

CITY OF EVERETT 2009 WATER QUALITY ANALYSIS RESULTS

Detected Regulated Contaminants

Parameter	Major Source	Units	EPA Regulations		Everett Water Results		
			Ideal Level/Goal (MCLG)	Maximum Allowable (MCL)	Range or Other	Average Value or Highest Result	Comply?
Nitrate	Erosion of natural deposits, animal waste	ppm	10	10	0.049–0.120	0.087	Yes
Total Coliform Bacteria	Naturally present in the environment	% Positive	0	5% Positive per Month	0-0.8%	0.8%	Yes
Total coliform bacteria monitoring is used to track microbial quality in the water distribution system. Everett collects 120-125 samples per month. Not more than 5 percent of the monthly total can be positive for total coliforms. Total coliform was detected once in 2009.							
Fluoride	Dental health additive	ppm	2	4	0.78-1.1	0.94	Yes
Fluoride is added to the water in carefully controlled levels for dental health.							
Residual Disinfectant Level (free chlorine)	Added as a drinking water disinfectant	ppm	4.0 (MRDLG)	4.0 (MRDL)	0.2-1.0	0.6	Yes
Haloacetic Acids (5)	By-product of drinking water chlorination	ppb	N/A	60	18.1-41.6	26.0	Yes
Total Trihalomethanes	By-product of drinking water chlorination	ppb	N/A	80	22.3-34.2	29.4	Yes
Haloacetic acids and trihalomethanes form as by-products of the chlorination process that is used to kill or inactivate disease-causing microbes. The results reported here are from the four locations monitored to determine compliance with current regulations.							
Turbidity	Soil erosion	NTU	N/A	TT	100%	0.08	Yes
Turbidity is a measure of the amount of particulates in water in Nephelometric Turbidity Units (NTU). Particulates in water can include bacteria, viruses and protozoans that can cause disease. Turbidity measurements are used to determine the effectiveness of the treatment processes used to remove these particulates. The values reported are the lowest monthly percentage of samples that met the turbidity limit and the highest single filtered water turbidity measurement obtained for the year. In 2009 no filtered water turbidity results were above the EPA 0.3 NTU limit so the lowest percentage was 100%.							

Detected Unregulated Contaminants

Parameter	Units	Ideal Level/Goal (MCLG)	Everett Water Results	
			Range Detected	Average Value
Bromodichloromethane	ppb	0	1.0-1.7	1.4
Chloroform (trichloromethane)	ppb	70	21.3-32.6	28.0
Dichloroacetic Acid	ppb	0	4.2-16.1	10.3
Trichloroacetic Acid	ppb	300	10.7-25.5	15.7
These substances are disinfection by-products which must be monitored to determine compliance with the USEPA Stage 1 Disinfection By-products Rule.				

Lead and Copper

Parameter	Major Source	Units	EPA Regulations		Everett Water Results		
			Ideal Level/Goal (MCLG)	Action Level (AL)	90th % Level	Homes Exceeding the AL	Comply?
Copper	Plumbing, erosion of natural deposits	ppm	1.3	1.3	0.188	None	Yes
Lead	Plumbing, erosion of natural deposits	ppb	0	15	3	2 of 108 (1.9%)	Yes

USEPA and state regulations require Everett and the systems it supplies to monitor for the presence of lead and copper at household taps in their combined service area every three years. The above data was collected in 2009. The next round of required sampling will be conducted in the summer of 2012. The 90th% level is the highest result obtained in 90 percent of the samples collected when the results are ranked in order from lowest to highest. The results for water tested before it enters household plumbing were even lower. This indicates that there is virtually no lead or copper in the water, but household plumbing may contribute to the presence of lead and copper at the tap.

Cryptosporidium

Cryptosporidium is a one-celled intestinal parasite that if ingested may cause diarrhea, fever and other gastrointestinal distress. It can be found in all of Washington's rivers, streams, and lakes and comes from animal or human wastes deposited in the watershed. *Cryptosporidium* is resistant to chlorine, but is removed by effective filtration and sedimentation treatment such as that used by Everett. It can also be inactivated by certain types of alternate disinfection processes such as ozonation and UV light contactors. In 2009, Everett tested the source water at the plant intakes for *Cryptosporidium* oocysts on a weekly basis through the month of April, and on a monthly basis from May through December. No oocysts were detected in the 26 samples collected.

Treatment Polymers

During water treatment, polymer coagulants are added to improve coagulation and filtration processes that remove particulates from water. The particulates that are removed can include viruses, bacteria and other disease causing organisms. The USEPA sets limits on the type and amount of polymer that a water system can add to the water. In addition to the EPA limits, the State of Washington also requires that all polymers used be certified safe for potable water use by an independent testing organization (NSF International). During treatment, Everett adds only NSF approved polymers and the levels used are far below the safe limits set by USEPA.

Important Terms

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.

Maximum Contaminant Level (MCL) – The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available water treatment technology.

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.

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.

Treatment Technique (TT) – A required process and performance criteria intended to reduce the level of a contaminant in drinking water.

Action Level (AL) – The concentration of a contaminant, which, if exceeded, triggers a treatment or other requirements which a water system must follow.

Parts per Million (ppm)/ Parts per Billion (ppb) – A part per million means that one part of a particular contaminant is present for every million parts of water. Similarly, parts per billion indicate the amount of a contaminant per billion parts of water.

Not Applicable (N/A) - Means EPA has not established MCLGs for these substances.

Voluntary Information

Parameter	Units	Everett Water Results	
		Range Detected	Average Value
Alkalinity ³	ppm	12.2-29.0	17.5
Aluminum ³	ppb	0.008-0.050	0.016
Arsenic ⁴	ppb	ND ¹	ND ¹
Calcium Hardness ³	ppm ²	7.1-12.0	8.9
pH ³	s.u.	6.8-9.1	8.0
Sodium ⁴	ppm	6.2-7.1	6.8
Total Hardness ³	ppm ²	9.1-13.3	11.3

¹ ND = Not Detected

² Hardness and alkalinity units are in ppm as CaCO₃ (calcium carbonate equivalent units).

³ Results are from samples collected from 26 locations in Everett's distribution system.

⁴ Sodium and Arsenic are monitored at the treatment plant effluent.