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 established required detection limits (RDL) for the analytes listed below, where applicable, and included in Code of Federal Regulations (CFR) Part 141.23 (Inorganics) and 141.24 (Organics). Another useful reference is EPA's Manual for the Certification of Laboratories Analyzing Drinking Water – Criteria and Procedures for Quality Assurance (5th Edition).

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.

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 the table for ease of reference, and they will be updated as changes are made to either the state or federal regulations.

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	0.01 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]		
Cyanide (as free)	Distillation, Visible Molecular Absorption Spectrometry	0.02

Detection Limits for Inorganic Contaminants

Contaminant	Methodology	Detection Limit
[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
	Capillary Ion Electrophoresis	0.103
Total Nitrate-	All	Not specified in

Detection Limits for Inorganic Contaminants

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

Detection Limits for Inorganic Contaminants

Contaminant	Methodology	Detection Limit
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; Action Level = 0.015]	Not Specified	1

Detection Limits for Inorganic Contaminants

Contaminant	Methodology	Detection Limit
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 [0.10]	All	10
Sodium	All	200

Detection Limits for Inorganic Contaminants

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

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
THM, Bromoform	0.0010

Detection Limits for Organic Contaminants

Contaminant	Detection Limit
[MCL (mg/L)]	
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
[0.002]	

Detection Limits for Organic Contaminants

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

Detection Limits for Organic Contaminants

Contaminant		Detection Limit
[MCL (mg/L)]		
Mixed Esters / Specific Organic Chemicals (SOC)		RDL (ug/L)
Di(2-ethylhexyl)adipate [0.4]		0.6
Di(2-ethylhexyl)phthalate [0.006]		0.6
Other Specific Organic Chemicals (SOC)		RDL (ug/L)
Methyl-teritary-butyl ether [0.010]	All	Not specified in CFR
Vinyl chloride [0.002]	All	Not specified in CFR
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 Organic 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