CITY OF EVERETT
2013 Water Quality Summary

Table 1: Primary Standards (Mandatory Health-Related Standards)

Physical Parameters, Bacteria, Inorganics, Disinfection By-Products, Radionuclides
Established by the USEPA and DOH

Unless otherwise noted, values listed are for samples collected after treatment and at the entry point to the water distribution system.

Parameter	Unit	Maximum Contaminant Level	2013 Range of Results	2013 Average Result
Physical				
Turbidity (combined filter effluent)	NTU	TT	0.02–0.17	0.03
Asbestos[1]	MF/L > 10µm	7	–	Less than 0.12
Microbiological				
Total coliform bacteria[2]	Positive (present) or negative (absent)	5% positive per month	0.0–0.8	0.08%
Inorganic Chemicals				
Antimony	ppm	0.006	–	Less than 0.0005
Arsenic	ppm	0.010	<0.0001–0.0003	0.0002
Barium	ppm	2	0.0035–0.0044	0.0039
Beryllium	ppm	0.004	–	Less than 0.0005
Cadmium	ppm	0.005	–	Less than 0.0002
Chromium	ppm	0.1	–	Less than 0.0005
Copper[3]	ppm	1.3	0.004–0.235	0.109
Lead[3]	ppm	0.015	<0.001–0.010	0.002
Mercury	ppm	0.002	–	Less than 0.0001
Nickel	ppm	0.1	–	Less than 0.0005
Selenium	ppm	0.05	–	Less than 0.0005
Thallium	ppm	0.002	–	Less than 0.0005
Cyanide	ppm	0.2	–	Less than 0.04
Fluoride[4]	ppm	4.0	0.5–0.9	0.8
Nitrate (NO_3)	ppm	10	0.023–0.105	0.062
Nitrite (NO_2)	ppm	1	–	Less than 0.001
Radionuclides				
Gross Alpha	pCi/L	15	–	Less than 3.0
Gross Beta	pCi/L	50	–	Less than 3.0
Radium-228	pCi/L	5	–	Less than 1.0
Chlorine By-Products (also called Disinfection By-Products or DBPs)				
Total Trihalomethanes (TTHM)[5,6]	ppm	0.080	0.022–0.048	0.032
Haloacetic Acids (5)[5,6,7]	ppm	0.060	0.018–0.033	0.026

[1] Sample collected in 2013 from a service supplied by an asbestos concrete (AC) water main.

[2] Everett collected monthly total coliform bacteria samples at 120 to125 locations in the water distribution system. No more than 5 percent per month can be coliform positive. In 2013, total coliform bacteria was detected in one sample in January (0.76%). Resample results for this location were negative. No coliforms were detected the remainder of 2013.

[3] Samples collected from 107 consumer taps across the greater Everett water service area which includes most of SW Snohomish County. The result listed in the average column is the 90th percentile result, which is the highest result in 90 percent of the samples when ranked from highest to lowest. The action limit, or AL, for lead is 0.015 mg/L. The action limit for copper is 1.3 mg/L. In 2013, 100 percent of copper and lead sample results were below their respective action limits. Tap samples must be collected every three years. The next round of regional monitoring is scheduled for collection in the summer of 2015.

[4] Fluoride is added in carefully controlled levels for dental health. In January 2011, the US Dept of Health and Human Services (HHS) released a proposed recommendation to reduce the drinking water fluoride concentration target to 0.7 ppm. The recommendation was based on recent research on changing fluoride and water consumption patterns in the U.S. The recommendation has not been made final, but in the spring of 2011 Everett, Tacoma, Seattle and many other water systems in Washington reduced the target fluoride residual in the drinking water from 1.0 ppm to 0.8 ppm—the lowest level allowed under current State regulations. When HHS finalizes the recommendation, the State Board of Health is expected adopt 0.7 ppm as the new standard. Following revision of the regulations, water systems will adjust fluoride levels to the new recommended level.

[5] Samples collected from eight required locations in Everett's service area.

[6] TTHM and HAA5 results were calculated using the running annual average results from the fourth quarter of 2013.

[7] Haloacetic Acids (5) or HAA5 is the sum of the concentrations of trichloroacetic acid, dichloroacetic acid, monocholoroacetic acid, tribromoacetic acid and dibromoacetic acid. There are five additional HAA compounds that are not regulated.

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Table 2A: Secondary Standards and Aesthetic Standards

Established by the USEPA and DOH

Unless otherwise noted, values listed are for samples collected after treatment and at the entry point to the water distribution system.

Parameter	Unit	Maximum Contaminant Level	2013 Range of Results	2013 Average Result
Physical				
Conductivity[1]	µmhos/cm	700	43–62	53
Total Dissolved Solids (TDS)	ppm	500	27–70	40
Color	c.u.	15	–	Less than 5
Chemical				
Chloride	ppm	250	2.0–2.4	2.2
Sulfate	ppm	250	3.0–3.2	3.1
Iron	ppm	0.3	–	Less than 0.01
Manganese	ppm	0.05	0.0002–0.013	0.0035
Silver	ppm	0.1	–	Less than 0.0005
Zinc	ppm	5.0	–	Less than 0.005
Free Chlorine Residual[2]	ppm	4	0.16–1.07	0.56

[1]Samples collected monthly in 2013 from 26 sample sites located across the Everett water distribution system.
[2]Monitored monthly at 120 to 125 locations throughout the Everett water distribution system. A minimum of 120 samples must be collected each month at the same time and same locations as coliform bacteria sample collection. Chlorine residual varies within the distribution system. The residual level decays with time.

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Table 2B: Unregulated Parameters

Established by the USEPA and DOH

Unless otherwise noted, values listed are for samples collected after treatment and at the entry point to the water distribution system.

Parameter	Unit	Maximum Contaminant Level	2013 Range of Results	2013 Average Result
Conventional				
Temperature (plant intake)	°C	No Standard	4.7–19.8	11.8
Temperature (distribution system)[1]	°C	No Standard	4.7–23.0	12.4
Alkalinity (as $CaCO_3$)[1]	ppm	No Standard	12.8–21.6	16.6
Total Hardness (as $CaCO_3$)[1]	ppm	No Standard	9.9–14.8	12.0
Turbidity[1]	NTU	No Standard	0.07–0.23	0.12
Calcium Hardness (as $CaCO_3$)[1]	ppm	No Standard	7.4–12.4	9.2
pH[2]	s.u.	≥7.4 (daily avg)	7.4–8.1	7.6
pH[1]	s.u.	No Standard	7.5–9.1	7.9
Inorganic				
Silica (total SiO_2)[1,3]	ppm	No Standard	3.5–4.8	4.1
Aluminum[1]	ppm	No Standard	0.01–0.09	0.02
Boron	ppm	No Standard	–	0.003
Copper[4]	ppm	No Standard	0.0006–0.0007	0.0007
Lead[4]	ppm	No Standard	–	Less than 0.0001
Molybdenum	ppm	No Standard	–	Less than 0.0005
Potassium	ppm	No Standard	–	0.19
Sodium	ppm	No Standard	5.50–6.72	5.91
Organic Carbon and DBP Precursors				
Total Organic Carbon (untreated)[5]	ppm	No Standard	0.86–1.06	0.95
Total Organic Carbon	ppm	No Standard	0.52–0.62	0.59
Total Organic Carbon[1]	ppm	No Standard	0.40–0.85	0.57
Dissolved Organic Carbon (untreated)[5]	ppm	No Standard	0.84–1.02	0.93
Dissolved Organic Carbon	ppm	No Standard	0.50–0.64	0.58
UV-254 Absorbance[5]	cm^{-1}	No Standard	0.022–0.032	0.027
UV-254 Absorbance	cm^{-1}	No Standard	0.007–0.01	0.009
Microbiological				
Giardia lamblia cysts[5,6]	cysts/L	No Standard	–	0
Cryptosporidium oocysts[5,6]	oocysts/L	No Standard	–	0

[1]Values are from Everett distribution system and were collected in 2013 as part of the monthly water quality parameters (WQP) monitoring and/or quarterly disinfection by-product monitoring programs.
[2]Samples collected from treatment plant effluent.
[3]Total silica results are based on a strong acid digestion analysis method. Insoluble particulate silicates are not detected by this method.
[4]These results are for treatment plant effluent and represent the treated water before contact with distribution system piping or home plumbing. Lead and copper are monitored every three years at consumer taps in the distribution system. See Table 1 for the most recent consumer tap results.
[5]Samples collected from untreated raw water influent to the treatment plant.
[6]In 2013,*Cryptosporidium* and *Giardia* were monitored on a monthly basis at the plant intake.

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Table 3: Volatile Organic Chemicals (VOC) – Regulated

Established by the USEPA and DOH

Contaminant	Maximum Contaminant Level (mg/L)	2013 Average Result
Benzene	0.005	ND[1]
Carbon tetrachloride	0.005	ND
1,2-Dibromo-3-chloropropane (DBCP)[2]	0.0002	ND
o-Dichlorobenzene	0.6	ND
p-Dichlorobenzene	0.075	ND
cis-I,2-Dichloroethylene	0.07	ND
trans-1,2-Dichloroethylene	0.1	ND
1,2-Dichloroethane	0.005	ND
1,1-Dichloroethylene	0.007	ND
1,1-Dichloropropane	0.005	ND
Ethylbenzene	0.7	ND
Dichloromethane (Methylene chloride)	0.005	ND
Monochlorobenzene (Chlorobenzene)	0.1	ND
Styrene	0.1	ND
Tetrachloroethylene	0.005	ND
Toluene	1.0	ND
1,2,4-Trichlorobenzene	0.07	ND
1,1,1-Trichloroethane	0.2	ND
1,1,2-Trichloroethane	0.005	ND
Trichloroethylene	0.005	ND
Vinyl chloride	0.002	ND
Xylenes (total)	10.0	ND
Trihalomethanes[3]		
Total Trihalomethanes (TTHM)[4]	0.080	0.032
Bromodichloromethane	–	0.002
Dibromochloromethane	–	ND
Tribromomethane (bromoform)	–	ND
Trichloromethane (chloroform)	–	0.031
Haloacetic Acids[3]		
Haloacetic acids [5] (HAA5)[5]	0.060	0.026
Dichloroacetic acid	–	0.013
Dibromoacetic acid	–	ND
Monobromoacetic acid	–	ND
Monochloroacetic acid	–	0.002
Trichloroacetic acid	–	0.020

[1]ND = None detected.
[2]DBCP was last monitored in 2012. The State DOH has issued monitoring waivers through 2013. It is not used or produced in the Sultan Basin Watershed and has never been detected in Everett's water.
[3]Results are for samples collected on a quarterly basis from four compliance locations in Everett's distribution system.
[4]Total Trihalomethanes (TTHM) is the sum of the concentrations of four different trihalomethane compounds in a sample. Only TTHM has an MCL assigned to it. The individual trihalomethanes listed above have no MCL, but must be monitored to determine TTHM.
[5]Haloacetic acids (5), or HAA5, is the sum of the concentrations of five individual haloacetic acid compounds. Only the sum HAA5 has an MCL assigned to it. The five haloacetic acid compounds that are measured to determine HAA5 are listed.

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2013 Water Quality Summary

Table 4: Volatile Organic Chemicals (VOC) – Unregulated

No MCL, but monitoring is required by the USEPA or DOH

Contaminant	2013 Average Result
Tert-Amyl methyl ether	ND[1]
Bromobenzene	ND
Bromochloromethane	ND
Bromomethane	ND
2-Butanone (MEK)	0.012
n-Butylbenzene	ND
sec-Butylbenzene	ND
tert-Butylbenzene	ND
Carbon Disulfide	ND
Chloroethane	ND
Chloromethane	ND
o-Chlorotoluene	ND
p-Chlorotoluene	ND
m-Dichlorobenzene	ND
1,1-Dichloroethane	ND
Dibromomethane	ND
Dichlorodifluoromethane	ND
1,3-Dichloropropane	ND
2,2-Dichloropropane	ND
1,1-Dichloropropene	ND
cis-1,3-Dichloropropene	ND
trans-1,3-Dichloropropene	ND
Di-isoproply ether	ND
Hexachlorobutadiene	ND
Isopropylbenzene	ND
p-Isopropyltoluene	ND
4-Methyl-2-pentanone (MIBK)	ND
Methyl tertiary butyl ether (MTBE)	ND
Naphthalene	ND
n-Propylbenzene	ND
1,1,1,2-Tetrachloroethane	ND
1,1,2,2-Tetrachloroethane	ND
Trichlorotrifuoroethane (Freon 113)	ND
Trichlorofluoromethane	ND
1,2,3-Trichlorobenzene	ND
1,2,3-Trichloropropane	ND
1,2,4-Trimethylbenzene	ND
1,3,5-Trimethylbenzene	ND
m/p-Xylene	ND
o-Xylene	ND

[1]ND = None detected

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Table 5: Synthetic Organic Chemicals (SOC) – Regulated

Established by the USEPA and DOH

Contaminant	Maximum Contaminant Level (mg/L)	2013 Average Result
Alachlor (Lasso)	0.002	ND[1]
Aldicarb (Temik)[2]	0.003	ND
Aldicarb sulfone[2]	0.002	ND
Aldicarb sulfoxide[2]	0.004	ND
Atrazine	0.003	ND
Benzo(a)pyrene	0.0002	ND
Carbofuran	0.04	ND
Chlordane	0.002	ND
2,4,D	0.07	ND
Dalapon	0.2	ND
Di(ethylhexyl)adipate	0.4	ND
Di(2-ethylhexyl) phthalate	0.006	ND
Dinoseb	0.007	ND
Diquat[3]	0.02	ND
Endrin	0.002	ND
Endothall[3]	0.1	ND
Ethylene dibromide (EDB)[4]	0.00005	ND
Glyphosate (Rodeo, Roundup)[3]	0.7	ND
Heptachlor	0.0004	ND
Heptachlor epoxide (“B”)	0.0002	ND
Hexachlorobenzene	0.001	ND
Hexachlorocyclopentadiene (HEX)	0.05	ND
Lindane (BHC-gamma)	0.0002	ND
Methoxychlor	0.04	ND
Oxamyl (Vydate)	0.2	ND
Pentachlorophenol	0.001	ND
Picloram (Tordon)	0.5	ND
Polychlorinated biphenyls (PCBs, Aroclors)[5]	0.0005	ND
Simazine	0.004	ND
Toxaphene	0.003	ND
2,4,5-TP (Silvex)	0.05	ND
2,3,7,8-TCDD (Dioxin)[6]	3×10^{-8}	ND

[1] ND = None detected.

[2] MCLs for Aldicarb, Aldicarb Sulfone and Aldicarb Sulfoxide were established in 1991, however EPA has postponed the regulation of these compounds indefinitely pending the results of further research, a possible ban on their use, and an update of the MCL values. These substances have never been used in the Sultan Basin Watershed.

[3] Diquat, Endothall and Glyphosate were last monitored in 2005. The State DOH has issued monitoring waivers through 2013. They are not used or produced in the Sultan Basin watershed and have never been detected in Everett water.

[4] EDB was last monitored in 2012. The State DOH has issued monitoring waivers through 2013. It is not used or produced in the Sultan Basin Watershed and has never been detected in Everett’s water.

[5] Total PCBs are measured as decachlorbiphenyl. There are seven regulated individual compounds that make up total PCBs. These compounds are known as aroclors. Samples are not measured for individual aroclors unless a measureable or detectable amount of total PCB is found.

[5] Dioxin was last monitored in 2002. The State DOH has issued monitoring waivers through 2013. It is not used or produced in the Sultan Basin Watershed and has never been detected in Everett’s water.

CITY OF EVERETT
2013 Water Quality Summary

Table 6: Synthetic Organic Chemicals (SOC) – Unregulated

No MCL, but monitoring is required by the USEPA or DOH

Contaminant	2013 Average Result	Contaminant	2013 Average Result
2,4-Dinitrotolulene	ND[1]	Dibenz(a,h)anthracene	ND
2,4-DB	ND	Dicamba	ND
2,4,5-T	ND	Dichlorprop	ND
3-Hydroxycarbofuran	ND	Dieldrin	ND
3,5-Dichlorobenzoic acid	ND	Diethylphthalate	ND
4,4-DDE	ND	Dimethoate	ND
Acenaphthylene	ND	Dimethylphthalate	ND
Acetochlor	ND	Di-n-butylphthalate	ND
Acifluorfen	ND	EPTC	ND
Aldrin	ND	Fluoranthene	ND
Alpha-Chlordane	ND	Fluorene	ND
Anthracene	ND	Gamma-Chloradane	ND
Bentazone	ND	Indenol(1,2,3,c,d)Pyrene	ND
Benz(a)Anthracene	ND	Isophorone	ND
Benzo(b)Fluoranthene	ND	Methiocarb	ND
Benzo(g,h,i)Perylene	ND	Methomyl	ND
Benzo(k)Fluoranthene	ND	Metolachlor	ND
Bromacil	ND	Metribuzin	ND
Butachlor	ND	Molinate	ND
Butylbenzylphthalate	ND	Phenanthrene	ND
Caffeine	ND	Propachlor	ND
Carbaryl	ND	Propoxur (Baygon)	ND
Chrysene	ND	Terbacil	ND
DCPA (Dacthal)	ND	Thiobencarb (ELAP)	ND
Di(2-Ethylhexyl)phthalate	ND	Trans-Nonachlor	ND
Diazinon	ND	Trifluralin	ND

[1]ND = None detected.

CITY OF EVERETT
2012 Water Quality Summary

Units & Acronyms

Unit	Definition
CFU/100mL	Colony forming units per 100 mL of sample
CFU/mL	Colony forming units per 1 mL of sample
c.u.	cobalt-platinate standard color units
cysts/L	*Giardia lamblia* cysts per liter of sample
MF/L>10 µm	Millions of asbestos fibers per liter that are greater than 10 microns in length
mg/L	milligrams per liter (equivalent to ppm)
ND	None detected
NTU	Nephlometric Turbidity Units
oocysts/L	*Cryptosporidium spp*. oocysts per liter of sample
ppb	parts per billion (equivalent to µg/L).
pCi/L	picocuries per liter
ppm	parts per million (equivalent to mg/L)
s.u.	standard pH units
µmhos/cm	micro mhos per cm (conductivity unit)
<	Less than. Result was less than or below the detection limit for the analytical method. This result is equivalent to ND.

Acronym	Definition
AC	Asbestos concrete (material used in one type of water main pipe)
AL	Action Limit
DOH	Washington State Department of Health, Office of Drinking Water
HAA	Haloacetic acids
HAA5	Haloacetic acids five (sum of the concentrations of five haloacetic compounds)
HPC	Heterotrophic plate count (a standard analytical method for heterotrophic bacteria)
HPC R2A	Heterotrophic plate count analysis using a specialized method that attempts to mimic water main conditions and detect and evaluate bioslimes. The method uses low nutrient R2A growth media, longer incubation times and cooler incubation temperatures than the standard HPC method.
MCL	Maximum Contaminant Level
THM	Trihalomethane
TTHM	Total trihalomethanes (sum of concentrations of four compounds)
UV-254	Ultraviolet light absorbance at 254 nanometer wavelength
USEPA	United States Environmental Protection Agency

CITY OF EVERETT
2013 Water Quality Summary

Parameters for Home Brewing

Parameter	Unit	2013 Range of Results	2013 Average Result
Calcium (Ca)[1]	ppm	3.0–5.0	3.7
Magnesium (Mg)[1]	ppm	0.4–0.9	0.7
Alkalinity (as $CaCO_3$)[1]	ppm	12.8–21.6	16.6
Sulfate (SO_4)	ppm	3.0–3.2	3.1
Chloride (Cl)	ppm	2.0–2.4	2.2
Potassium (K)	ppm	–	0.2
Bicarbonate (HCO_3)	ppm	15.6–26.4	20.3
pH[1,2]	s.u.	7.5–9.1	7.9

[1]Values are from the Everett distribution system and were collected in 2013 as part of the monthly water quality parameters (WQP) monitoring program conducted at 26 locations in Everett.
[2]pH can vary significantly by location and should be measured at the tap you are using.