

333-061-0030

Maximum Contaminant Levels and Action Levels

- (1) Maximum contaminant levels (MCLs) and Action Levels (ALs) for inorganic chemicals are applicable to all Community and Non-transient Non-community water systems and are listed in Table 1. The MCL for Fluoride is applicable only to Community Water Systems and the MCL for Nitrate is applicable to all water systems.

Table 1

Contaminant MCL (mg/l);	Action Level (mg/l);
Antimony	0.006
Arsenic	0.010
Asbestos	7 MFL*
Barium	2
Beryllium	0.004
Cadmium	0.005
Chromium	0.1
Copper	1.3
Cyanide	0.2
Fluoride	4.0
Lead	0.015
Mercury	0.002
Nickel	MCL being re-evaluated by EPA
Nitrate (as N)	10
Nitrite (as N)	1
Total Nitrate + Nitrite (as N)	10
Selenium	0.05
Thallium	0.002

*MFL = million fibers per liter 10 um

- (a) Compliance with the maximum contaminant levels for inorganic contaminants is calculated pursuant to OAR 333-061-0036(2)(j).
- (b) Violations of secondary contaminant levels for fluoride (2.0 mg/l) require a special public notice. Refer to OAR 333-061-0042(7).
- (c) The lead action level is exceeded if the concentration of lead in more than 10 percent of tap water samples collected during any monitoring period conducted in accordance with OAR 333-061-0036(2)(d)(A) through (E) is greater than 0.015 mg/L (i.e., if the "90th percentile" lead level is greater than 0.015 mg/L). The copper action level is exceeded if the concentration of copper in more than 10 percent of tap water samples collected during any monitoring period conducted in accordance with OAR 333-061-0036(2)(d)(A) through (E) is greater than 1.3 mg/L (i.e., if the "90th percentile" copper level is greater than 1.3 mg/L).

- (A) The 90th percentile lead and copper levels shall be computed as follows: The results of all lead or copper samples taken during a monitoring period shall be placed in ascending order from the sample with the lowest concentration to the sample with the highest concentration. Each sampling result shall be assigned a number, ascending by single integers beginning with the number 1 for the sample with the lowest contaminant level. The number assigned to the sample with the highest contaminant level shall be equal to the total number of samples taken. The number of samples taken during the monitoring period shall be multiplied by 0.9. The contaminant concentration in the numbered sample yielded by this calculation is the 90th percentile contaminant level.
- (B) For water systems serving fewer than 100 people that collect five samples per monitoring period, the 90th percentile is computed by taking the average of the highest and second highest concentrations. For a water system allowed by the Department to collect fewer than five samples the sample result with the highest concentration is considered the 90th percentile value.
- (2) Maximum contaminant levels for organic chemicals:
- (a) The maximum contaminant levels for synthetic organic chemicals are shown in Table 2 and apply to all Community and Non-Transient Non-Community water systems:

Table 2

Contaminant	MCL, mg/l
Alachlor	0.002
Atrazine	0.003
Benzo(a) pyrene	0.0002
Carbofuran	0.04
Chlordane	0.002
Dalapon	0.2
Dibromochloropropane	0.0002
Dinoseb	0.007
Dioxin(2,3,7,8-TCDD)	0.00000003
Diquat	0.02
Di(2-ethylhexyl) adipate	0.4
Di(2-ethylhexyl) phthalate	0.006
Endothall	0.1
Endrin	0.002
Ethylene Dibromide	0.00005
Glyphosate	0.7
Heptachlor	0.0004

Heptachor epoxide	0.0002
Hexachlorobenzene	0.001
Hexachlorocyclopentadiene	0.05
Lindane	0.0002
Methoxychlor	0.04
Oxamyl(Vydate)	0.2
Picloram	0.5
Polychlorinated Biphenyls	0.0005
Pentachlorophenol	0.001
Simazine	0.004
Toxaphene	0.003
2,4-D	0.07
2,4,5-TP Silvex	0.05

- (A) Compliance with MCLs shall be calculated pursuant to OAR 333-061-0036(3)(a)(G).
- (b) The maximum contaminant levels for disinfection byproducts are shown in Table 3 and apply to all Community and Non-Transient Non-Community water systems that add a disinfectant (oxidant) to the water supply at any point in the treatment process or deliver water in which a disinfectant has been added to the water supply.

Table 3	
Disinfection Byproduct	MCL in mg/l
Total Trihalomethanes (TTHM)	0.080
Haloacetic acids (five)(HAA5)	0.060
Bromate	0.010
Chlorite	1.0

- (A) Compliance with the MCLs for TTHM and HAA5 shall be calculated as a running annual arithmetic average pursuant to OAR 333-061-0036(4)(c), (r) and (s). All systems must comply with OAR 333-061-0036(4)(c) and (4)(q) until the dates specified in Table 4, at which time compliance with the MCLs shall be calculated as a locational running annual arithmetic average pursuant to OAR 333-061-0036(4)(d).

Table 4		
System type	Population	Compliance Date*
Water systems that are not part of a combined	System serving \geq 100,000	April 1, 2012

distribution system and water systems that serve the largest population in the combined distribution system	System serving 50,000-99,999	October 1, 2012
	System serving 10,000-49,999	October 1, 2013
	System serving < 10,000	October 1, 2013 if no <i>Cryptosporidium</i> monitoring is required under OAR 333-061-0036(5)(e)(A)(iv) or October 1, 2014 if <i>Cryptosporidium</i> monitoring is required under OAR 333-061-0036(5)(e)(A)(iv) or OAR 333-061-0036(5)(e)(A)(v)
Other systems that are part of a combined distribution system	Purchasing water system or wholesale system	At the same time as the system with the earliest compliance date in the combined distribution system

* The Department may grant up to an additional 24 months for compliance with MCLs and operational evaluation levels if capital improvements are required to comply with an MCL.

- (B) Compliance with the MCL for Bromate shall be calculated as a running annual arithmetic average pursuant to OAR 333-061-0036(4)(l) and (r).
- (C) Compliance with the MCL for Chlorite shall be calculated as a running annual arithmetic average pursuant to OAR 333-061-0036(4)(k) and (s).
- (c) The maximum contaminant levels for volatile organic chemicals are indicated in Table 5 and apply to all Community and Non-Transient Non-Community water systems:

Table 5

Contaminant	MCL, mg/l
Benzene	0.005
Carbon tetrachloride	0.005
Cis-1,2-Dichloroethylene	0.07
Dichloromethane	0.005
Ethylbenzene	0.7
Monochlorobenzene	0.1
O-Dichlorobenzene	0.6
P-Dichlorobenzene	0.075
Styrene	0.1

Tetrachloroethylene(PCE)	0.005
Toluene	1.
Trans-1,2-Dichloroethylene	0.1
Trichloroethylene (TCE)	0.005
Vinyl chloride	0.002
Xylenes(total)	10.
1,1-Dichloroethylene	0.007
1,1,1-Trichloroethane	0.2
1,1,2-Trichloroethane	0.005
1,2-Dichloroethane	0.005
1,2-Dichloropropane	0.005
1,2,4-Trichlorobenzene	0.0

- (A) Compliance with MCLs shall be calculated pursuant to OAR 333-061-0036(3)(b)(K).
- (d) When the Department has reason to believe that a water supply has been contaminated by a toxic organic chemical, it will determine whether a public health hazard exists and whether control measures must be carried out;
- (e) The Department may establish maximum contaminant levels for additional organic chemicals as deemed necessary when there is reason to suspect that the use of those chemicals will impair water quality to an extent that poses an unreasonable risk to the health of the water users;
- (f) Persons who apply pesticides on watersheds above surface water intakes of public water systems shall comply with federal and state pesticide application requirements. (Safe Drinking Water Act (EPA), Clean Water Act (EPA), Federal Insecticide, Fungicide and Rodenticide Act (EPA), ORS 536.220 to 536.360 (Water Resources), 468B.005 (DEQ), 527.610 to 527.990 (DOF), 634.016 to 634.992 (Department of Agriculture)). Any person who has reasonable cause to believe that his or her actions have led to organic chemical contamination of a public water system shall report that fact immediately to the water supplier.
- (3) Maximum contaminant levels for turbidity are applicable to all public water systems using surface water sources or groundwater sources under the direct influence of surface water in whole or in part. Compliance with MCLs shall be calculated pursuant to OAR 333-061-0036(5).
- (a) Beginning January 1, 1992, the maximum contaminant levels for turbidity for systems which do not provide filtration treatment are as follows:
- (A) The turbidity level cannot exceed 5 NTU in representative samples of the source water immediately prior to the first or only point of disinfectant application unless:

- (i) The Department determines that any such event was caused by circumstances that were unusual and unpredictable; and
 - (ii) As a result of any such event, there have not been more than two events in the past 12 months the system served water to the public, or more than five events in the past 120 months the system served water to the public, in which the turbidity level exceeded 5 NTU. An "event" is a series of consecutive days during which at least one turbidity measurement each day exceeds 5 NTU. Turbidity measurements must be collected as required by OAR 333-061-0036(5)(a)(B).
- (b) Beginning June 29, 1993 or 18 months after failure to meet the requirements of OAR 333-061-0032(1) through (3) whichever is later, the maximum contaminant levels for turbidity in drinking water measured at a point representing filtered water prior to any storage are as follows:
 - (A) Conventional filtration treatment or direct filtration treatment.
 - (i) For systems using conventional filtration or direct filtration treatment the turbidity level of representative samples of a system's filtered water, measured as soon after filtration as possible and prior to any storage, must be less than or equal to 0.3 NTU in at least 95 percent of the measurements taken each month, measured as specified in OAR 333-061-0036(5).
 - (ii) For systems using conventional filtration or direct filtration treatment the turbidity level of representative samples of a system's filtered water, measured as soon after filtration as possible and prior to any storage, must at no time exceed 1 NTU measured as specified in OAR 333-061-0036(5).
 - (B) Slow sand filtration.
 - (i) For systems using slow sand filtration, the turbidity level of representative samples of filtered water, measured as soon after filtration as possible and prior to any storage, must be less than or equal to 1 NTU in at least 95 percent of the measurements taken each month, measured as specified in OAR 333-061-0036(5)(b), except that if the Department determines there is no significant interference with disinfection at a higher turbidity level, the Department may substitute this higher turbidity limit for that system.

- (ii) The turbidity level of representative samples of filtered water must at no time exceed 5 NTU, measured as specified in OAR 333-061-0036(5)(b).
 - (C) Diatomaceous earth filtration.
 - (i) For systems using diatomaceous earth filtration, the turbidity level of representative samples of filtered water, measured as soon after filtration as possible and prior to any storage, must be less than or equal to 1 NTU in at least 95 percent of the measurements taken each month, measured as specified in OAR 333-061-0036(5)(b).
 - (ii) The turbidity level of representative samples of filtered water must at no time exceed 5 NTU, measured as specified in OAR 333-061-0036(5)(b).
 - (D) Other filtration technologies. Systems using filtration technologies other than those listed in paragraphs (3)(b)(A) through (C) of this rule must meet the maximum contaminant level for turbidity of 1 NTU in at least 95 percent of the measurements taken each month and at no time exceed 5 NTU, as specified in OAR 333-061-0036(5)(b)(A). The Department may substitute a lower turbidity value(s) if it is determined that the above limit(s) cannot achieve the required level of treatment. The water system must demonstrate to the Department that the alternative filtration technology in combination with disinfection treatment as specified in OAR 333-061-0032 and monitored as specified by OAR 333-061-0036 consistently achieves 99.9% removal and/or inactivation of *Giardia lamblia* cysts and 99.99% removal and/or inactivation of viruses, and for all of those systems serving at least 10,000 people and beginning January 1, 2005 for all of those systems serving less than 10,000 people, 99% removal of *Cryptosporidium* oocysts.
- (4) Maximum microbiological contaminant levels for all public water systems are as follows:
 - (a) The MCL is based on the presence or absence of total coliforms in a sample, rather than coliform density.
 - (A) For a system which collects 40 or more samples per month, total coliform-positive samples shall not exceed 5.0 percent of the samples collected during a month.
 - (B) For a system which collects fewer than 40 samples per month total coliform-positive samples shall not exceed more than one sample collected during a month.
 - (b) Any fecal coliform-positive repeat sample or *E. coli*-positive repeat sample, or any total coliform-positive repeat sample following a fecal coliform-positive or *E. coli*-positive routine sample shall be a

violation of the total coliform MCL. Public notification for this potential acute health risk is prescribed in OAR 333-061-0042(2)(a)(A).

- (c) All public water systems must determine compliance with the MCL for total coliforms in subsections (4)(a) and (b) of this rule on a monthly basis.
- (d) A water system may demonstrate to the Department that a violation of the total coliform MCL is due to a persistent growth of total coliforms in the distribution system rather than fecal or pathogenic contamination, a treatment lapse or deficiency, or a problem in the operation or maintenance of the distribution system. The system making the demonstration may use the health effects language of OAR 333-061-0097(4)(d) in the required public notice in addition to the mandatory language of OAR 333-061-0097(4)(a). This demonstration, made by the system in writing and submitted to the Department for review and approval, shall show to the satisfaction of the Department that the system meets the following conditions:
 - (A) No occurrence of *E. coli* in distribution system samples;
 - (B) No occurrence of coliforms at the entry point to the distribution system;
 - (C) The system meets treatment requirements prescribed in OAR 333-061-0032 as applicable;
 - (D) The system meets the turbidity MCL, if surface water sources are used;
 - (E) The system maintains a detectable disinfectant residual in the distribution system;
 - (F) The system has no history of waterborne disease outbreaks;
 - (G) The system has addressed requirements and recommendations of the previous sanitary survey conducted by the Department; and
 - (H) The system fully complies with cross connection control program requirements.
- (5) Maximum contaminant levels for radionuclides are applicable only to Community water systems and are indicated in Table 6:

Table 6	
Contaminant	MCL
Gross Alpha (including Radium-226 but not Radon and Uranium)	15 pCi/L
Combined Radium-226 and Radium-228	5 pCi/L
Uranium	30ug/L
Beta/Photon emitters	4 mrem/yr

- (a) The average annual concentration of beta particle and photon radioactivity from man-made sources shall not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem per year according to the criteria listed in the National Bureau of Standards Handbook 69 as amended August, 1963. If two or more radionuclides are present, the sum total of their annual dose equivalent to the total body or to any organ shall not exceed 4 millirem/year.
 - (A) The average annual concentration of tritium assumed to produce a total body dose of 4 mrem/year is 20,000 pCi/L;
 - (B) The average annual concentration of strontium-90 assumed to produce a bone marrow dose of 4 mrem/year is 8 pCi/L.
- (b) Compliance with the MCLs shall be calculated pursuant to OAR 333-061-0036(7)(c).
- (6) Contaminant levels for secondary contaminants are applicable to all public water systems. These are indicated in Table 7. (Also note OAR 333-061-0036(8)).

Table 7

Secondary Contaminant:	Level, mg/l:
Color	15 color units
Corrosivity	Non-corrosive
Foaming agents	0.5
PH	6.5-8.5
Hardness (as CaCO ₃)	250
Odor	3 threshold odor number
Total dissolved solids(TDS)	500
Aluminum	0.05-0.2
Chloride	250
Copper	1
Fluoride	2.0
Iron	0.3
Manganese	0.05
Silver	0.1
Sulfate	250
Zinc	5

- (a) Violations of secondary contaminant levels for fluoride require a special public notice. Refer to OAR 333-061-0042(7).
- (b) Violations of maximum contaminant levels for fluoride (4.0 mg/l) require public notification as specified in OAR 333-061-0042(2)(b)(A).
- (7) Acrylamide and Epichlorohydrin.

- (a) Each public water system must certify annually to the state in writing, using third party certification approved by the state or manufacturer's certification, that when acrylamide and epichlorohydrin are used in drinking water systems, the combination, or product, of dose and monomer level does not exceed the levels specified as follows:
 - (A) Acrylamide: 0.05% dosed at 1 ppm or equivalent.
 - (B) Epichlorohydrin: 0.01% dosed at 20 ppm or equivalent.

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Maximum Residual Disinfectant Levels

- (1) The maximum residual disinfectant levels (MRDLs) are specified as follows in

Table 8

Disinfectant Residual:	MRDL in mg/l:
Chlorine	4.0 (as Cl ₂)
Chloramines	4.0 (as Cl ₂)
Chlorine dioxide	0.8 (as ClO ₂)

- (2) Compliance Dates:
 - (a) Community Water Systems and Non-Transient Non-Community Water Systems. These systems serving at least 10,000 people using either surface water or groundwater under the direct influence of surface water must comply with this rule beginning January 1, 2002. Systems serving less than 10,000 people, using either surface water or groundwater under the direct influence of surface water or any system using only groundwater must comply with this rule beginning January 1, 2004.
 - (b) Transient Non-Community Water Systems. These systems serving at least 10,000 people using surface water or groundwater under the direct influence of surface water using chlorine dioxide as a disinfectant or oxidant must comply with this rule beginning January 1, 2002. Systems serving less than 10,000 people using surface water or groundwater under the direct influence of surface water using chlorine dioxide as a disinfectant or oxidant and systems using only groundwater not under the direct influence of surface water using chlorine dioxide as a disinfectant or oxidant must comply with this rule beginning January 1, 2004.
- (3) MRDLs are enforceable in the same manner as maximum contaminant levels (MCLs) as found in OAR 333-061-0030.