

APPENDIX D WATER QUALITY ANALYTICAL PROTOCOL

Prior to the initiation of preproject groundwater sampling, a state of California-certified laboratory will be selected to conduct analytical testing. The laboratory will provide a copy of its QA/QC manual to Metropolitan's technical experts for review. The laboratory will be contracted contingent on acceptance of the QA/QC manual by Metropolitan's technical experts and Metropolitan. If necessary, an audit of the laboratory will be conducted.

In general, the selected laboratory will adhere to those recommendations promulgated in Title 21, Code of Federal Regulations, CFR Part 58 *Good Laboratory Practices*; criteria described in *Methods for Chemical Analysis of Water and Wastes* (EPA 1979; EPA-600/4-79-202); and requirements outlined in *Users Guide to the Contract Laboratory Program* (EPA, 1986). Groundwater samples collected for chemical analysis during this Project will be tested in accordance with the standard analytical procedures established by the EPA. The laboratory will be required to submit analytical results that are supported by sufficient backup data and QA/QC results to enable Metropolitan's technical experts to conclusively determine the validity of the data.

Analytical tests to be conducted during quarterly groundwater sampling events are summarized in Table D-1. The table summarizes each individual analyte to be tested, the appropriate EPA method number, and the proposed detection limit to be achieved.

General mineral constituents and physical parameters to be analyzed during baseline and annual spring water sampling events are summarized in Table D-2. The table summarizes each individual analyte to be tested, the appropriate EPA method number, and the proposed detection limit to be achieved.

Analytical tests to be conducted during annual Title 22 sampling of Colorado River Water are summarized in Table D-3. This table also summarizes each individual analyte to be tested, the appropriate EPA method number, and the proposed detection limit to be achieved.

Metropolitan Water District of Southern California/Cadiz Inc.
Cadiz Groundwater Storage and Dry-Year Supply Project
Proposed Quarterly Analytical Suite

General Classification	Constituent	Method	Detection Limit
Gen. Physical	Color	110.2	1
Gen. Physical	Odor	140.1	1
Gen. Physical	Turbidity	180.1	0.1
Gen. Mineral	pH	9040	0.01
Gen. Mineral	Bicarbonate	SM2320B	2
Gen. Mineral	Carbonate	SM2320B	2
Gen. Mineral	Alkalinity	310.1	2
Gen. Mineral	Hydroxide	SM2320B	2
Gen. Mineral	Hardness	130.2	1
Gen. Mineral	Total Dissolved Solids	160.1	10
Gen. Mineral	Surfactants (MBAS)	425.1	0.05
Gen. Mineral	Electrical Conductivity	120.1	1
Gen. Mineral	Chloride Cl ⁻	325.3	1
Gen. Mineral	Sulfate SO ₄ ²⁻	375.4	2
Gen. Mineral	Nitrate as N	SM4500NO3D	1
Gen. Mineral	Calcium	6010	0.2
Gen. Mineral	Copper	6010	0.01
Gen. Mineral	Iron	6010	0.05
Gen. Mineral	Magnesium	6010	0.1
Gen. Mineral	Manganese	6010	0.005
Gen. Mineral	Potassium	6010	0.4
Gen. Mineral	Sodium	6010	2
Gen. Mineral	Zinc	6010	0.01
Other Inorganics	Arsenic	200.7	0.005
Other Inorganics	Bromide Br ⁻	320.1	0.02
Other Inorganics	Perchlorate		0.005

Metropolitan Water District of Southern California/Cadiz Inc.
Cadiz Groundwater Storage and Dry-Year Supply Project
Proposed Annual Spring Water Analytical Suite

General Classification	Constituent	Method	Detection Limit
Gen. Physical	Color	110.2	1
Gen. Physical	Odor	140.1	1
Gen. Physical	Turbidity	180.1	0.1
Gen. Mineral	pH	9040	0.01
Gen. Mineral	Bicarbonate	SM2320B	2
Gen. Mineral	Carbonate	SM2320B	2
Gen. Mineral	Alkalinity	310.1	2
Gen. Mineral	Hydroxide	SM2320B	2
Gen. Mineral	Hardness	130.2	1
Gen. Mineral	Total Dissolved Solids	160.1	10
Gen. Mineral	Surfactants (MBAS)	425.1	0.05
Gen. Mineral	Electrical Conductivity	120.1	1
Gen. Mineral	Chloride Cl ⁻	325.3	1
Gen. Mineral	Sulfate SO ₄ ⁻	375.4	2
Gen. Mineral	Nitrate as N	SM4500NO3D	1
Gen. Mineral	Calcium	6010	0.2
Gen. Mineral	Copper	6010	0.01
Gen. Mineral	Iron	6010	0.05
Gen. Mineral	Magnesium	6010	0.1
Gen. Mineral	Manganese	6010	0.005
Gen. Mineral	Potassium	6010	0.4
Gen. Mineral	Sodium	6010	2
Gen. Mineral	Zinc	6010	0.01
Chlorofluorocarbons	-	524.2	0.01
Tritium	-	*	1 pCi/L

Note: All concentrations are in milligrams per liter except where noted

* To be analyzed by LLNL

Table D-3

Metropolitan Water District of Southern California/Cadiz Inc.
Cadiz Groundwater Storage and Dry-Year Supply Project
Proposed Title 22 Analytical Suite

	Classification	Constituent	Units	Detection Limit	Method Number
Inorganics	General Physical Properties	Color	Standard unit	1	110.2
		Odor	Standard unit	1	140.1
		Turbidity	NTU	0.05	180.1
	General Minerals	Bicarbonate	mg/L	1	310.1
		Carbonate	mg/L	1	310.1
		Total Alkalinity	mg/L	1	310.1
		Calcium	mg/L	0.2	6010
		Chloride	mg/L	1	300
		Fluoride	mg/L	0.1	300
		Magnesium	mg/L	0.1	EPA 6010
		Nitrate (as N)	mg/L	0.4	300
		Nitrite (as N)	mg/L	0.4	300
		Total Nitrogen	mg/L	0.4	300
		pH	unit	N/A	150.1
		Potassium	mg/L	0.1	EPA 6010
		Sodium	mg/L	0.1	EPA 6010
		Sulfate	mg/L	0.5	300
		Specific Conductance	umhos/cm	1	120.1
		Total Dissolved Solids	mg/L	1	160.1
		Total Hardness	mg/L	1	130.2
	Other Inorganics	Perchlorate	µg/L	5	
		Cyanide	mg/L	0.05	335.2
		Bromide	mg/L	0.033	320.1
		Foaming Agents (MBAS)	µg/L	0.05	425.1
		Total Organic Carbon	mg/L	1	415.1
		Asbestos ⁸	0.2 million fibers/L > 10µm		
		Ultra Violet 254	NS	NS	NS
	Metals	Aluminum	mg/L	0.01	200.8
		Antimony	mg/L	0.006	200.8
		Arsenic	mg/L	0.002	200.8
		Barium	mg/L	0.1	200.8
		Beryllium	mg/L	0.001	200.8
		Cadmium	mg/L	0.001	200.8

Metropolitan Water District of Southern California/Cadiz Inc.
Cadiz Groundwater Storage and Dry-Year Supply Project
Proposed Title 22 Analytical Suite

Classification	Constituent	Units	Detection Limit	Method Number
Metals (cont.)	Chromium	mg/L	0.01	200.8
	Copper	mg/L	0.01	200.8
	Iron	mg/L	0.01	200.8
	Lead	mg/L	0.005	200.8
	Manganese	mg/L	0.005	200.8
	Mercury	mg/L	0.001	200.8
	Nickel	mg/L	0.01	200.8
	Selenium	mg/L	0.005	200.8
	Silver	mg/L	0.01	200.8
	Thallium	mg/L	0.001	200.8
	Zinc	mg/L	0.05	200.8
Radiological	Gross Alpha	pCi/L	1	NS
	Gross Beta	pCi/L	1	NS
	Radium 226	pCi/L	0.5	NS
	Radium 228	pCi/L	0.5	NS
	Radon 222	pCi/L	20	NS
	Strontium 90	pCi/L	1	NS
	Tritium	pCi/L	1	NS
	Uranium	pCi/L	1	NS
Organochlorine Pesticides	Alachlor	mg/L	0.001	507
	Aldrin	mg/L	0.00075	508
	Chlorothalonil	mg/L	0.005	508
	Dieldrin	mg/L	0.00002	508
	Endrin	mg/L	0.0001	508
	Lindane	mg/L	0.0002	508
	Methoxychlor	mg/L	0.01	508
	Toxaphene	mg/L	0.001	508
	Chlordane	mg/L	0.0001	508
	Heptachlor	mg/L	0.00001	508
	Heptachlor epoxide	mg/L	0.00001	508
	Propachlor	mg/L	0.0005	508
	Polychlorinated Biphenyls (PCBs)	mg/L	0.0005	508

Metropolitan Water District of Southern California/Cadiz Inc.
Cadiz Groundwater Storage and Dry-Year Supply Project
Proposed Title 22 Analytical Suite

Classification	Constituent	Units	Detection Limit	Method Number
Organochlorine Herbicides	2,4-D	mg/L	0.01	515.1
	2,4,5-TP Silvex	mg/L	0.001	515.1
	2,4,5-T	mg/L	NS	515.1
	Bentazon	mg/L	0.002	515.1
	Dalapon	mg/L	0.01	515.1
	Dicamba	mg/L	0.000081	515.1
	Dinoseb	mg/L	0.002	515.1
	Picloram	mg/L	0.001	515.1
	Pentachlorophenol	mg/L	0.0002	515.1
N-P Pesticides	Atrazine	mg/L	0.001	507
	Molinate	mg/L	0.002	507
	Simazine	mg/L	0.001	507
	Thiobencarb	mg/L	0.001	507
	Butachlor	mg/L	0.00038	507
	Diazinon	mg/L	0.00002	507
	Dimethoate	mg/L	0.01	507
	Malathion	mg/L	NS	507
	Prometryn	mg/L	0.02	507
	Bromacil	mg/L	0.01	507
	Metolachlor	mg/L	NS	507
	Metribuzin	mg/L	NS	507
Fumigants	Ethylene Dibromide (EDB)	mg/L	0.00002	504
	Dibromochloropropane (DBCP)	mg/L	0.00001	504
Carbamates	Diuron	mg/L	0.01	531
	Aldicarb	mg/L	0.03	531
	Aldicarb sulfone	mg/L	NS	531
	Aldicarb sulfoxide	mg/L	NS	531
	Oxamyl	mg/L	0.02	531
	Carbofuran	mg/L	0.005	531
	Carbaryl	mg/L	0.05	531
	3-Hydroxycarbofuran	mg/L	0.03	531
	Methomyl	mg/L	0.02	531
	Baygon (Propoxur)	mg/L	NS	531

Metropolitan Water District of Southern California/Cadiz Inc.
Cadiz Groundwater Storage and Dry-Year Supply Project
Proposed Title 22 Analytical Suite

Classification	Constituent	Units	Detection Limit	Method Number
Misc. Pesticides	Glyphosate	mg/L	0.025	547
	Endothail	mg/L	0.045	548
	Diquat & Paraquat	mg/L	0.004	549
	Polynuclear Aromatic Hydrocarbon	mg/L	NS	550
	2,3,7,8-TCDD Dioxin	mg/L	5x10 ⁻⁹	
Semi-Volatile Organic Compounds	Benzo(a)pyrene	mg/L	0.0001	525
	Di(2-ethylhexyl)adipate	mg/L	0.005	525
	Di(2-ethylhexyl)phthalate	mg/L	0.003	525
	Hexachlorobenzene	mg/L	0.0005	525
	Hexachlorocyclopentadiene	mg/L	0.001	525
Volatile Organic Compounds	Benzene	mg/L	0.0005	524.2
	Carbon Tetrachloride	mg/L	0.0005	524.2
	1,2-Dichlorobenzene	mg/L	0.0005	524.2
	1,4-Dichlorobenzene	mg/L	0.0005	524.2
	1,1-Dichloroethane	mg/L	0.0005	524.2
	1,2-Dichloroethane	mg/L	0.0005	524.2
	cis-1,2-Dichloroethene	mg/L	0.0005	524.2
	trans-1,2-Dichloroethene	mg/L	0.0005	524.2
	1,1-Dichloroethene	mg/L	0.0005	524.2
	1,2-Dichloropropane	mg/L	0.0005	524.2
	1,3-Dichloropropene	mg/L	0.0005	524.2
	Ethylbenzene	mg/L	0.0005	524.2
	Methylene Chloride	mg/L	0.0005	524.2
	Methyl tert-butyl-ether (MTBE)	mg/L	0.0005	524.2
	Monochlorobenzene	mg/L	0.0005	524.2
	Styrene	mg/L	0.0005	524.2
	1,1,2,2-Tetrachloroethane	mg/L	0.0005	524.2
	Tetrachloroethene	mg/L	0.0005	524.2
	1,2,4-Trichlorobenzene	mg/L	0.0005	524.2
	1,1,1-Trichloroethane	mg/L	0.0005	524.2
	1,1,2-Trichloroethane	mg/L	0.0005	524.2
	Trichloroethene	mg/L	0.0005	524.2
	Trichlorofluoromethane	mg/L	0.005	524.2

Metropolitan Water District of Southern California/Cadiz Inc.
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Classification	Constituent	Units	Detection Limit	Method Number
Volatile Organic Compounds continued	1,1,2-Trichloro-1,2,2-trifluoroethane	mg/L	0.01	524.2
	Toluene	mg/L	0.0005	524.2
	Vinyl chloride	mg/L	0.0005	524.2
	Xylenes	mg/L	0.0005	524.2
	1,2-Dichlorobenzene	mg/L	0.0005	524.2
	Dibromomethane	mg/L	0.0005	524.2
	1,1-Dichloropropene	mg/L	0.0005	524.2
	1,3-Dichloropropene	mg/L	0.0005	524.2
	Chloromethane	mg/L	0.0005	524.2
	Bromomethane	mg/L	0.0005	524.2
	1,2,3-Trichloropropane	mg/L	NS	524.2
	1,1,1,2-Tetrachloroethane	mg/L	0.0005	524.2
	Chloroethane	mg/L	0.0005	524.2
	2,2-Dichloropropane	mg/L	0.0005	524.2
	o-Chlorotoluene	mg/L	0.0005	524.2
	p-Chlorotoluene	mg/L	0.0005	524.2
	Bromobenzene	mg/L	0.0005	524.2
	Dichlorodifluoromethane	mg/L	0.001	524.2
	1,2,4-Trimethylbenzene	mg/L	0.0005	524.2
	1,2,3-Trichlorobenzene	mg/L	0.0005	524.2
	n-Propylbenzene	mg/L	0.0005	524.2
	n-Butylbenzene	mg/L	0.0005	524.2
	Naphthalene	mg/L	NS	524.2
	Hexachlorobutadiene	mg/L	0.0005	524.2
	1,3,5-Trimethylbenzene	mg/L	0.0005	524.2
	p-Isopropyltoluene	mg/L	0.0005	524.2
	Isopropyltoluene	mg/L	0.0005	524.2
	Tert-butylbenzene	mg/L	0.0005	524.2
	Sec-butylbenzene	mg/L	0.0005	524.2
	Bromochloromethane	mg/L	0.0005	524.2
	Bromodichloromethane	mg/L	0.0005	524.2
	Bromoform	mg/L	0.0005	524.2
	Chlorodibromomethane	mg/L	0.0005	524.2
	Chloroform			

Metropolitan Water District of Southern California/Cadiz Inc.
Cadiz Groundwater Storage and Dry-Year Supply Project
Proposed Title 22 Analytical Suite

Classification	Constituent	Units	Detection Limit	Method Number
Microbiological Compounds	Heterotrophic Plate Count	CFU/ml	NS	SM9215B
	Total Coliforms	MPN/100 ml	NS	SM9221B
	Fecal Coliforms	MPN/100 ml	NS	SM9221C
	Cryptosporidium	NS	NS	EPA 1622
	Giardia	NS	NS	EPA 1623
	Enteric Viruses	NS	NS	EPA 1624

N/A - Not applicable

NS - Not specified in MWD analyte list or GEOSCIENCE laboratory analyte lists



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DRINKING WATER STANDARDS AND HEALTH ADVISORIES TABLE

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REGION 9 DRINKING WATER STANDARDS AND HEALTH ADVISORIES TABLE

The USEPA Region 9 Drinking Water Standards and Health Advisories Table is a compendium of standards, health advisories and related information for chemicals and other contaminants which may be found in ground and surface waters. It provides a comprehensive listing of all current and proposed National Primary Drinking Water Regulations (NPDWRs), Maximum Contaminant Levels (MCLs) for California, Arizona and Hawaii, and California Drinking Water Action Levels. Where available, it includes USEPA Integrated Risk Information System (IRIS) cancer risk levels and oral reference dose (RfD) values, and USEPA Office of Ground Water and Drinking Water (OGWDW) Health Advisories for drinking water contaminants.

In order to make this table a manageable size, very few explanations or caveats for the values are included in the body of the table. Because of this, and the fact that background documentation and understanding of the derivation of specific values are critical to the proper use of this information, this table should not be used as a sole source of information for decision making. While the Appendix contains brief explanations of the different standards, criteria and advisories, consideration must be given to the context in which these numbers will be used. The appropriate reference materials should be consulted to determine the applicability of the number being considered. Some references are listed in the Appendix.

The values in this table are current to the publication date, but are subject to change. The user is advised to contact Bruce Macler, Regional Toxicologist, USEPA Region 9, at (415) 744-1884, if questions arise regarding current values.

INFORMATION IN THIS TABLE

The information for specific contaminants in this table is arranged by contaminant type. Inorganic chemicals are listed first, followed by radionuclides, organic chemicals, microbial contaminants and water quality factors.

For each contaminant, any applicable or proposed USEPA National Primary Drinking Water Regulation is listed. These include the enforceable **Maximum Contaminant Levels (MCLs)**, the health-based **Maximum Contaminant Level Goals (MCLGs)**, and the aesthetics-based **Secondary MCLs**. A given contaminant may have both a MCL and a Secondary MCL, as well as a MCLG. The regulatory status of these values is indicated. **Proposed MCLs or MCLGs** have been formally proposed by USEPA, but not promulgated. **Final MCLs or MCLGs** have been promulgated, but are not yet effective as of the publication date. The effective date, if available, is indicated. **Current MCLs or MCLGs** are in effect.

In addition to regulatory information, health risk information is provided in the table. Data from IRIS for cancer and non-cancer health effects associated with drinking water contaminants is listed. The RfD is the daily oral intake (on a body weight basis) that is below the level USEPA believes to be without adverse, non-cancer health risks (i.e., zero risk). The IRIS 10^{-6} risk level is that contaminant concentration (in ug/liter) in drinking water that would yield no greater than an additional risk of one-in-a-million (10^{-6}) after a lifetime of drinking that water. The USEPA OGWDW Health Advisories provide information on acceptably safe levels of exposures to contaminants in drinking water. The Acute 10-day values apply specifically to acute toxic effects on children, but should be protective for adults. The chronic (lifetime) values for non-cancer health effects should be protective of health even with a lifetime exposure. For non-carcinogenic chemicals, this value is typically the same as the MCLG, if one has been established. The chronic (lifetime) values for cancer are set at a level that should yield no greater than an additional 10^{-6} risk over a lifetime exposure. EPA cancer weight of evidence determinations are listed to provide additional information on EPA's judgement of carcinogenicity for each chemical. The weight of evidence classifications are as follows:

- A known human carcinogen
- B1 probable human carcinogen based on human data
- B2 probable human carcinogen based on animal data
- C possible human carcinogen based on animal data
- D insufficient data to classify chemical
- E not a human carcinogen

APPLICABILITY AND USES OF THIS TABLE

The different types of standards and advisories contained in this table are based upon approaches and assumptions that are specific to each and consequently may have varying applications depending on their derivation. Use of specific types of information should be guided by the relevant legal requirements and an understanding of the meaning of the information itself.

MCLs and treatment techniques are the only federally enforceable NPDWRs. They are set to be health protective as well as feasible, and take into account analytical and treatment limitations. More stringent state-specific MCLs are enforceable in the indicated state. MCLGs, based solely on health information, are not enforceable, but provide health-based guidance for decision making. MCLGs for chemicals causing non-carcinogenic health effects are based on the RfD and set at a level believed to be safe. MCLGs for chemicals believed to be carcinogens are set at zero, from the perspective that no level of carcinogen is safe. Feasibility is not considered in setting MCLGs. Secondary MCLs are not enforceable, but provide

information on aesthetics and palatability.

Health advisories and criteria are not formally promulgated in regulations and are subject to change as new data and analyses become available. MCLGs, values in IRIS and health advisories are developed by different offices and on different schedules. Therefore, values for similar effects from a given chemical may not be consistent throughout the table. The derivations of MCLGs and chronic (lifetime) health advisories for non-carcinogenic chemicals are based on the same assumptions regarding endpoints of toxicity. Slight differences in the table are due to rounding of numbers by different offices.

When considering a value to use for determining an acceptable level of contaminant in drinking water, the MCL should be selected first. In the absence of existing or proposed MCLs, users may have to decide which criteria are most appropriate. USEPA recommends a priority ranking to first consider any proposed MCLG (if other than zero), followed by the IRIS RfD or cancer risk level, and finally the chronic health advisory values.

Under the Superfund Program, remedial actions must comply with the Applicable or Relevant and Appropriate Requirements (ARARs). For actions involving contamination of drinking water supplies, the ARARs under the Safe Drinking Water Act are the MCLs. Where there are no MCLs, or where the MCLs are determined to be insufficiently protective because of multiple contaminants, reference should be made to Superfund guidance documents to determine clean-up policy. For remedial actions impacting aquatic organisms and waters regulated under the Clean Water Act, consult the National Ambient Water Quality Criteria (NAWQC).

FDA STANDARDS FOR BOTTLED WATER

The U.S. Food and Drug Administration is responsible for regulating bottle water quality. It is required to adopt health-protective allowable limits for bottled water based on NPDWRs. FDA has adopted these MCLs:

Barium	Dibromochloropropane	o-Dichlorobenzene
Cadmium	2,4-D	p-Dichlorobenzene
Chromium	Ethylene dibromide	cis 1,2-Dichloroethylene
Mercury	Heptachlor	trans 1,2-Dichloroethylene
Nitrate	Heptachlor epoxide	1,2-Dichloropropane
Nitrite	Lindane	Ethylbenzene
Selenium	Methoxychlor	Monochlorobenzene
Alachlor	Pentachlorophenol	Styrene
Atrazine	PCBs	Tetrachloroethylene
Carbofuran	Toxaphene	Toluene
Chlordane	2,4,5-TP (Silvex)	Xylenes

Allowable limits based on Secondary MCLs apply for aluminum and silver. In addition, bottled water must not exceed 5 ug/L lead and 1 mg/L copper.

SYMBOLS USED IN THE TABLE

mg/l = milligrams per liter, equivalent to parts per million (ppm)

ug/l = micrograms per liter, equivalent to parts per billion (ppb)

Note: values in table are in ug/l unless otherwise stated

IRIS = USEPA Integrated Risk Information System

RfD = Reference dose for daily oral ingestion in micrograms per kilogram body weight per day (ug/kg-d)

10^{-6} = one in a million excess lifetime cancer risk

TT = treatment technique, set in lieu of numeric MCL

± = value from USEPA Final Draft Health Advisory

td = temperature dependent value

LOQ = Limit of quantification

T&O = taste and odor refers to a value based upon organoleptic data for controlling undersirable taste and odor qualities

Drinking Water Standards And Health Advisories

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INORGANIC Chemicals	Standard	EPA		IRIS -6		Health Advisories			Wt. of Evid.	California		Arizona
		MCL	MCLG	RfD µg/kg-d	10 ⁻⁶ Risk	Acute 10 Day	Chronic(lifetime) Non-Cancer	Cancer		MCL	Action Level	
Aluminum	Secondary	50-200								1000 200 Scd		
Ammonia							30,000		D			
Antimony	Current	6	6	0.4		15	3		D	6		
Arsenic	Current	50		0.3	0.02			0.02	A	50		50
Asbestos	Current	7E+6 10µm fibers	7E+6 10µm fibers						A	7E+6 fibers		
Barium	Current	2,000	2,000	70			2,000+		D	1,000		1000
Beryllium	Current	4	4	5	.008	30,000		0.008	B2	4		
Boron				90		900	600		D		1000	
Bromate	Proposed	10	0		0.05				B2			
Cadmium	Current	5	5	.5		40+	5+		D	5		10
Chloramines	Proposed	MRDL* 4.0mg/L as Cl2	MRDLG* 4 mg/L as Cl2	100		1000	3000- 4000		D			
Chlorate									D			
Chloride	Secondary	250mg/L								250-600 Secondary		
Chlorine	Proposed	MRDL* 4.0mg/L as Cl2	MRDLG* 4 mg/L as Cl2	80					D			

Values are indicated in micro grams per liter (µg/l) [equivalent to parts per billion (ppb)] unless otherwise stated

Oral Referenced Doses (RfD) are in micrograms per kilogram per day (µg/kg-d), 10⁻⁶ risk levels are in micrograms per liter.
* - MRDL, MRDLG: Maximum residual disinfectant level and goal. Apply only if this disinfectant is used.

Chemicals	Standard	EPA		IRIS -6		Health Advisories			Wt. of Evid.	California		Arizona
		MCL	MCLG	RfD µg/kg-d	10 ⁻⁶ Risk	Acute 10 Day	Chronic (lifetime) Non-Cancer	Cancer		MCL	Action Level	
Chlorine Dioxide	Proposed	MRDL* 0.8mg/L as ClO ₂	MRDLG* 0.3mg/L as ClO ₂	10			300		D			
Chlorite	Proposed	1.0mg/L	80	3			80		D			
Chromium (Total)	Current	100	100	5		1,000+	100+		D	50		50
Copper	Current Secondary	TT# 1,000	1,300						D	1000 Secondr		
Cyanide	Current	200	200	22		200+	200+		D	200		
Fluoride	Current Proposed secondry	4 mg/L 2 mg/L	4 mg/L	120						1400- 2400td		
Iron	Secondary	300								300 Secondr		
Lead	Current	TT#	0						B2	50		
Manganese	Secondary	50		140 (500) 5 (water)						50 Scd		
Mercury (inorganic)	Current	2	2	0.3			2+		D	2		
Molybdenum				5		40	40		D			
Nickel				20		1,000+	100+		D	100		
Nitrate (as N)	Current	10mg/L	10mg/L	1.6mg/L		10 mg/L***			D	45 mg/L as NO ₃		10mg/L (as N)
Nitrite (as N)	Current	1 mg/L	1 mg/L	160		1 mg/L***			D	1 mg/L		

Values are indicated in micro grams per liter (µg/L) [equivalent to parts per billion (ppb)] unless otherwise stated

Ref. Referenced Doses (RfD) are in micrograms per kilogram per day (µg/kg-d), 10⁻⁶ risk levels are in micrograms per liter.

* - Treatment technique in lieu of numeric MCL

† - Treatment technique triggered at Action Level of 1300 ppb

td - temperature dependent value

† - Treatment technique and public notification triggered at Action Level of 15 ppb

** - 10-day HA for nitrate/nitrite for 4kg child (protective of 10kg child & adults); also used for chronic (lifetime)

Drinking Water Standards And Health Advisories

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INORGANIC Chemicals	Standard	EPA		IRIS		Health Advisories			Vt. of Evid.	California		Arizona MCL
		MCL	MCLG	RfD µg/kg-d	10 ⁻⁶ Risk	Acute 10 Day	Chronic(lifetime) Non-Cancer	Cancer		MCL	Action Level	
Selenium	Current	50	50	5						50		50
Silver	Secondary	100		5		200	100		D	100 Secd		50
Strontium				600		25 mg/L	17 mg/L		D			
Sulfate	Secondary Proposed	250mg/L 400/500 mg/L	400/500 mg/L							250-600 Secondr		
Thallium	Current	2	0.5	0.07		7	0.4			2		
Vanadium				7					D			
White Phosphorous				.02			0.1		D			
Zinc	Secondary	5 mg/L		300		6 mg/L	2 mg/L		D	5 mg/L Secondr		5 mg/L
RADIONUCLIDES												
Gross Alpha, excl. Uranium & Radon	Current	15pCi/L						.15pCi/L	A	15pCi/L		
Gross Beta	Current	4mrem per yr						0.04mrem per year	A	50pCi/L		
Radium 226	Current Proposed	5 pCi/L (+228) 20pCi/L 0						.20 pCi/L	A	5 pCi/L (+Ra 22)		
Radium 228	Current Proposed	5 pCi/L (+226) 20pCi/L 0						.20 pCi/L	A	5 pCi/L (+Ra 22)		
Radon	Proposed	300 pCi/L	0					1.5pCi/L	A			

Values are indicated in micro grams per liter (µg/L) [equivalent to parts per billion (ppb)] unless otherwise stated
 Oral Referenced Doses (RfD) are in micrograms per kilogram per day (µg/kg-d), 10⁻⁶ risk levels are in micrograms per liter.

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RADIONUCLIDES		EPA		IRIS		Health Advisories			Ut. of Evid.	California		Arizona
Chemicals	Standard	MCL	MCLG	RfD μg/kg-d	10 ⁻⁶ Risk	Acute 10 Day	Chronic(lifetime) Non-Cancer	Cancer		MCL	Action Level	
Strontium 90									A	8pCi/L		
Iritium									A	20nCi/L		
Uranium	Proposed	20 ppb	0	3				0.7 ppb	A	20pCi/L		35pCi/L
ORGANIC												
Acenaphthylene (acenaphthene)				60								
Acephate				4					C			
Acetone				100					D			
Acetophenone				100								
Acifluorfen				13	1.0	2,000+		1.0+	B2			
Acrolein									C			320
Acrylamide	Current	TT	0	1.0	.01	200		0.01+	B2			
Acrylonitrile					0.06	20+		0.06+	B1			10
Adipates (di(ethylhexyl)- adipate)	Current	400	400	600	30	20,000	400	30	C			
Alachlor	Current	2	0	10	0.4	100+		0.4+	B2	2		0.2

Values are indicated in micro grams per liter (μg/L) [equivalent to parts per billion (ppb)] unless otherwise stated

Oral Referenced Doses (RfD) are in micrograms per kilogram per day (μg/kg-d), 10⁻⁶ risk levels are in micrograms per liter.

TT - Treatment technique in lieu of numeric MCL

0 - Effective date postponed

Drinking Water Standards And Health Advisories

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ORGANIC Chemicals	Standard	MCL	EPA MCLG	IRIS		Acute 10 Day	Health Advisories		Ut. of Evid.	California		Arizona MCL
				RfD $\mu\text{g/kg-d}$	10^{-6} Risk		Chronic(lifetime) Non-Cancer	Cancer		MCL	Action Level	
Aldicarb	Final(a)	3	1	1.0			7+		D		10	9
Aldicarb Sulfone	Final(a)	2	1	1.0			7+		D			
Aldicarb Sulfoxide	Final(a)	4	1	1.0			7+		D			
Aldrin				0.03	.002	0.3		0.002	B2		LOQ (0.05)	
Allyl alcohol				5								
Ametryn				9		9,000+	60+		D			
Ammonium Sulfamate				280		20,000+	2,000+		D			
Anthracene (PAH)				300					D			
Atrazine	Current	3	3	35	0.16	100+	3+		C	3		(HI 3)
Baygon (Propoxur)				4		40+	3+		C		90	
Benefin				300								
Bentazon (Basagran)				2.5		300+	20+		D	18		
Benz(a)anthracene (PAH)	Proposed	0.1	0						B2			
Benzene	Current	5	0		1	200+		1.0+	A	1		5

Values are indicated in micro grams per liter ($\mu\text{g/l}$) [equivalent to parts per billion (ppb)] unless otherwise stated

Oral Referenced Doses (RfD) are in micrograms per kilogram per day ($\mu\text{g/kg-d}$), 10^{-6} risk levels are in micrograms per liter.

a - Effective date postponed

HI - State of Hawaii MCL

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ORGANIC Chemicals	Standard	EPA		IRIS		Health Advisories			Wt. of Evid.	California		Arizona MCL
		MCL	MCLG	RfD $\mu\text{g/kg-d}$	10^{-6} Risk	Acute 10 Day	Chronic (lifetime) Non-Cancer	Cancer		MCL	Action Level	
Benzene hexachloride α, β isomers (BHC)											0.7 α 0.3 β	
Benzo(a)pyrene (PAH)	Current	0.2	0					.002	B2	0.2		
Benzo(b)fluoranthene (PAH)	Proposed	0.2	0						B2			
Bolero (thiobencarb)				20						70 1 Scd		
Bromacil				130		5,000+	90+		C			
Bromochloromethane				13		1,000	90					
Bromodichloromethane (TTHM)	Current Proposed	100 α 80 α	0	20	0.6	7,000+		0.6	B2			
Bromoform (TTHM)	Current Proposed	100 α 80 α	0	20	4	2,000		4	B2			
Bromomethane (Methyl Bromide)				1		100+	10+		D			2.5
Butyl benzyl- phthalate (PAE)	Proposed	100	0	200					C			
Butylate				50		2,000+	350+		D			
Captafol				2	4				C			
Captan				130					B2		350	
Carbaryl (Sevin)				100		1,000+	700+		D		60	

Values are indicated in micro grams per liter ($\mu\text{g/L}$) [equivalent to parts per billion (ppb)] unless otherwise stated

Oral Referenced Doses (RfD) are in micrograms per kilogram per day ($\mu\text{g/kg-d}$), 10^{-6} risk levels are in micrograms per liter.

α - Total Trihalomethanes MCL is sum of bromoform, chloroform, bromodichloromethane, dibromochloromethane.

β - See Trihalomethanes

Drinking Water Standards And Health Advisories

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ORGANIC Chemicals	Standard	MCL	EPA MCLG	IRIS		Acute 10 Day	Health Advisories		Wt. of Evid.	California		Arizona MCL
				RfD $\mu\text{g/kg-d}$	10^{-6} Risk		Chronic(lifetime) Non-Cancer	Cancer		MCL	Action Level	
Carbofuran	Current	40	40	5		50+	40+		E	18		36
Carbon Disulfide				100								830
Carbon Tetrachloride	Current	5	0	0.7	0.3	200+		0.3+	B2	0.5		5
Carboxin				100		1,000+	700+		D			
Chloral Hydrate (Trichloroacet- aldehyde, CH)	Proposed	**	40	1.6	0.4	1,400	60		C			
Chloramben				15		3,000+	100+		D			
Chlordane	Current	2	0	0.06	0.03	60+		0.03+	B2	0.1		
Chlorobenzene (Monochlorobenzene)	Current	100	100	20		2,000+	100+		D	70		
Chlorodibromomethane (Dibromochloro- methane, TTHM)	Current Proposed	100 Σ 80 Σ	60	20		7,000	60		C			
Chloroform (Trichloromethane) (TTHM)	Current Proposed	100 Σ 80 Σ	0	10	6	4,000		6.0	B2			
Bis-2-Chloroiso- propyl ether				40		4,000+	300+		D			
Chloromethane				4		400	3		C			
2-Chlorophenol				5		50	40		D			
Chloropicrin											50(37 T&O)	

Values are indicated in micro grams per liter ($\mu\text{g/l}$) [equivalent to parts per billion (ppb)] unless otherwise stated

Oral Referenced Doses (RfD) are in micrograms per kilogram per day ($\mu\text{g/kg-d}$), 10^{-6} risk levels are in micrograms per liter.

** - No chloral hydrate MCL. MCLs for TTHMs and THAAs, precursor removal as control.

Σ - Total Trihalomethanes MCL is sum of bromoform, chloroform, bromodichloromethane, dibromochloromethane.

Δ - See Trihalomethanes

ORGANIC Chemicals	Standard	MCL	EPA MCLG	IRIS RfD 10 ⁻⁶ µg/kg-d Risk		Health Advisories Acute Chronic (lifetime) 10 Day Non-Cancer Cancer			Wt. of Evid.	California MCL Action Level		Arizona MCL
Chloroethalonil				15	1.5	200+		1.5+	B2			
Chlorotoluene(o,p)				20		2,000+	100+		D		45	
Chlorpyrifos				3		30+	20+		D			
CIPC (Chlorpropham) (isopropyl(3chloro- phenyl) carbamate)				200							350	
Cresol(o,m)				500					C			
Cresol(p)				5					C			
Cyanazine				2		100+	1		C			
Dalapon	Current	200	200	26		3,000+	200+		D	200		
DCA (Dacthal)				500		80,000+	4,000+		D			
DDT				0.5	0.1				B2			
Di(ethylhexyl)- adipate (Adipates)	Current	400	400	600	30	20,000	400+	30	C	400		
Diazinon				0.09		20+	0.6+		E		14	
Dibromacetoneitrile				20		2000	20		C			
Dibromochloromethane Chlorodibromo- methane, TTHM)	Current Proposed	100 µ 80 µ	60	20		7,000	60		C			

Values are indicated in micro grams per liter (µg/L) [equivalent to parts per billion (ppb)] unless otherwise stated

Oral Referenced Doses (RfD) are in micrograms per kilogram per day (µg/kg-d), 10⁻⁶ risk levels are in micrograms per liter.

- Total Trihalomethanes MCL is sum of bromoform, chloroform, bromodichloromethane, dibromochloromethane.

- See Trihalomethanes

I - State of Hawaii MCL

Drinking Water Standards And Health Advisories

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ORGANIC Chemicals	Standard	EPA		IRIS -6		Health Advisories			Wt. of Evid.	California		Arizona MCL
		MCL	MCLG	RfD µg/kg-d	10 ⁻⁶ Risk	Acute 10 Day	Chronic(lifetime) Non-Cancer	Cancer		MCL	Action Level	
1,2-Dibromo-3-chloro propane (DBCP)	Current	0.2	0		0.03	50+		0.03	B2	0.2		(HI.04)
Dibutyl phthalate (PAE)				100					D			
Dicamba				30		300+	200+		D			
Dichloroacetic Acid (HAA5, THAA)	Proposed	60 ²²	0	4		1000			B2			
Dichloroacetonitrile				8		1000+	6+		C			
1,2-Dichlorobenzene (o-Dichlorobenzene)	Current Proposed secondary	600 10	600	90		9,000+	600+		D	600	130 *** (10T&O)	
1,3-Dichlorobenzene (m-Dichlorobenzene)				90		9,000+	600+		D		130 *** (20T&O)	
1,4-Dichlorobenzene (p-Dichlorobenzene)	Current Proposed secondary	75 5	75	100		10,000+	75+		C	5		750
Dichlorodifluoro- methane (Freon 12)				200		40,000+	1,000+		D		1000	1.0
1,1-Dichloroethane										5		
1,2-Dichloroethane	Current	5	0		0.4	700+		0.4	B2	0.5		5.0
1,1-Dichloroethylene	Current	7	7	9		1,000+	7+		C	6		7.0
cis-1,2-Dichloro- ethylene	Current	70	70	10		3,000+	70+		D	6		
trans-1,2-Dichloro- ethylene	Current	100	100	20		2,000+	100+		D	10		

Values are indicated in micro grams per liter (µg/l) [equivalent to parts per billion (ppb)] unless otherwise stated

Oral Referenced Doses (RfD) are in micrograms per kilogram per day (µg/kg-d), 10⁻⁶ risk levels are in micrograms per liter.

²² - See Haloacetic acids

²³ - Haloacetic acids (5) MCL is sum of mono-, di- and trichloroacetic acids and mono- and dibromoacetic acids.

*** - Action Level is for a single isomer or sum isomers

ORGANIC Chemicals	Standard	EPA		IRIS		Health Advisories			Ut. of Evid.	California		Arizona
		MCL	MCLG	RfD µg/kg-d	10 ⁻⁶ Risk	Acute 10 Day	Chronic(lifetime) Non-Cancer	Cancer		MCL	Action Level	
Dichloromethane (Methylene chloride)	Current	5	0	60		2,000+		5+	82	5		
2,4-Dichlorophenol				3		30+	20+		D			
2,4-Dichlorophenoxy -acetic acid (2,4-D)	Current	70	70	10		300+	70+		D	100		100
1,2-Dichloropropane	Current	5	0		0.5	90+		0.6+	82	5		
1,3-Dichloropropene				0.3	0.2	30+		0.2+	82	0.5		
Dieldrin				0.05	.002	0.5+		0.002+	82		.05	
Diethylphthalate (PAE)				800			5000+		D			
Diisooctylmethyl- phosphonate				80		8,000+	600+		D			
Dimethoate				0.2							140	
Dimethrin				300		10,000+	2,000+		D			
Dimethylaniline				20	0.05				C			
Dimethyl methyl- phosphonate				200	7	2000	100	7	C			
2,4-Dimethylphenol				200							400	
1,3 Dinitrobenzene				0.1		40	1		D			

Values are indicated in micro grams per liter (µg/l) [equivalent to parts per billion (ppb)] unless otherwise stated

Oral Referenced Doses (RfD) are in micrograms per kilogram per day (µg/kg-d), 10⁻⁶ risk levels are in micrograms per liter.
tg - technical grade dinitrotoluene only

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ORGANIC Chemicals	Standard	EPA		IRIS		Health Advisories			Ut. of Evid.	California		Arizona
		MCL	MCLG	RfD µg/kg-d	10 ⁻⁶ Risk	Acute 10 Day	Chronic(lifetime) Non-Cancer	Cancer		MCL	Action Level	
2,4-Dinitrotoluene				2	.05 (tg)	500		.05 (tg)	82 (TG)			
2,6-Dinitrotoluene				1.0	.05 (tg)	400		.05 (tg)	82 (TG)			
Dinoseb	Current	7	7	1		300+	7+		D	7		
1,4-Dioxane (p-Dioxane)					7	400+		7+	82			
Dioxin (2,3,7,8-TCDD)	Current	3E-5	0	1E-6	2E-7	1E-4		2E-7+	82	3E-5		
Diphenamid(e)				30		300+	200+		D		40	
Diphenylamine				30		1000	200		D			
Di(ethylhexyl)- phthalate (PAE) (Phthalates)	Current	6	0	20	3			3+	82	4		
Diquat	Current	20	20	2.2			20+		D	20		
Disulfoton				0.04		10+	0.3+		E			
1,4-Dithiane				10		400	80		D			
Diuron				2		1,000+	10+		D			
Endothall	Current	100	100	20		800+	100+		D	100		
Endrin	Current	2	2	0.3		20+	2+		D	2		0.2

Values are indicated in micro grams per liter (µg/l) [equivalent to parts per billion (ppb)] unless otherwise stated

Oral Referenced Doses (RfD) are in micrograms per kilogram per day (µg/kg-d), 10⁻⁶ risk levels are in micrograms per liter.

tg - technical grade dinitrotoluene only

77 - Treatment technique in lieu of numeric MCL

ORGANIC Chemicals	Standard	EPA MCL	EPA MCLG	IRIS RfD 10 ⁻⁶ µg/kg-d/Risk		Health Advisories Acute 10 Day Chronic(lifetime) Non-Cancer Cancer			Wt. of Evid.	California MCL Action Level		Arizona MCL
Epichlorohydrin	Current	TT	0	2	4	100+		4	82			
Ethion				0.5							35	
Ethylbenzene	Current Proposed secondary	700 30	700	100		3,000+	700+		D	700		
Ethylene Dibromide (dibromomethane) (EDB)	Current	0.05	0		4E-4	8		0.0004	82	0.05		(H1.04)
Ethylene Glycol				2,000		6,000+	7,000+		D			
Ethylene Thiourea (ETU)				0.08	0.3	300+		0.3	82			
Fenamiphos				0.25		9+	2+		D			
Fluometuron				13		2,000+	90+		D			
Fluorotrichloro- methane				300		7,000+	2,000+		D			
olpet				100					82			
fonofos				2		20+	10+		D			
Formaldehyde				150		5,000+	1,000+		B1		30	
Glycidialdehyde				4					82			
Glyphosate	Current	700	700	100		20,000+	700+		D	700		

/values are indicated in micro grams per liter (µg/l) [equivalent to parts per billion (ppb)] unless otherwise stated

Oral Referenced Doses (RfD) are in micrograms per kilogram per day (µg/kg-d), 10⁻⁶ risk levels are in micrograms per liter.

41 - State of Hawaii MCL

20 - Haloacetic acids (5) MCL is sum of mono-, di- and trichloroacetic acids and mono- and dibromoacetic acids.

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ORGANIC Chemicals	Standard	EPA		IRIS		Health Advisories			Wt. of Evid.	California		Arizona MCL
		MCL	MCLG	RfD μg/kg-d	10 ⁻⁶ Risk	Acute 10 Day	Chronic(lifetime) Non-Cancer	Cancer		MCL	Action Level	
Haloacetic acids (5) (HAA5, THAA5)	Proposed	60 22										
Heptachlor	Current	0.4	0	0.5	.008	10+		0.008+	B2	0.01		
Heptachlor epoxide	Current	0.2	0	0.013	.004			0.004	B2	0.01		
Hexachlorobenzene (Perchlorobenzene) (HCB)	Current	1	0	0.8	0.02	50+		0.02+	B2	1		
Hexachlorobutadiene				2		300+	1+		C			
Hexachlorocyclo- pentadiene (HCB)	Current Proposed secondary	50 8	50	7					D	50		
n-Hexane						4,000+			D			
Hexazinone				33		3,000+	200+		D			
HMX				50		5,000+	400+		D			
Isophorone				200		15,000+	100+	40	C			
Lindane (gamma-HCH) (gamma-BHC)	Current	0.2	0.2	0.3		1,000+	0.2+	0.03	C	0.2		
Linuron				2					C			
Malathion				20		200+	200+		D		160	
Maleic Hydrazide				500		10,000+	4,000+		D			

Values are indicated in micro grams per liter (μg/l) [equivalent to parts per billion (ppb)] unless otherwise stated

Oral Referenced Doses (RfD) are in micrograms per kilogram per day (μg/kg-d), 10⁻⁶ risk levels are in micrograms per liter.

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ORGANIC Chemicals	Standard	MCL	EPA		IRIS		Health Advisories			Wt. of Evid.	California		Arizona
			MCL	MCLG	RfD $\mu\text{g/kg-d}$	10^{-6} Risk	Acute 10 Day	Chronic (lifetime) Non-Cancer	Cancer		MCL	Action Level	
MCPA					1.5		100+	11+		E			
Merphos					0.03								
Methomyl (Lannate)					25		300+	200+		D			
Methoxychlor	Current	40		40	5		50	40		D	40		
Methylene Chloride (Dichloromethane)	Current	5		0	60	5	2,000+		5+	B2		40	
Methyl ethyl ketone (MEK, 2-Butanone)					600					D			
Methyl Parathion					.25		300+	2+		D		30	
Methyl t-butyl ether					30		24,000	200		C		35	
Metolachlor					150		2,000+	100+		C			
Metribuzin					13		5,000	100		D			
Monox					0.2	.02				B2			
Polinate					2						20		
Naphthalene					4		500+	20+		D			
Nitroguanidine					100		10,000+	700+		D			

Values are indicated in micrograms per liter ($\mu\text{g/l}$) [equivalent to parts per billion (ppb)] unless otherwise stated

Oral Referenced Doses (RfD) are in micrograms per kilogram per day ($\mu\text{g/kg-d}$), 10^{-6} risk levels are in micrograms per liter.

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ORGANIC Chemicals	Standard	MCL	EPA MCLG	IRIS		Acute 10 Day	Health Advisories		Wt. of Evid.	California MCL	Action Level	Arizona MCL
				RfD $\mu\text{g/kg-d}$	10^{-6} Risk		Chronic(lifetime) Non-Cancer	Cancer				
Oxamyl (Vydate)	Current	200	200	25		200+	200+		E	200		
Paraquat				4.5		100+	30+		E			
Parathion (Ethyl Parathion)				6					C		30	
Pentachloronitro- benzene (Tetrachlor)				3	0.1				C		0.9	
Pentachlorophenol	Current	1	0	30	0.3	300+		0.3	B2	1	30	
Phenol				600		6,000+	4,000+		D		5(T&O) CL2Syst	
Phthalates (di(ethylhexyl)- phthalate)	Current	6	0	20	3			3+	B2	4		
Picloram	Current	500	500	70		20,000+	500+		D	500		
Polychlorinated Biphenyls (PCBs)	Current	0.5	0		.005			0.005	B2	0.5		
Polynuclear Aromatic Hydrocarbons (PAHs) (Benzo(a)pyrene)	Current	0.2	0						B2			
Prometon				15		200+	100+		D			
Pronamide				75		800+	50+		C			
Propachlor				13		500+	90+		D			
Propazine				20		1,000+	10+		C			

Values are indicated in micro grams per liter ($\mu\text{g/l}$) [equivalent to parts per billion (ppb)] unless otherwise stated

Oral Referenced Doses (RfD) are in micrograms per kilogram per day ($\mu\text{g/kg-d}$), 10^{-6} risk levels are in micrograms per liter.

ORGANIC Chemicals	Standard	EPA		IRIS		Health Advisories			Wt. of Evid.	California		Arizona
		MCL	MCLG	RfD µg/kg-d	10 ⁻⁶ Risk	Acute 10 Day	Chronic(Lifetime) Non-Cancer	Cancer		MCL	Action Level	
Propam				20		5,000+	100+		D			
RDX				3	0.3	100+	2+	.3	C			
Simazine	Current	4	4	5		70	4+		C	4		
Styrene	Current Proposed secondary	100 10	100	200		2,000+	100+		C	100		
Tebuturon				70		3,000+	500+		D			
Terbacil				13		300+	90+		E			
Terbufos				.13		5+	0.9+		D			
Tetrachlor (pentachloro- nitrobenzene)				3	0.1				C		0.9	
1,1,1,2-Tetrachloro- ethane				30	1	2,000+	70+	1+	C			
1,1,2,2-Tetrachloro- ethane									C	1		
Tetrachloroethylene (Perchloroethylene)	Current	5	0	10	0.7	2,000+		0.7+	B2	5		
2,3,7,8-Tetrachloro- dibenzo-p-dioxin (Dioxin)	Current	3E-5	0	1E-6	2E-7	1E-4+		2E-7+	B2	3E-5		
Thiobencarb (Bolero)				20						70 1 Secd		
Toluene	Current Proposed secondary	1,000 40	1,000	200		2,000+	1,000+		D	150		

Values are indicated in micro grams per liter (µg/l) [equivalent to parts per billion (ppb)] unless otherwise stated
 Oral Referenced Doses (RfD) are in micrograms per kilogram per day (µg/kg-d), 10⁻⁶ risk levels are in micrograms per liter.

Drinking Water Standards And Health Advisories

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ORGANIC Chemicals	Standard	MCL	EPA MCLG	IRIS		Acute 10 Day	Health Advisories		Wt. of Evid.	California MCL	Action Level	Arizona MCL
				RfD $\mu\text{g/kg-d}$	10^{-6} Risk		Chronic(lifetime) Non-Cancer	Cancer				
Toxaphene	Current	3	0	100	0.03	40+		0.03+	B2	3		5
Tribromomethane (Bromoform, TTHM)	Current Proposed	100 ^a 80 ^a		20	4	2,000+		4	B2			
Trichloroacet- aldehyde (Chloral hydrate)	Proposed	**	40	1.6	0.4				C			
Trichloroacetic acid (HAA5, THAA)	Proposed	60 ^{aa}	300	100		4000	300		C			
1,2,4-Trichloro- benzene	Current	70	70	1		100+	70		D	70		
1,3,5-Trichloro- benzene				6		600+	40+		D			
1,1,1-Trichloro- ethane	Current	200	200	35		40,000+	200+		D	200		200
1,1,2-Trichloro- ethane	Current	5	3	4		400+	3+		C	5		
Trichloroethylene	Current	5	0		3			3	B2	5		5
Trichlorofluoro- methane (Freon 11)				700						150	150	
2,4,6-Trichloro- phenol					3			3	B2			
2,4,5,-Trichloro- phenoxyacetic acid (2,4,5-T)				10		800+	70+		D			
2,4,5 Trichlorophen- oxypropionic acid (2,4,5-TP) (Silvex)	Current	50	50	7.5		200+	50+		D	50		10
1,2,3-Trichloro- propane				6	5	600+	40+	5	B2			(HI .8)

Values are indicated in micro grams per liter ($\mu\text{g/L}$) [equivalent to parts per billion (ppb)] unless otherwise stated

Oral Referenced Doses (RfD) are in micrograms per kilogram per day ($\mu\text{g/kg-d}$), 10^{-6} risk levels are in micrograms per liter.

^a - Total Trihalomethanes MCL is sum of bromoform, chloroform, bromodichloromethane, dibromochloromethane.

^b - See Trihalomethanes

** - No chloral hydrate MCL. MCLs for TTHMs and THAAs, precursor removal as control.

^{aa} - Haloacetic acids (5) MCL is sum of mono-, di- and trichloroacetic acids and mono- and dibromoacetic acids.

^{ab} - See Haloacetic acids

HI - State of Hawaii MCL

Drinking Water Standards And Health Advisories

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ORGANIC Chemicals	Standard	EPA		IRIS		Health Advisories			Wt. of Evid.	California		Arizona
		MCL	MCLG	RfD µg/kg-d	10 ⁻⁶ Risk	Acute 10 Day	Chronic(lifetime) Non-Cancer	Cancer		MCL	Action Level	
1,1,2-Trichloro-1,2, 2-Trifluoroethane (Freon 113)										1200		
Trifluralin				7.5		80+	5+	5+	C			
Trihalomethanes (THM)	Current Proposed	100 µg 80 µg							B2	100		
Trinitroglycerol						5	5					
Trinitrotoluene				0.5	1	20	2	1	C			
Trithion											7	
Vinyl Chloride	Current	2	0		.015	3,000+		0.015+	A	0.5		
Xylenes- sum of isomers	Current Proposed secondary	10ppm 20	10ppm	2000		40,000+	10,000+		D	1750		
MICROS.-TURBIDITY												
Cryptosporidium	Proposed	TT	0									
Giardia Lamblia	Current	TT										
Heterotrophic Plate Count	Current	TT	β	NA								
Legionella	Current	TT	β	0								
Total Coliforms	Current	P/A µg	0									

Values are indicated in micro grams per liter (µg/L) [equivalent to parts per billion (ppb)] unless otherwise stated

Oral Referenced Doses (RfD) are in micrograms per kilogram per day (µg/kg-d), 10⁻⁶ risk levels are in micrograms per liter.

µg - Total Trihalomethanes MCL is sum of bromoform, chloroform, bromodichloromethane, dibromochloromethane.

TT - Treatment technique in lieu of numeric MCL

β - Surface waters and groundwater under the direct influence of surface water only.

µg - P/A - MCL is based on the presence/absence of total coliforms

µg - 0.5 NTU, conv. or direct filtration; 1.0 NTU, DE or slow sand filtration

Drinking Water Standards And Health Advisories

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MICROB.-TURBIDITY				IRIS		Health Advisories			Wt. of Evid.	California		Arizona
Chemicals	Standard	MCL	EPA MCLG	RfD $\mu\text{g/kg-d}$	10^{-6} Risk	Acute 10 Day	Chronic(lifetime) Non-Cancer	Cancer		MCL	Action Level	
Turbidity	Current	0.5 or 1.0 NTU β	NA									
Viruses	Current	TT β	0									
WATER QLTY. SECONDARY MAX. CONT. LEV												
Color	Secondary	15 color units										
Corrosivity	Secondary	Noncor- rosive										
Foaming Agents	Secondary	500										
Odor (Odor threshold)	Secondary	3.0 OT#										
Total Dissolved Solids (TDS)	Secondary	500 ppm										
pH	Secondary	6.5-8.5										

Values are indicated in micro grams per liter ($\mu\text{g/L}$) [equivalent to parts per billion (ppb)] unless otherwise stated

Oral Referenced Doses (RfD) are in micrograms per kilogram per day ($\mu\text{g/kg-d}$), 10^{-6} risk levels are in micrograms per liter.
 TT - Treatment technique in lieu of numeric MCL

β - Surface waters and groundwater under the direct influence of surface water only.

- Odor Threshold Numbers

TABLE 2

PRIORITY LIST OF CONTAMINANTS WHICH MAY REQUIRE REGULATION
UNDER THE SDWA (1991 VERSION)

Microorganisms

Cryptosporidium

Inorganics

Aluminum
Boron
Chloramines
Chlorate
Chlorine
Chlorine dioxide
Chlorite

Cyanogen chloride
Hypochlorite ion
Manganese
Molybdenum
Strontium
Vanadium
Zinc

Pesticides

Asulan
Bentazon
Bromacil
Cyanazine
Cyromazine
DCPA (and acid metabolites)
Dicamba
Ethylenethiourea
Fomesafen
Latofen/Acifluorfen

Metalaxyl
Methomyl
Metolachlor
Metribuzin
Parathion degradation product
(4-nitrophenol)
Prometon
2,4,5-T
Thiodicarb
Trifluralin

Synthetic Organic Chemicals

Acrylonitrile
Bromobenzene
Bromochloroacetonitrile
Bromodichloromethane
Bromoform
Bromomethane
Chloroethane
Chloroform
Chloromethane
Chloropicrin
o-Chlorotoluene
p-Chlorotoluene

Dibromoacetonitrile
Dibromochloromethane
Dibromomethane
Dichloroacetonitrile
1,3-Dichlorobenzene
Dichlorodifluoromethane
1,1-Dichloroethane
2,2-Dichloropropane
1,3-Dichloropropane
1,1-Dichloropropene
1,3-Dichloropropene
2,4-Dinitrophenol

Synthetic Organic Chemicals (con't)

2,4-Dinitrotoluene	Methyl t-butyl ether
2,6-Dinitrotoluene	Naphthalene
1,2-Diphenylhydrazine	Nitrobenzene
Fluorotrichloromethane	1,1,1,2-Tetrachloroethane
Hexachlorodutadiene	1,1,2,2-Tetrachloroethane
Hexachloroethane	Tetrahydrofuran
Isophorone	Trichloroacetonitrile
Methyl ethyl ketone	1,2,3-Trichloropropane
Methyl isobutyl ketone	

Chlorination/ chloramination byproducts (misc.):
haloacetic acids, haloketones, chloral hydrate, 3-chloro-4-
(dichloromethyl)-5-hydroxy-2(5H)-furanone (MX-2), N-
organochloramines

Ozonation byproducts: aldehydes, epoxides, peroxides,
nitrosamines, bromate, iodate

APPENDIX

DESCRIPTION OF STANDARDS AND ADVISORIES

Authority

Under the authority of the Safe Drinking Water Act (SDWA, Public Law 93-523), the USEPA is mandated to establish National Primary Drinking Water Regulations for contaminants occurring in drinking water. Primary NPDWRs are established and enforced to protect the public from adverse health effects resulting from a drinking water contaminant. Included in these regulations are the drinking water standards which set either 1) treatment techniques to control a contaminant, or 2) the Maximum Contaminant Level (MCL) allowable for the contaminant in drinking water. An MCL is set when an appropriate method of detection for the contaminant exists. A treatment technique approach is used when it is not possible to quantify the contaminant at the level necessary to protect public health. Secondary standards are established based on non-health related aesthetic qualities of appearance, taste and odor. These secondary standards are not federally enforceable.

States may choose to accept responsibility (Primacy Status) for the oversight and enforcement of US drinking water regulations. States which have primacy status from USEPA must adopt State drinking water standards that are at least as stringent as federal standards. A state may choose to enforce secondary standards as well as primary standards.

USEPA Maximum Contaminant Level Goals (MCLGs)

MCLGs are developed by the Office of Science and Technology in the USEPA Office of Water as a required first step toward promulgation of NPDWRs. MCLGs are non-enforceable health goals which are to be set at levels at which no known or anticipated adverse effects on the health of persons occur, and which allow for an adequate margin of safety. Prior to the SDWA Amendments of 1986, these levels were called Recommended Maximum Contaminant Levels (RMCLs). MCLGs are strictly health-based levels and are derived from relevant toxicological data.

For chemicals that produce adverse health effects and are not believed to be carcinogenic (non-carcinogens), the MCLG is based on the Reference Dose (RfD). A RfD is calculated from toxicological data to represent a contaminant level that should be without risk of adverse health effects even with a lifetime exposure. USEPA assumes that a threshold exists for non-cancer health effects from chemical contaminants, below which the effect will not occur. Thus the MCLG will be a non-zero number. The RfD, which is based on the

total daily amount of contaminant taken up by a person on a body weight basis, is converted to a Drinking Water Equivalent Level (DWEL) concentration and adjusted for the percentage contribution of other sources (relative source contribution, RSC) of the contaminant besides drinking water (air, food, etc) to arrive at the MCLG. This calculation assumes a lifetime consumption of 2 liters of drinking water per day by a 70 kg adult. Unless otherwise noted, the RSC from drinking water for organic and inorganic compounds is respectively 20% and 10%.

USEPA assumes that no threshold exists for cancer and thus, there is no absolutely safe level of contamination. For chemicals that are known (Group A) or probable (Group B) human carcinogens, USEPA policy directs that the MCLG be set at zero, in accordance with a recommendation by the US Congress. For contaminants believed to be possible human carcinogens (Group C), the MCLG may be derived based on relevant non-cancer health effects as described above. In this case, the RfD is divided by an additional uncertainty factor of 10. In some cases, Group C chemicals will have MCLGs set based on calculated maximum lifetime cancer risks of between 1/10,000 and 1/million.

Maximum Contaminant Levels (MCLs)

MCLs are federally enforceable limits for contaminants in drinking water established as NPDWRs. The MCL for a given contaminant is set as close to the corresponding MCLG as is feasible. "Feasible" is defined in the 1986 SDWA Amendments as "feasible with the use of the best technology, treatment techniques and other means which the Administrator finds, after examination for efficacy under field conditions and not solely under laboratory conditions, are available (taking cost into consideration)." To promulgate a MCL for a contaminant requires that a method of detection for that contaminant is available suitable for the level desired and a Best Available Technology is identified that can feasibly remove the contaminant to the desired level.

Secondary Maximum Contaminant Levels

Secondary MCLs are established under the SDWA to protect the public welfare. Such regulations apply to contaminants in drinking water that adversely affect its odor, taste or appearance and consequently cause a substantial number of persons to discontinue its use. Secondary MCLs are not based on direct adverse health effects associated with the contaminant, although some contaminants may have both a MCL and a SMCL. SMCLs are considered as desirable goals and are not federally enforceable. However, states may choose to promulgate and enforce SMCLs at the state level.

Health Advisories

Health Advisories (HAs) for drinking water contaminants are levels considered to be without appreciable health risk for specific durations of exposure. HAs should be considered guidance and are not enforceable drinking water standards. HAs were previously known as Suggested No Adverse Response Levels (SNARLs).

USEPA HAs are developed and published initially as External Review Drafts, and then as a Final Draft. This designation indicates that the HA will be always subject to change as additional information becomes available. HAs are developed for one-day, 10-day, longer-term (approximately 7 years) and lifetime (70 year) exposures based on data describing non-carcinogenic health effects resulting from the contaminant. One-day and 10-day HAs use parameters which reflect exposures and effects for a 10 kg child consuming 1 liter of water per day. Lifetime HAs consider a 70 kg adult consuming 2 liters of water per day. Longer-term HAs can incorporate either child or adult parameters. A relative source contribution from water is also factored into the lifetime HA calculation to account for exposures from other sources (air, food, soil, etc) of the contaminant.

For known or probably human carcinogens, the lifetime HA level is based on an upper-bound excess lifetime cancer risk of 1/million. This means that USEPA considers that the risk from a lifetime consumption of water at the given level is unlikely to be greater than 1/million, is most likely substantially less and may be zero.

Reference Dose (RfD) and Drinking Water Equivalent Level (DWEL)

The RfD is a daily exposure level which is believed to be without appreciable health risk to humans over a lifetime. The RfD is usually derived from an experimental "no observed adverse effect level" (NOAEL), identified as the highest dose in the most relevant study that did not result in a known adverse effect. The NOAEL is divided by various uncertainty factors to derive the RfD. These uncertainty factors account for the variation in human response, extrapolation to human responses if animal experiments were used, data quality and relevance. The RfD takes the form of dose ingested per unit body weight per day (ug/kg-d).

The DWEL is the conversion of the RfD into an equivalent water concentration. It assumes that a 70 kg adult consumes two liters of water per day and that the total dose to a person results solely from drinking water. It is important to remember that actual exposures in the environment may occur through other routes, such as inhalation or dermal contact, or from other sources, such as from food or soil.

California Action Levels

California Department of Health Services Action Levels are health-based criteria derived much in the same way as EPA Health Advisories. Specific approaches to determining cancer risks and exposure assumptions may differ in some ways from those used by USEPA. California Action Levels are not enforceable drinking water standards, but are levels at which CA DOHS strongly urges water purveyors to take corrective action to reduce the level of contamination in the water they supply. Action Levels cease to exist when CA State MCLS are promulgated.

Integrated Risk Information System (IRIS)

IRIS is an EPA catalogue of Agency risk assessment and risk management information for chemical substances. It is available electronically in several formats. The risk assessment information contained in IRIS, unless specifically noted, has been reviewed and agreed upon by intra-agency work groups and represents Agency consensus. Chemical contaminants listed in IRIS may have descriptions of relevant toxicological experiments and risk assessment approaches used in the determination of RfDs, cancer risks and health advisories. Extensive bibliographies are included. Regulations and regulatory status for different media may be presented.

REFERENCES

EPA NPDWRs: Code of Federal Regulations, Title 40, Part 141

NPDWRs; Synthetic Organic Chemicals, Inorganic Chemicals and Microorganisms; Proposed Rule: FR 50, n. 219, November 13, 1985. (Phase I contaminants.)

NPDWRs; Volatile Synthetic Organic Chemicals, Final Rule and Proposed Rule: FR 50, n. 219, November 13, 1985. (Phase I chemicals.)

NPDWRs; Fluoride; Final Rule and Proposed Rule: FR 50, n. 220, November 14, 1985.

NPDWRs; Fluoride; Final Rule: FR 51, n. 63, April 2, 1986.

NPDWRs; Volatile Organic Chemicals; Final Rule: FR 52, n. 130, July 8, 1987. (Phase I chemicals.)

NPDWRs; Filtration and Disinfection; Turbidity, Giardia lamblia, Viruses, Legionella, and Heterotrophic Bacteria; Proposed Rule: FR 52, n. 212, November 3, 1987.

Drinking Water; NPDWRs; Total Coliforms; Proposed Rule: FR 52, n. 212, November 3, 1987.

Drinking Water Regulations; MCLGs and NPDWRs for Lead and Copper; Proposed Rule: FR 53, n. 160, August 18, 1988.

NPDWRs, Proposed Rule: FR 54, n. 97, May 22, 1989. (Phase II inorganics, VOCs, SOCs.)

Drinking Water; NPDWRs; Filtration, Disinfection; Turbidity, Giardia lamblia, Viruses, Legionella, and Heterotrophic Bacteria; Final Rule: FR 54, n. 124, June 29, 1989.

Drinking Water; NPDWRs; Total Coliforms (Including Fecal Coliforms and E. coli); Final Rule: FR 54, n. 124, June 29, 1989.

NPDWRs; Synthetic Organic Chemicals and Inorganic Chemicals; Proposed Rules: FR 55, n. 143, July 25, 1990. (Phase V chemicals.)

Priority List of Substances Which May Require Regulation Under the Safe Drinking Water Act; Notice: FR 56, n. 9, January 14, 1991.

NPDWRs, Final Rule: FR 56, n. 20, January 30, 1991. (Phase II inorganics, VOCs, SOCs.)

NPDWRs, Proposed Rule: FR 56, n. 20, January 30, 1991.
(Aldicarb, Aldicarb Sulfoxide, Aldicarb Sulfone,
Pentachlorophenol, Barium.)

MCLGs and NPDWRs for Lead and Copper; Final Rule: FR 56, n. 110,
June 7, 1991.

NPDWRs; Final Rule: FR 56, n. 126, July 1, 1991. (Aldicarb,
Aldicarb Sulfoxide, Aldicarb Sulfone, Pentachlorophenol, Barium.)

NPDWRs; Radionuclides; Proposed Rule: FR 56, n. 138, July 18,
1991.

NPDWRs; Synthetic Organic Chemicals and Inorganic Chemicals;
Final Rule: FR 57, n. 138, July 17, 1992. (Phase V chemicals.)

NPDWRs; Disinfectants and Disinfection Byproducts; Proposed Rule:
FR 59, n. 145, July 29, 1994.

NPDWRs; Enhanced Surface Water Treatment Requirements; Proposed
Rule, FR 59, n. 145, July 29, 1994.

California
Department of
Health
Services

Drinking Water Standards

Primary Maximum Contaminant Levels (MCLs)
and Lead and Copper Action Levels

DHS [What's New?](#)
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Last Update: February 11, 2000

[Primary MCLs](#)
[Lead and Copper](#)

Primary maximum contaminant levels (MCLs) are established by the Department of Health Services (DHS) for a number of chemical and radioactive contaminants. Primary MCLs can be found in Title 22 California Code of Regulations (CCR) for

[inorganic chemicals](#)
(§64431),
[trihalomethanes](#)
(§64439),
[radioactivity](#)
(§64441 and §64443) and
[organic chemicals](#)
(§64444). (See DHS' compilation of drinking water statutes and regulations)

PRIMARY MAXIMUM CONTAMINANT LEVELS	
All values are in milligrams per liter (mg/L), unless otherwise noted	
Contaminant	Primary MCL
22 CCR §64431, Table 64431-A— Inorganic Chemicals	
Aluminum (Aluminum also as a secondary MCL of 0.2 mg/L)	1
Antimony	0.006
Arsenic	0.05
Asbestos (MFL = million fibers per liter, MCL is for fibers exceeding 10 microns in length)	7 MFL
Barium	1
Beryllium	0.004
Cadmium	0.005
Chromium	0.05
Cyanide	0.2
Fluoride	2
Mercury	0.002
Nickel	0.1
Nitrate (as NO ₃)	45
Nitrate + Nitrite (sum as nitrogen)	10

PRIMARY MAXIMUM CONTAMINANT LEVELS	
All values are in milligrams per liter (mg/L), unless otherwise noted	
Contaminant	Primary MCL
Nitrite (as nitrogen)	1
Selenium	0.05
Thallium	0.002
22 CCR §64433.2, Table 64433.2-A, Optimal Fluoride Levels See also the Fluoride MCL, 22 CCR §64431, Table 64431-A	
Annual average of maximum daily air temperature (degrees Fahrenheit, °F)	Optimal Level (Range)
50.0 to 53.7 °F	1.2 (1.1-1.7)
53.8 to 58.3 °F	1.1 (1.0-1.6)
58.4 to 63.8 °F	1.0 (0.9-1.5)
63.9 to 70.6 °F	0.9 (0.8-1.4)
70.7 to 79.2 °F	0.8 (0.7-1.3)
79.3 to 90.5 °F	0.7 (0.6-1.2)
22 CCR §64441 and §64443— Radioactivity	
Gross alpha particle activity (including radium-226 but excluding radon and uranium)	15 picocuries per liter (pCi/L)
Gross beta particle activity	50 pCi/L

PRIMARY MAXIMUM CONTAMINANT LEVELS	
All values are in milligrams per liter (mg/L), unless otherwise noted	
Contaminant	Primary MCL
Combined Radium-226 and Radium-228	5 pCi/L
Strontium-90	8 pCi/L
Tritium	20,000 pCi/L
Uranium	20 pCi/L
22 CCR §64439— Total Trihalomethanes	
Sum of bromodichloromethane, dibromochloromethane, bromoform, and chloroform	0.1
22 CCR §64444— Organic Chemicals	
(a) Volatile Organic Chemicals (VOCs)	
Benzene	0.001
Carbon tetrachloride	0.0005
1,2-Dichlorobenzene (o-Dichlorobenzene)	0.6
1,4-Dichlorobenzene (p-DCB)	0.005
1,1-Dichloroethane (1,1-DCA)	0.005
1,2-Dichloroethane (1,2-DCA)	0.0005
1,1-Dichloroethylene (1,1-DCE)	0.006

California Department of Health Services

PRIMARY MAXIMUM CONTAMINANT LEVELS	
All values are in milligrams per liter (mg/L), unless otherwise noted	
Contaminant	Primary MCL
cis-1,2-Dichloroethylene	0.006
trans-1,2-Dichloroethylene	0.01
Dichloromethane (Methylene chloride)	0.005
1,2-Dichloropropane (Propylene dichloride)	0.005
1,3-Dichloropropene	0.0005
Ethylbenzene (Phenylethane)	0.7
Monochlorobenzene (Chlorobenzene)	0.07
Methyl tert-Butyl Ether (MTBE)	0.013 (proposed)
(MTBE also has a secondary MCL of 0.005 mg/L and an action level of 0.013 mg/L)	
Styrene (Vinylbenzene)	0.1
1,1,2,2-Tetrachloroethane	0.001
Tetrachloroethylene (PCE)	0.005
Toluene (Methylbenzene)	0.15
1,2,4-Trichlorobenzene (Unsym-Trichlorobenzene)	0.07
1,1,1-Trichloroethane (1,1,1-TCA)	0.2
1,1,2-Trichloroethane (1,1,2-TCA)	0.005

PRIMARY MAXIMUM CONTAMINANT LEVELS	
All values are in milligrams per liter (mg/L), unless otherwise noted	
Contaminant	Primary MCL
Trichloroethylene (TCE)	0.005
Trichlorofluoromethane (Freon 11)	0.15
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	1.2
Vinyl chloride	0.0005
Xylenes (single isomer or sum of isomers)	1.75
(b) Non-Volatile Synthetic Organic Chemicals (SOCs)	
Alachlor (Alanex)	0.002
Atrazine (Aatrex)	0.003
Bentazon (Basagran)	0.018
Benzo(a)pyrene	0.0002
Carbofuran (Furadan)	0.018
Chlordane	0.0001
2,4-D	0.07
Dalapon	0.2
1,2-Dibromo-3-chloropropane (DBCP)	0.0002
Di(2-ethylhexyl)adipate	0.4

PRIMARY MAXIMUM CONTAMINANT LEVELS	
All values are in milligrams per liter (mg/L), unless otherwise noted	
Contaminant	Primary MCL
Di(2-ethylhexyl)phthalate (DEHP)	0.004
Dinoseb	0.007
Diquat	0.02
Endrin	0.002
Endothal	0.1
Ethylene dibromide (EDB)	0.00005
Glyphosate	0.7
Heptachlor	0.00001
Heptachlor epoxide	0.00001
Hexachlorobenzene	0.001
Hexachlorocyclopentadiene	0.05
Lindane (gamma-BHC)	0.0002
Methoxychlor	0.04
Molinate (Ordam)	0.02
Oxamyl	0.2

PRIMARY MAXIMUM CONTAMINANT LEVELS	
All values are in milligrams per liter (mg/L), unless otherwise noted	
Contaminant	Primary MCL
Pentachlorophenol	0.001
Picloram	0.5
Polychlorinated biphenyls (PCBs)	0.0005
Simazine (Princep)	0.004
2,4,5-TP (Silvex)	0.05
2,3,7,8-TCDD (Dioxin)	0.00000003
Thiobencarb (Bolero) (Thiobencarb also has a secondary MCL of 0.001 mg/L)	0.07
Toxaphene	0.003

Lead and copper

have specific regulations in 22 CCR, Chapter 17.5 §64670, *et seq.* The lead and copper regulations use the term "action level" for each substance, for purposes of regulatory compliance. These action levels should not be confused with DHS'

advisory action levels for unregulated chemical contaminants

Action levels for copper and lead, which are to be met at customer tap, are used to determine the treatment requirements that a water system is required to complete. The action level for copper 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 22 CCR §64682-§64685 is greater than 1.3 mg/L. Similarly, the action level for lead is exceeded if the concentration of lead in more than 10 percent of tap water samples collected in accordance with 22 CCR §64682-§64685 is greater than 0.015 mg/L. Failure to comply with the applicable requirements for lead and copper (22 CCR Chapter 17.5) is a violation of primary drinking water standards for these substances.

PRIMARY MAXIMUM CONTAMINANT LEVELS	
All values are in milligrams per liter (mg/L), unless otherwise noted	
Contaminant	Primary MCL
LEAD AND COPPER ACTION LEVELS (22 CCR §64672.3)	
Chemical	Action Level (mg/L)
Copper	1.3
Lead	0.015

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