South Dakota
Drinking Water Regulations
Summary

Drinking Water Program
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http://denr.sd.gov/des/dw/dwhome.aspx

SUMMARY OF THE SOUTH DAKOTA DRINKING WATER STANDARDS-3/2009

The South Dakota Drinking Water Standards became effective in September, 1983 as part of South Dakota's responsibilities under the Federal Safe Drinking Water Act (SDWA). In South Dakota, the Drinking Water Program (DWP), Department of Environment and Natural Resources (DENR) is responsible for the enforcement of the standards. Suppliers of drinking water have important responsibilities under the standards. Water suppliers should have a good working knowledge of the standards for their system to be in compliance.

The standards apply to all ***public water system***s (PWS). A PWS is any water system that serves 15 connections or 25 people per day for 60 days per year. There are several types of PWS. ***Community PWS*** are water systems that serve a residential population such as municipalities, rural water systems, mobile home courts, housing developments, etc. ***Transient Non-Community PWS*** are water systems that serve a transient or nonresidential population such as campgrounds, rest stops, resorts, etc. ***Non-Transient Non-Community (NTNC) PWS*** are water systems that serve the same nonresidents for at least six months per year such as day cares, factories, and schools.

The most important section of the standards concerns sampling of various contaminants of drinking water. Non-transient non-community water systems sample at the same frequency as community systems unless noted differently. The initial sampling needs of a PWS are listed below. The maximum contaminant levels (MCL) for each parameter are listed as an attachment to this pamphlet. Follow-up sampling will depend on the results of the initial sampling results.

1. **Total Coliform Bacteria**-Monthly. The number of samples depends on the population served. Samples are taken at designated/approved sampling sites in the distribution system.

2. **Inorganic Chemicals (Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cyanide, Mercury, Nickel, Selenium, Thallium, and Fluoride)**-Every three years for groundwater systems. Annually for surface water supplies. Entry point sampling. Fluoride monitoring for community systems only. Waivers are available to reduce IOC sampling to every nine years.

3. **Asbestos**-One sample every nine years. Samples are taken at sites served by asbestos-cement pipe. Waivers are available to eliminate this sampling.

4. **Nitrite**-One sample every three years. Entry point sampling.

5. **Nitrate**-Entry point sampling.

	Initial Monitoring	**Subsequent Monitoring**
Surface Water Entry Point	Quarterly	Annual
Groundwater Entry Point	Annual	Annual

6. **Radiological Chemicals**-The initial sampling is a year of quarterly samples. Entry point sampling. Follow-up sampling (every three, six, or nine years) depends on the results of the average of the initial four quarterly samples. Community systems only.

Monitoring Results	Frequency of Sampling
> MCL	Quarterly
> ½ of MCL and < MCL	Every Three Years
> Detection Level and < ½ of MCL	Every Six Years
< Detection Level	Every Nine Years

7. **Synthetic Organic Chemicals (SOC) including Pesticides**-Initial sampling is four quarterly samples. Entry point sampling. Repeat sampling is two quarterly samples every three years for systems serving more than 3300 people. Repeat sampling is one sample every three years for systems serving less than 3300 people. Waivers are available to eliminate this sampling.

8. **Stage 1 Disinfection By-Products (DBPs)**- denr.sd.gov/des/dw/dbp.aspx DBP's are formed when water is disinfected. This is for any NTNC or community system that uses chlorine, chlorine dioxide, or chloramines.

System Type	Population	Monitoring Frequency
Surface/GUDISW*	≥10,000	4/plant/quarter
Surface/GUDISW*	500-9,999	1/plant/quarter
Surface/GUDISW*	<500	1/plant/year**
Groundwater	≥10,000	1/plant/quarter
Groundwater	<10,000	1/plant/year**
*Groundwater under Direct Influence of Surface Water		
**Sample taken in month with warmest water temperature		

Also included under this rule is monitoring for-

- Bromate-Systems using ozone
- Chlorite-Systems using chlorine dioxide
- Chlorine residual
- Chloramine residual
- Chlorine dioxide-Systems using chlorine dioxide
- DBP precursors-Conventional filtration plants

Any system that disinfects or serves disinfected water is subject to the **Stage 2 DBP Regulation**. This Stage 2 Regulation is now in effect.

9. **Turbidity/Disinfection Residuals**-Daily for all surface water and groundwater under the direct influence of surface water. Reports must be submitted to DENR on a monthly basis.

10. **Volatile Organic Chemicals (VOC)**-The initial sampling is a year of quarterly samples. Entry point sampling. Systems with no detections can be reduced to annual sampling. Groundwater systems can then be reduced to one sample every three years after three years of annual monitoring with no detections. Waivers are available to reduce this sampling to every six years.

11. **Lead and Copper**-Tap monitoring will be of first draw water (water that has remained motionless for at least six hours) and will take place at sites pre-approved by the State. These sites include high-risk homes such as those with lead service lines or new lead solder (applied since 1982).

    The number of samples to be taken every six months (Jan-June and July-Dec compliance periods) is as follows:

Lead and Copper Samples		
Population Served	**Baseline Monitoring**	**Reduced Monitoring**
> 100,000	100	50
10,001-100,00	60	30
3301-10,000	40	20
501-3300	20	10
101-500	10	5
< 101	5	5

    Systems in compliance with the lead/copper action levels may be able to reduce monitoring after two consecutive six-month monitoring periods.

    Water systems exceeding the lead or copper action levels must treat their water to reduce corrosive effects and must monitor for water quality parameters.

Other Sampling Information

Waivers to reduce or eliminate sampling may be obtained for various parameters including asbestos, VOCs, IOCs, and SOCs. Waiver criteria are based on previous sampling, chemical use, and vulnerability of sources. denr.sd.gov/des/dw/waiver.aspx

All compliance analyses must be performed by a state or EPA certified laboratory. The results of analyses performed by laboratories must be reported to the DWP. Labs within South Dakota generally take care of this reporting for water systems; however, it is still the system's responsibility. Monitoring requirements are sent every December to each water system to inform them of the required monitoring for the upcoming calendar year. It is up to the water system to then arrange to have the analyses performed with a certified laboratory.

Entry point sampling refers to samples being taken at a point where a source or sources enter the distribution system.

The Standards also require sampling for sodium and corrosivity; however, these parameters are analyzed every three years when the DWP performs a sanitary survey on a water system and takes a chemical sample.

A ***consecutive water system*** is a situation where a water system is served by another public water system. The original system supplying the water must analyze for the entry point parameters. The consecutive water system must be receiving at least 75% of its water from another PWS to be excused from entry point sampling except total coliform, asbestos, VOC, and lead/copper analyses as of this date. If a consecutive system uses *any* surface water, it must comply with all requirements of the Surface Water Treatment Rule.

When a water supply exceeds an MCL, repeat/confirmation samples may be necessary to confirm the analytical result. If the results are confirmed, these systems must take steps to get their water systems into compliance with the MCL and have to issue a public notice to its customers concerning the violation. The purpose of the public notice is to increase the public awareness of the problems water systems face and of the true cost of safe drinking water. A public notice must also be issued if the required monitoring is not performed. The Public Notification Handbook is available from the DWP and from our web site. denr.sd.gov/des/dw/public.aspx

Sample results must be kept as part of a system's records. Total coliform records must be kept for five years, lead/copper records for twelve years, and other chemical results for ten years. Actual laboratory results may be kept or the results may be summarized in tabular form.

A key water supplier responsibility is to see that the proper number and type of samples are taken. Unfortunately, too many operators take sampling for granted. Sloppy practices will result in contaminated samples that are not representative of the actual water quality.

Operator Certification

The following systems must be managed and operated by a state certified water operator:

1. All community and NTNC water systems
2. Any transient non-community water system using surface water or disinfection equipment

Training courses are provided by the SD Rural Water Association, and exams are given numerous times throughout the year across the state. There are experience and educational requirements to take certification exams. There is an operator certification web site at denr.sd.gov/des/dw/opcertqa.aspx. Non-certified operators may operate under the direction of a certified operator that is in direct responsible charge of a water system. Note that disinfection residual measurements taken under the DBP Rule must be done by a certified operator.

Capacity Development

New Water Systems

All new community and non-transient non-community water systems that are built after October 1, 1999 are required to obtain a certificate of approval from the department before beginning operation. The certificate of approval is issued after the applicant submits all required documentation that demonstrates the system has adequate technical, managerial, and financial capacity. A planning manual is available to help applicants through the process. This manual can be downloaded from the DWP web site (denr.sd.gov/des/dw/newsys.aspx).

Existing Water Systems

The DWP has developed a program that will assist existing water systems in acquiring and maintaining technical, managerial, and financial capacity. For more information, visit our web site (denr.sd.gov/des/dw/capacity.aspx).

Consumer Confidence Reports

Every community water system must issue a Consumer Confidence Report each year by July 1. This report must describe the quality of the water provided to consumers. The Consumer Confidence Report is the centerpiece of many provisions adopted in the 1996 Amendments to the Safe Drinking Water Act to give consumers more information on their drinking water and unprecedented opportunities to get involved in protecting it. denr.sd.gov/des/dw/ccr.aspx

The final rule includes requirements that the reports must tell consumers:

- the lake, river, aquifer, or other source of the drinking water;
- a brief summary of the susceptibility to contamination of the local drinking water source, based on the source water assessments that states are completing over the next five years;
- how to get a copy of the water system's complete source water assessment;
- the level (or range of levels) of any contaminant found in local drinking water, as well as EPA's health-based standard (maximum contaminant level) for comparison;
- the likely source of that contaminant in the local drinking water supply;
- the potential health effects of any contaminant detected in violation of an EPA health standard, and an accounting of the system's actions to restore safe drinking water; information about how vulnerable populations can avoid Cryptosporidium.
- the water system's compliance with other drinking water-related rules;
- an educational statement for vulnerable populations about avoiding Cryptosporidium;
- educational information on nitrate, arsenic, or lead in areas where these contaminants are detected above 50% of EPA's standard; and
- phone numbers of additional sources of information, including the water system.

Miscellaneous Regulations

A one-time public notice on the health effects of lead must be issued to each customer of a community PWS. This deals with the possible leaching of lead from solder and piping into the water. This requirement now affects only newly developed water systems. Established systems had to have issued the notice by June 19, 1988. Established systems must notify any new customers of the possible lead health effects.

There is also a comprehensive set of regulations concerning the use of surface water or groundwater under the direct influence of surface water. For information on these regulations, please contact the DWP.

Any system that uses a water source that delivers water at more than 18 gallons per minute is required to have a water right issued by this department. Further information concerning water rights can be obtained from the Water Rights Program at 605-773-3352.

Water systems are notified by DWP when there are changes to the regulations will affect their systems. However, systems must make preparations for future regulatory effects, especially for the costs of increased monitoring and possible water treatment equipment purchases.

Please note that this summary does not substitute for the actual regulations.

If there are any questions on drinking water, please contact the Drinking Water Program, Foss Building, 523 East Capitol Avenue, Pierre, SD 57501-3181 (Phone: 605-773-3754 Fax: 605-773-5286). The Drinking Water Program also has a homepage on the Internet. The Internet address is: denr.sd.gov/des/dw/dwhome.aspx .

The DWP has personnel located in the following regional offices:

Black Hills Regional Office	394-2229
Northeast Lakes Regional Office	882-5111
Sioux Falls Regional Office	362-3521

National Primary Drinking Water Standards

Contaminant	MCLG[1] (mg/L)[2]	MCL or TT[1] (mg/L)[2]	Potential health effects from exposure above the MCL	Common sources of contaminant in drinking water
MICROORGANISMS				
Cryptosporidium	zero	TT[3]	Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and fecal animal waste
Giardia lamblia	zero	TT[3]	Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste
Heterotrophic plate count (HPC)	n/a	TT[3]	HPC has no health effects; it is an analytic method used to measure the variety of bacteria that are common in water. The lower the concentration of bacteria in drinking water, the better maintained the water system is.	HPC measures a range of bacteria that are naturally present in the environment
Legionella	zero	TT[3]	Legionnaire's Disease, a type of pneumonia	Found naturally in water; multiplies in heating systems
Total Coliforms (including fecal coliform and *E. coli*)	zero	5.0%[4]	Not a health threat in itself; it is used to indicate whether other potentially harmful bacteria may be present[5]	Coliforms are naturally present in the environment; as well as feces; fecal coliforms and *E. coli* only come from human and animal fecal waste.
Turbidity	n/a	TT[3]	Turbidity is a measure of the cloudiness of water. It is used to indicate water quality and filtration effectiveness (e.g., whether disease-causing organisms are present). Higher turbidity levels are often associated with higher levels of disease-causing microorganisms such as viruses, parasites and some bacteria. These organisms can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.	Soil runoff
Viruses (enteric)	zero	TT[3]	Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste
DISINFECTANTS				
Bromate	zero	0.010	Increased risk of cancer	Byproduct of drinking water disinfection
Chlorite	0.8	1.0	Anemia; infants & young children: nervous system effects	Byproduct of drinking water disinfection
Haloacetic acids (HAA5)	n/a[6]	0.060	Increased risk of cancer	Byproduct of drinking water disinfection
Total Trihalomethanes (TTHMs)	none[7] / n/a[6]	0.10 / 0.080	Liver, kidney or central nervous system problems; increased risk of cancer	Byproduct of drinking water disinfection
DISINFECTION BYPRODUCTS	MRDL[1] **(mg/L)[2]**	MRDL[1] **(mg/L)[2]**		

Contaminant	MCLG[1] (mg/L)[2]	MCL or TT[1] (mg/L)[2]	Potential health effects from exposure above the MCL	Common sources of contaminant in drinking water
Chloramines (as Cl_2)	MRDLG=4	MRDL=4.0[1]	Eye/nose irritation; stomach discomfort, anemia	Water additive used to control microbes
Chlorine (as Cl_2)	MRDLG=4	MRDL=4.0[1]	Eye/nose irritation; stomach discomfort	Water additive used to control microbes
Chlorine dioxide (as ClO_2)	MRDLG=0.8[1]	MRDL=0.8[1]	Anemia; infants & young children: nervous system effects	Water additive used to control microbes
INORGANIC CHEMICALS				
Antimony	0.006	0.006	Increase in blood cholesterol; decrease in blood sugar	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Arsenic	0[7]	0.010 as of 1/23/06	Skin damage or problems with circulatory systems, and may have increased risk of getting cancer	Erosion of natural deposits; runoff from orchards, runoff from glass & electronicsproduction wastes
Asbestos (fibers >10 micrometers)	7 million fibers per Liter (MFL)	7 MFL	Increased risk of developing benign intestinal polyps	Decay of asbestos cement in water mains; erosion of natural deposits
Barium	2	2	Increase in blood pressure	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Beryllium	0.004	0.004	Intestinal lesions	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries
Cadmium	0.005	0.005	Kidney damage	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints
Chromium (total)	0.1	0.1	Allergic dermatitis	Discharge from steel and pulp mills; erosion of natural deposits
Copper	1.3	TT[8]; Action Level= 1.3	Short term exposure: Gastrointestinal distress Long term exposure: Liver or kidney damage People with Wilson's Disease should consult their personal doctor if the amount of copper in their water exceeds the action level	Corrosion of household plumbing systems; erosion of natural deposits
Cyanide (as free cyanide)	0.2	0.2	Nerve damage or thyroid problems	Discharge from steel/metal factories; discharge from plastic and fertilizer factories
Fluoride	4.0	4.0	Bone disease (pain and tenderness of the bones); Children may get mottled teeth	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories
Lead	zero	TT[8]; Action Level= 0.015	Infants and children: Delays in physical or mental development; children could show slight deficits in attention span and learning abilities Adults: Kidney problems; high blood pressure	Corrosion of household plumbing systems; erosion of natural deposits

Contaminant	MCLG[1] (mg/L)[2]	MCL or TT[1] (mg/L)[2]	Potential health effects from exposure above the MCL	Common sources of contaminant in drinking water
Mercury (inorganic)	0.002	0.002	Kidney damage	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and croplands
Nitrate (measured as Nitrogen)	10	10	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Nitrite (measured as Nitrogen)	1	1	Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Selenium	0.05	0.05	Hair or fingernail loss; numbness in fingers or toes; circulatory problems	Discharge from petroleum refineries; erosion of natural deposits; discharge from mines
Thallium	0.0005	0.002	Hair loss; changes in blood; kidney, intestine, or liver problems	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories
ORGANIC CHEMICALS				
Acrylamide	zero	TT[9]	Nervous system or blood problems; increased risk of cancer	Added to water during sewage/wastewater treatment
Alachlor	zero	0.002	Eye, liver, kidney or spleen problems; anemia; increased risk of cancer	Runoff from herbicide used on row crops
Atrazine	0.003	0.003	Cardiovascular system or reproductive problems	Runoff from herbicide used on row crops
Benzene	zero	0.005	Anemia; decrease in blood platelets; increased risk of cancer	Discharge from factories; leaching from gas storage tanks and landfills
Benzo(a)pyrene (PAHs)	zero	0.0002	Reproductive difficulties; increased risk of cancer	Leaching from linings of water storage tanks and distribution lines
Carbofuran	0.04	0.04	Problems with blood, nervous system, or reproductive system	Leaching of soil fumigant used on rice and alfalfa
Carbon tetrachloride	zero	0.005	Liver problems; increased risk of cancer	Discharge from chemical plants and other industrial activities
Chlordane	zero	0.002	Liver or nervous system problems; increased risk of cancer	Residue of banned termiticide
Chlorobenzene	0.1	0.1	Liver or kidney problems	Discharge from chemical and agricultural chemical factories
2,4-D	0.07	0.07	Kidney, liver, or adrenal gland problems	Runoff from herbicide used on row crops
Dalapon	0.2	0.2	Minor kidney changes	Runoff from herbicide used on rights of way
1,2-Dibromo-3-chloropropane (DBCP)	zero	0.0002	Reproductive difficulties; increased risk of cancer	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards
o-Dichlorobenzene	0.6	0.6	Liver, kidney, or circulatory system problems	Discharge from industrial chemical factories

Contaminant	MCLG[1] (mg/L)[2]	MCL or TT[1] (mg/L)[2]	Potential health effects from exposure above the MCL	Common sources of contaminant in drinking water
p-Dichlorobenzene	0.075	0.075	Anemia; liver, kidney or spleen damage; changes in blood	Discharge from industrial chemical factories
1,2-Dichloroethane	zero	0.005	Increased risk of cancer	Discharge from industrial chemical factories
1,1-Dichloroethylene	0.007	0.007	Liver problems	Discharge from industrial chemical factories
cis-1,2-Dichloroethylene	0.07	0.07	Liver problems	Discharge from industrial chemical factories
trans-1,2-Dichloroethylene	0.1	0.1	Liver problems	Discharge from industrial chemical factories
Dichloromethane	zero	0.005	Liver problems; increased risk of cancer	Discharge from drug and chemical factories
1,2-Dichloropropane	zero	0.005	Increased risk of cancer	Discharge from industrial chemical factories
Di(2-ethylhexyl) adipate	0.4	0.4	General toxic effects or reproductive difficulties	Discharge from chemical factories
Di(2-ethylhexyl) phthalate	zero	0.006	Reproductive difficulties; liver problems; increased risk of cancer	Discharge from rubber and chemical factories
Dinoseb	0.007	0.007	Reproductive difficulties	Runoff from herbicide used on soybeans and vegetables
Dioxin (2,3,7,8-TCDD)	zero	0.00000003	Reproductive difficulties; increased risk of cancer	Emissions from waste incineration and other combustion; discharge from chemical factories
Diquat	0.02	0.02	Cataracts	Runoff from herbicide use
Endothall	0.1	0.1	Stomach and intestinal problems	Runoff from herbicide use
Endrin	0.002	0.002	Liver problems	Residue of banned insecticide
Epichlorohydrin	zero	TT[9]	Increased cancer risk, and over a long period of time, stomach problems	Discharge from industrial chemical factories; an impurity of some water treatment chemicals
Ethylbenzene	0.7	0.7	Liver or kidneys problems	Discharge from petroleum refineries
Ethylene dibromide	zero	0.00005	Problems with liver, stomach, reproductive system, or kidneys; increased risk of cancer	Discharge from petroleum refineries
Glyphosate	0.7	0.7	Kidney problems; reproductive difficulties	Runoff from herbicide use
Heptachlor	zero	0.0004	Liver damage; increased risk of cancer	Residue of banned termiticide
Heptachlor epoxide	zero	0.0002	Liver damage; increased risk of cancer	Breakdown of heptachlor
Hexachlorobenzene	zero	0.001	Liver or kidney problems; reproductive difficulties; increased risk of cancer	Discharge from metal refineries and agricultural chemical factories
Hexachlorocyclopentadiene	0.05	0.05	Kidney or stomach problems	Discharge from chemical factories
Lindane	0.0002	0.0002	Liver or kidney problems	Runoff/leaching from insecticide used on cattle, lumber, gardens
Methoxychlor	0.04	0.04	Reproductive difficulties	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock

Contaminant	MCLG[1] (mg/L)[2]	MCL or TT[1] (mg/L)[2]	Potential health effects from exposure above the MCL	Common sources of contaminant in drinking water
Oxamyl (Vydate)	0.2	0.2	Slight nervous system effects	Runoff/leaching from insecticide used on apples, potatoes, and tomatoes
Polychlorinated biphenyls (PCBs)	zero	0.0005	Skin changes; thymus gland problems; immune deficiencies; reproductive or nervous system difficulties; increased risk of cancer	Runoff from landfills; discharge of waste chemicals
Pentachlorophenol	zero	0.001	Liver or kidney problems; increased cancer risk	Discharge from wood preserving factories
Picloram	0.5	0.5	Liver problems	Herbicide runoff
Simazine	0.004	0.004	Problems with blood	Herbicide runoff
Styrene	0.1	0.1	Liver, kidney, or circulatory system problems	Discharge from rubber and plastic factories; leaching from landfills
Tetrachloroethylene	zero	0.005	Liver problems; increased risk of cancer	Discharge from factories and dry cleaners
Toluene	1	1	Nervous system, kidney, or liver problems	Discharge from petroleum factories
Toxaphene	zero	0.003	Kidney, liver, or thyroid problems; increased risk of cancer	Runoff/leaching from insecticide used on cotton and cattle
2,4,5-TP (Silvex)	0.05	0.05	Liver problems	Residue of banned herbicide
1,2,4-Trichlorobenzene	0.07	0.07	Changes in adrenal glands	Discharge from textile finishing factories
1,1,1-Trichloroethane	0.20	0.2	Liver, nervous system, or circulatory problems	Discharge from metal degreasing sites and other factories
1,1,2-Trichloroethane	0.003	0.005	Liver, kidney, or immune system problems	Discharge from industrial chemical factories
Trichloroethylene	zero	0.005	Liver problems; increased risk of cancer	Discharge from metal degreasing sites and other factories
Vinyl chloride	zero	0.002	Increased risk of cancer	Leaching from PVC pipes; discharge from plastic factories
Xylenes (total)	10	10	Nervous system damage	Discharge from petroleum factories; discharge from chemical factories
RADIONUCLIDES				
Alpha particles	none[7]	15 picocuries per Liter (pCi/L)	Increased risk of cancer	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation
Beta particles and photon emitters	none[7]	4 millirems per year (mrem/yr)	Increased risk of cancer	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation
Radium 226 and Radium 228 (combined)	none[7]	5 pCi/L	Increased risk of cancer	Erosion of natural deposits
Uranium	zero	30 ug/L	Increased risk of cancer, kidney toxicity	Erosion of natural deposits

NOTES

1 - Definitions

- Maximum Contaminant Level Goal (MCLG) - The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.
- Maximum Contaminant Level (MCL) - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.
- Maximum Residual Disinfectant Level Goal (MRDLG) - The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- Maximum Residual Disinfectant Level (MRDL) - The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- Treatment Technique (TT) - A required process intended to reduce the level of a contaminant in drinking water.

2 - Units are in milligrams per liter (mg/L) unless otherwise noted. Milligrams per liter are equivalent to parts per million (ppm).

3 - EPA's surface water treatment rules require systems using surface water or ground water under the direct influence of surface water to (1) disinfect their water, and (2) filter their water or meet criteria for avoiding filtration so that the following contaminants are controlled at the following levels:

- *Cryptosporidium* (as of1/1/02 for systems serving >10,000 and 1/14/05 for systems serving <10,000) 99% removal.
- *Giardia lamblia*: 99.9% removal/inactivation
- Viruses: 99.99% removal/inactivation
- *Legionella*: No limit, but EPA believes that if *Giardia* and viruses are removed/inactivated, *Legionella* will also be controlled.
- Turbidity: At no time can turbidity (cloudiness of water) go above 5 nephelolometric turbidity units (NTU); systems that filter must ensure that the turbidity go no higher than 1 NTU (0.5 NTU for conventional or direct filtration) in at least 95% of the daily samples in any month. As of January 1, 2002, turbidity may never exceed 1 NTU, and must not exceed 0.3 NTU in 95% of daily samples in any month.
- HPC: No more than 500 bacterial colonies per milliliter
- Long Term 1 Enhanced Surface Water Treatment (Effective Date: January 14, 2005); Surface water systems or (GWUDI) systems serving fewer than 10,000 people must comply with the applicable Long Term 1 Enhanced Surface Water Treatment Rule provisions (e.g. turbidity standards, individual filter monitoring, Cryptosporidium removal requirements, updated watershed control requirements for unfiltered systems).
- Filter Backwash Recycling; The Filter Backwash Recycling Rule requires systems that recycle to return specific recycle flows through all processes of the system's existing conventional or direct filtration system or at an alternate location approved by the state.

4 - No more than 5.0% samples total coliform-positive in a month. (For water systems that collect fewer than 40 routine samples per month, no more than one sample can be total coliform-positive per month.) Every sample that has total coliform must be analyzed for either fecal coliforms or *E. coli* if two consecutive TC-positive samples, and one is also positive for *E.coli* fecal coliforms, system has an acute MCL violation.

5 - Fecal coliform and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Disease-causing microbes (pathogens) in these wastes can cause diarrhea, cramps, nausea, headaches, or other symptoms. These pathogens may pose a special health risk for infants, young children, and people with severely compromised immune systems.

6 - Although there is no collective MCLG for this contaminant group, there are individual MCLGs for some of the individual contaminants:

- Haloacetic acids: dichloroacetic acid (zero); trichloroacetic acid (0.3 mg/L)
- Trihalomethanes: bromodichloromethane (zero); bromoform (zero); dibromochloromethane (0.06 mg/L)

7 - MCLGs were not established before the 1986 Amendments to the Safe Drinking Water Act. The standard for this contaminant was set prior to 1986. Therefore, there is no MCLG for this contaminant.

8 - Lead and copper are regulated by a Treatment Technique that requires systems to control the corrosiveness of their water. If more than 10% of tap water samples exceed the action level, water systems must take additional steps. For copper, the action level is 1.3 mg/L, and for lead is 0.015 mg/L.

9 - Each water system must certify, in writing, to the state that when it uses acrylamide and/or epichlorohydrin to treat water, the combination (or product) of dose and monomer level does not exceed the levels specified, as follows: Acrylamide = 0.05% dosed at 1 mg/L (or equivalent); Epichlorohydrin = 0.01% dosed at 20 mg/L (or equivalent).

Office of Water (4606) EPA 816-F-02-013 www.epa.gov/safewater July 2002

For More Information:

Call the Safe Drinking Water Hotline, 1-800-426-4791