5 mg/L. Higher levels may be allowed by the State when justified by the supplier of water."

Mercury [0.002]	Cold Vapor Atomic Absorption Spectrometry	0.2
	Automated Cold Vapor Atomic Absorption Spectrometry	0.2
Nickel	Graphite Furnace Atomic Absorption Spectrometry – Wall	1
	Graphite Furnace Atomic Absorption Spectrometry – Platform	0.6
	Inductively Coupled Plasma – Atomic Emission Spectrometry	5
	Inductively Coupled Plasma – Mass Spectrometry	0.5
Selenium [0.05]	Graphite Furnace Atomic Absorption Spectrometry – Wall	2
	Hydride Generation Atomic Absorption Spectrometry	2
Silver	All	10

Detection Limits for Inorganic Contaminants

Contaminant	Methodology	Detection Limit
[0.10]		
Sodium	All	200
[No designated limits]		
Thallium	Graphite Furnace Atomic Absorption Spectrometry – Wall	1
[0.002]	Graphite Furnace Atomic Absorption Spectrometry – Platform	0.7
	Inductively Coupled Plasma – Mass Spectrometry	0.3
Zinc	All	50
[5.0]		
Fluoride	All	Not specified in CFR
[2.2]		
Chloride	All	Not specified in CFR
[250.0]		
Sulfate	All	Not specified in CFR
[250.0]		
Color	All	Not specified in CFR
[15 units]		
Odor	All	Not specified in CFR
[3 units]		

Detection Limits for Organic Contaminants

Contaminant	Detection Limit
[MCL (mg/L)]	
Microextractables / Specific Organic Chemicals (SOC)	RDL (ug/L)
Ethylene dibromide (EDB)	0.01
[0.00005]	
1,2-Dibromo-3-chloropropane (DBCP)	0.02
[0.0002]	
Volatile Halocarbons and Aromatics / General Organic Chemicals	RDL (ug/L)
All	0.5
[MCL's vary between 0.005 for Benzene, Carbon Tetrachloride, 1,2-Dichloroethane, Dichloromethane, 1,2-Dichloropropane, Tetrachloroethylene, 1,1,2-Trichloroethane, Trichloroethylene to 10 for Xylenes.]	
[NYS Principal Organic Contaminant (POC) = 0.005]	
[NYS Unspecified Organics Contaminant (UOC) = 0.05]	
[Total POCs and UOCs = 0.1]	
Organic Disinfection Byproducts	RDL (mg/L)
Total Trihalomethanes (THMs)	
[0.08]	
THM, Chloroform	0.0010
THM, Bromodichloromethane	0.0010
THM, Dibromochloromethane	0.0010

Detection Limits for Organic Contaminants

Contaminant	Detection Limit
[MCL (mg/L)]	
THM, Bromoform	0.0010
Haloacetic acids (HAA5)	
[0.06]	
HAA5, Monochloroacetic Acid	0.0020
HAA5, Dichloroacetic Acid	0.0010
HAA5, Trichloroacetic Acid	0.0010
HAA5, Monobromoacetic Acid	0.0010
HAA5, Dibromoacetic Acid	0.0010
PCBs / Specific Organic Chemicals (SOC)	RDL (ug/L)
Aroclor - 1016	0.08
Aroclor - 1221	20
Aroclor - 1232	0.5
Aroclor - 1242	0.3
Aroclor - 1248	0.1
Aroclor - 1254	0.1
Aroclor - 1260	0.2
Polychlorinated biphenyls (PCBs) (as decachlorobiphenyl)	0.1
[0.0005]	
Pesticides / Specific Organic Chemicals (SOC)	RDL (ug/L)
Alachlor	0.2

Detection Limits for Organic Contaminants

Contaminant	Detection Limit
[MCL (mg/L)]	
[0.002]	
Atrazine	0.1
[0.003]	
Chlordane	0.2
[0.002]	
Endrin	0.01
[0.002]	
Heptachlor	0.04
[0.0004]	
Heptachlor epoxide	0.02
[0.0002]	
Lindane	0.02
[0.0002]	
Methoxychlor	0.1
[0.04]	
Simazine	0.07
[0.004]	
Toxaphene	1
[0.003]	
Carbamate Pesticides / Specific Organic Chemicals (SOC)	RDL (ug/L)
Aldicarb	0.5
[0.003]	

Detection Limits for Organic Contaminants

Contaminant	Detection Limit
[MCL (mg/L)]	
Aldicarb sulfoxide	0.5
[0.004]	
Aldicarb sulfone	0.8
[0.002]	
Carbofuran	0.9
[0.04]	
Oxamyl	2
[0.2]	
Chlorophenoxy Acid Herbicides / Specific Organic Chemicals (SOC)	RDL (ug/L)
Dalapon	1
[0.2]	
Dinoseb	0.2
[0.007]	
2,4-D	0.1
[0.07] [0.05 - NYS]	
Picloram	0.1
[0.5]	
Pentachlorophenol	0.04
[0.001]	
2,4,5-TP (Silvex)	0.2
[0.05] [0.01 - NYS]	

Detection Limits for Organic Contaminants

Contaminant [MCL (mg/L)]	Detection Limit
Herbicides	RDL (ug/L)
Diquat [0.02]	0.4
Endothall [0.1]	9
Glyphosate [0.7]	6
Chlorinated Hydrocarbons / Specific Organic Chemicals (SOC)	RDL (ug/L)
Hexachlorobenzene [0.001]	0.1
Hexachlorocyclopentadiene [0.05]	0.1
PAH / Specific Organic Chemical (SOC)	RDL (ug/L)
Benzo(a)pyrene [0.0002]	0.02
Dioxin / Specific Organic Chemical (SOC)	RDL (ng/L)
2,3,7,8-TCDD (Dioxin) [0.00000003]	0.005

Detection Limits for Organic Contaminants

Contaminant		Detection Limit
[MCL (mg/L)]		
Mixed Esters / Specific Organic Chemicals (SOC)		RDL (ug/L)
Di(2-ethylhexyl)adipate		0.6
[0.4]		
Di(2-ethylhexyl)phthalate		0.6
[0.006]		
Other Specific Organic Chemicals (SOC)		RDL (ug/L)
Methyl-teritary-butyl ether	All	Not specified in CFR
[0.010]		
Vinyl chloride	All	Not specified in CFR
[0.002]		
PFOA and PFOS		RDL (ng/L)
Perfluorooctanic acid (PFOA)		2
Perfuorooctanesulfonic acid (PFOS)		2
Other Emerging Contaminants		**RDL (ug/L)**
1,4-Dioxane		**0.02**

Detection Limits for Radiochemical Contaminants

Contaminant	Detection Limit
Radionuclides	RDL (pCi/L)
Gross Alpha	3
Radium 226	1
Radium 228	1
Tritium	1000
Strontium-89	10
Strontium-90	2
Iodine-131	1
Cesium-134	10
Gross Beta	4