

Drinking Water Analysis SUMMARY 2017

Drinking Water Analysis Summary for All Plants and Distribution for January 01, 2017 to December 31, 2017

	Units	AO/OG	MAC/IMAC	Sampling Date	Number of Samples	Reporting Limits	Number of Detectable Results	Max.	Min.	Avg.
Microbiological Parameters										
E. coli - Presence/Absence			A	1/01 - 12/31	11900		7	Present	Absent	99.94% Absent
Ecoli - membrane filtration	CFU/100mL		0	1/01 - 12/31	404		0	0	0	0
Heterotrophic Plate Count	CFU/mL			1/01 - 12/31	12302		1799	5970	0	7.6
Total Coliform - Presence/Absence			A	1/01 - 12/31	11900		65	Present	Absent	99.45% Absent
Total Coliform - membrane filtration	CFU/100mL		0	1/01 - 12/31	404		63	44	0	0.9
Microcystin	µg/L			6/20 - 10/31	24	0.05 - 0.10	0	0	0	0
Operational Parameters										
Aluminum	mg/L	0.1		1/06 - 12/28	208	0.01	207	0.181	0	0.035
Fluoride	mg/L		1.5	1/01 - 12/31	1233	0.10	1233	0.82	0.14	0.58
Total Chlorine (Distribution only)	mg/L		3.0	1/01 - 12/31	6842	0.1	6839	3.43	<0.1	1.57
Turbidity (Distribution only)	NTU	5		1/01 - 12/31	6795	0.1	6531	9.50	<0.1	0.42
General Chemical and Physical Parameters										
Alkalinity	mg/L	30-500		1/09 - 12/11	117	1.6	117	98.6	85.1	90.3
Colour	T.C.U.	5		1/09 - 12/11	46		46	1	1	1
Conductivity	µmhos/cm			1/09 - 12/19	107	1.5	107	383	295	316
Hardness (as CaCO3 - calculated)	mg/L	80-100		1/09 - 12/19	125	1	125	145	122	129
pH		6.5-8.5		1/02 - 12/29	1091		1091	8.1	7.3	7.6
TOC	mg/L	5		1/09 - 12/11	51	1.0	51	2.5	1.6	2.0
Dissolved Solids (calculated)	mg/L	500		1/09 - 12/12	103	0.13	103	250	190	207
Inorganic Parameters										
Antimony	mg/L		0.006	1/09 - 10/16	22	0.00003	22	0.00031	0.00016	0.00019
Arsenic	mg/L		0.025	1/09 - 12/12	26	0.00005	26	0.0011	0.0007	0.0009
Barium	mg/L		1.0	1/09 - 12/12	25	0.0005	25	0.028	0.020	0.023
Beryllium	mg/L			1/09 - 12/12	25	0.00005	0	0	0	0
Boron	mg/L		5.0	1/09 - 12/12	25	0.005	25	0.025	0.023	0.024
Cadmium	mg/L		0.005	1/09 - 12/12	25	0.00001	4	0.00002	0	0.000002
Caesium	mg/L			1/09 - 10/16	22	0.00001	3	0.00002	0	0.000002
Calcium	mg/L			1/09 - 12/12	125	0.2	125	42.0	34.6	36.8
Chloride	mg/L	250		1/09 - 12/12	125	0.2	125	43.7	24.2	27.1
Chromium	mg/L		0.05	1/09 - 12/12	25	0.0002	25	0.0060	0.00040	0.0008

	Units	AO/OG	MAC/IMAC	Sampling Date	Number of Samples	Reporting Limits	Number of Detectable Results	Max.	Min.	Avg.
Cobalt	mg/L			1/09 - 12/12	25	0.00001	5	0.00019	0	0.000012
Copper	mg/L	1		1/09 - 12/27	82	0.0008	78	0.0644	0	0.0148
Cyanide (Free)	mg/L		0.2	1/09 - 10/16	16	0.003	0	0	0	0
Iron	mg/L	0.3		1/09 - 12/29	147	0.01	122	0.249	0	0.039
Lead	mg/L		0.010	1/09 - 12/29	120	0.00005	103	0.006	0	0.0008
Magnesium	mg/L			1/09 - 12/12	125	0.1	125	9.6	8.4	9.0
Manganese	mg/L	0.05		1/09 - 12/12	25	0.0005	8	0.0023	0	0.0004
Mercury	mg/L		0.001	1/09 - 10/16	16	0.00003	0	0	0	0
Molybdenum	mg/L			1/09 - 12/12	25	0.00003	25	0.0014	0.0010	0.0012
Nickel	mg/L			1/09 - 12/12	25	0.0002	25	0.0029	0.0003	0.0005
Nitrate	mg/L		10.0	1/09 - 12/12	141	0.01	140	0.54	0	0.39
Nitrate + Nitrite (calculated)	mg/L		10.0	1/09 - 12/12	55	0.01	55	0.54	0.32	0.42
Nitrite	mg/L		1.0	1/09 - 12/12	216	0.002	24	0.0080	0	0.0004
Orthophosphate	mg/L			1/02 - 12/29	1486	0.5	1485	5.8	0	2.3
Potassium	mg/L			1/09 - 12/12	125	0.05	125	1.7	1.4	1.5
Selenium	mg/L		0.01	1/09 - 12/12	25	0.0005	2	0.0005	0	0.00004
Silver	mg/L			1/09 - 12/12	25	0.00001	2	0.00001	0	0.000001
Sodium	mg/L	200	20	1/02 - 12/18	163	0.4	163	23.9	12.3	14.2
Strontium	mg/L			1/09 - 12/12	25	0.003	25	0.193	0.175	0.183
Sulphate	mg/L	500		1/09 - 12/11	124	0.2	124	27.7	23.4	25.5
Terbium	mg/L			1/09 - 10/16	22	0.00005	0	0	0	0
Thallium	mg/L			1/09 - 10/16	22	0.00005	0	0	0	0
Thorium	mg/L			1/09 - 10/16	22	0.00005	2	0.0001	0	0.00001
Tin	mg/L			1/09 - 10/16	22	0.0005	0	0	0	0
Titanium	mg/L			1/09 - 12/12	25	0.0002	25	0.0027	0.0012	0.0018
Tungsten	mg/L			1/09 - 10/16	22	0.00005	22	0.0003	0.0001	0.0001
Uranium	mg/L		0.02	1/09 - 10/16	22	0.00005	22	0.0004	0.0003	0.0003
Vanadium	mg/L			1/09 - 12/12	25	0.00005	25	0.0012	0.0002	0.0004
Zinc	mg/L	5		1/09 - 12/12	25	0.01	3	0.034	0	0.003

Disinfection Byproducts- Trihalomethanes

Bromodichloromethane	µg/L			1/09 - 12/05	64	0.2	64	8.5	1.4	4.5
Bromoform	µg/L			1/09 - 12/05	64	0.2	20	0.6	0	0.12
Chloroform	µg/L			1/09 - 12/05	64	0.2	63	9.7	1.4	4.2
Dibromochloromethane	µg/L			1/09 - 12/05	64	0.2	64	4.8	1.1	2.9
THM (total)	µg/L		100	1/09 - 12/05	64	0.2	64	22.9	4.0	11.9
THM (total - end of line)	µg/L		100	1/09 - 12/05	12	0.2	12	19.9	5.9	13.3

Disinfection Byproducts- Haloacetic acids

Bromoacetic acid	µg/L			1/09 - 12/05	67	0.9	0	0	0	0
Bromochloroacetic acid	µg/L			1/09 - 12/05	67	1.0	57	2.6	0	1.3
Chloroacetic acid	µg/L			1/09 - 12/05	67	2.0	0	0	0	0
Dibromoacetic acid	µg/L			1/09 - 12/05	67	1.20	0	0	0	0
Dichloroacetic acid	µg/L			1/09 - 12/05	67	0.5	65	3.6	0	1.9
HAA-5 (total)	µg/L			1/09 - 12/05	67	2.0	50	6.6	0	2.9
Trichloroacetic acid	µg/L			1/09 - 12/05	67	0.55	48	3.9	0	1.2

	Units	AO/OG	MAC/IMAC	Sampling Date	Number of Samples	Reporting Limits	Number of Detectable Results	Max.	Min.	Avg.
Disinfection Byproducts – Other										
1,1,1-Trichloro-2-propanone	µg/L			3/27 - 11/13	15	0.5	0	0	0	0
1,1-Dichloro-2-propanone	µg/L			3/27 - 11/13	15	0.5	0	0	0	0
Bromate	mg/L		0.01	1/02 - 12/04	24	0.003	2	0.005	0	0.0003
Bromochloroacetonitrile	µg/L			3/27 - 11/13	15	0.5	2	0.6	0	0.07
Chloropicrin	µg/L			3/27 - 11/13	15	0.5	0	0	0	0
Dibromoacetonitrile	µg/L			3/27 - 11/13	15	0.5	0	0	0	0
Dichloroacetonitrile	µg/L			3/27 - 11/13	15	0.5	2	0.6	0	0.07
Trichloroacetonitrile	µg/L			3/27 - 11/13	15	0.5	0	0	0	0
Organic Parameters										
1,1,1-Trichloroethane	µg/L			1/09 - 12-05	64	0.2	0	0	0	0
1,1,2,2-Tetrachloroethane	µg/L			1/09 - 12-05	64	0.2	0	0	0	0
1,1,2-Trichloroethane	µg/L			1/09 - 12-05	64	0.2	0	0	0	0
1,1-Dichloroethane	µg/L			1/09 - 12-05	64	0.2	0	0	0	0
1,1-Dichloroethylene	µg/L		14	1/09 - 12-05	64	0.2	0	0	0	0
1,2-Dibromoethane	µg/L			1/09 - 12-05	64	0.2	0	0	0	0
1,2-Dichlorobenzene	µg/L	3	200	1/09 - 12-05	64	0.2	0	0	0	0
1,2-Dichloroethane	µg/L		5	1/09 - 12-05	64	0.2	0	0	0	0
1,2-Dichloropropane	µg/L			1/09 - 12-05	64	0.2	0	0	0	0
1,3-Dichlorobenzene	µg/L			1/09 - 12-05	64	0.2	0	0	0	0
1,4-Dichlorobenzene	µg/L	1	5	1/09 - 12-05	64	0.2	0	0	0	0
2,3,4,6-Tetrachloroanisole	µg/L			3/27 - 11/13	15	0.006	0	0	0	0
2,3,4,6-Tetrachlorophenol	µg/L	1	100	3/27 - 11/13	15	0.2514	0	0	0	0
2,3,6-Trichloroanisole	µg/L			3/27 - 11/13	15	0.006	0	0	0	0
2,4,6-Trichlorophenol	µg/L	2	5	3/27 - 11/13	15	0.2763	0	0	0	0
2,4,6-Trichloroanisole	µg/L			3/27 - 11/13	15	0.006	0	0	0	0
2,4-Dichloroanisole	µg/L			3/27 - 11/13	15	0.006	0	0	0	0
2,4-Dichlorophenol	µg/L	0.3	900	3/27 - 11/13	15	0.1131	0	0	0	0
2-Isobutyl-3-methoxypyrazine	µg/L			3/27 - 11/13	15	0.006	0	0	0	0
2-Isopropyl-3-methoxypyrazine	µg/L			3/27 - 11/13	15	0.006	0	0	0	0
2-Methylisoborneol(MIB)	µg/L			3/27 - 11/13	15	0.006	0	0	0	0
Benzene	µg/L		5	1/09 - 12-05	64	0.1	0	0	0	0
Benzo(a)pyrene	µg/L		0.01	3/27 - 11/13	15	0.01	0	0	0	0
Bromomethane	µg/L			1/09 - 12-05	64	0.2	0	0	0	0
Carbon Tetrachloride	µg/L		5	1/09 - 12-05	64	0.2	0	0	0	0
Chlorobenzene	µg/L	30	80	1/09 - 12-05	64	0.2	0	0	0	0
Chloroethane	µg/L			1/09 - 12-05	64	0.2	0	0	0	0
Chloromethane	µg/L			1/09 - 12-05	64	0.2	0	0	0	0
cis-1,2-Dichloroethylene	µg/L			1/09 - 12-05	64	0.2	0	0	0	0
cis-1,3-Dichloropropene	µg/L			1/09 - 12-05	64	0.2	0	0	0	0
Dichlorodifluoromethane	µg/L			1/09 - 12-05	64	0.2	0	0	0	0
Dichloromethane(Methylene Chloride)	µg/L		50	1/09 - 12-05	61	0.2 - 0.3	0	0	0	0
Ethylbenzene	µg/L	2.4		1/09 - 12-05	64	0.2	0	0	0	0
Geosmin	µg/L			3/27 - 11/13	15	0.006	0	0	0	0

	Units	AO/OG	MAC/IMAC	Sampling Date	Number of Samples	Reporting Limits	Number of Detectable Results	Max.	Min.	Avg.
m- & p-Xylene	µg/L			1/09 - 12-05	64	0.2 - 0.3	0	0	0	0
NDMA	µg/L		0.009	3/27 - 11/13	11	0.0008	8	0.0017	0	0.00097
o-Xylene	µg/L			1/09 - 12-05	64	0.2	0	0	0	0
Pentachlorophenol	µg/L	30	60	3/27 - 11/13	39	0.1051	0	0	0	0
Styrene	µg/L			1/09 - 12-05	64	0.2	0	0	0	0
Tetrachloroethylene	µg/L		10	1/09 - 12-05	64	0.2	0	0	0	0
Toluene	µg/L	24	60	1/09 - 12-05	64	0.2	0	0	0	0
trans-1,2-Dichloroethylene	µg/L			1/09 - 12-05	64	0.2	0	0	0	0
trans-1,3-Dichloropropylene	µg/L			1/09 - 12-05	64	0.2	0	0	0	0
Trichloroethylene	µg/L		5	1/09 - 12-05	64	0.2	0	0	0	0
Trichlorofluoromethane	µg/L			1/09 - 12-05	64	0.2	0	0	0	0
Vinyl Chloride	µg/L		1	1/09 - 12-05	64	0.1	0	0	0	0
Xylenes (total) calculated	µg/L	300	90	1/09 - 12-05	64	0.2 - 0.3	0	0	0	0
Pesticides										
2,4-D	µg/L		100	3/27 - 11/13	15	0.0100	0	0	0	0
Alachlor	µg/L		5	3/27 - 11/13	15	0.0004	0	0	0	0
Aminomethyl phosphonic acid (AMPA)	µg/L			5/09	4	12.5	0	0	0	0
Atrazine	µg/L			3/27 - 11/13	15	0.0003	15	0.0650	0.0257	0.0502
Atrazine + N-dealkylated metabolites	µg/L		5	3/27 - 11/13	15	0.0013	15	0.1260	0.0630	0.0995
Azinphos Methyl (Guthion)	µg/L		20	3/27 - 11/13	15	0.0008	0	0	0	0
Bromoxynil	µg/L		5	3/27 - 11/13	15	0.0189	0	0	0	0
Caffeine	µg/L			4/10 - 10/02	8	0.0015	6	0.0302	0	0.0109
Carbaryl	µg/L		90	3/27 - 11/13	15	0.0014	0	0	0	0
Carbofuran	µg/L		90	3/27 - 11/13	15	0.0023	0	0	0	0
Chlorpyrifos (Dursban)	µg/L		90	3/27 - 11/13	15	0.0057	0	0	0	0
Des-ethyl atrazine	µg/L			3/27 - 11/13	15	0.0021	15	0.0612	0.0324	0.0493
Diazinon	µg/L		20	3/27 - 11/13	15	0.0004	0	0	0	0
Dicamba	µg/L		120	3/27 - 11/13	15	0.0417	0	0	0	0
Diclofop-methyl	µg/L		9	3/27 - 11/13	15	0.0602	0	0	0	0
Dimethoate	µg/L		20	3/27 - 11/13	15	0.0008	0	0	0	0
Diquat	µg/L		70	5/09	4	1.0	0	0	0	0
Diuron	µg/L		150	3/27 - 11/13	15	0.0009	0	0	0	0
Glyphosate	µg/L		280	5/09	4	25	0	0	0	0
Malathion	µg/L		190	3/27 - 11/13	15	0.0003	0	0	0	0
MCPA										
(2-methyl-4-chlorophenoxyacetic acid)	µg/L		100	2/06 - 12/12	15	0.0015	0	0	0	0
Metolachlor	µg/L		50	3/27 - 11/13	15	0.0003	15	0.0081	0.0021	0.0059
Metribuzin (Sencor)	µg/L		80	3/27 - 11/13	15	0.0006	0	0	0	0
Paraquat	µg/L		10	5/09	4	1.0	0	0	0	0
PCBs	µg/L		3	3/27 - 11/13	15	0.4	0	0	0	0
Phorate	µg/L		2	3/27 - 11/13	15	0.0087	0	0	0	0
Picloram	µg/L		190	3/27 - 11/13	15	0.1037	4	1.070	0	0.2264
Prometryne	µg/L		1	3/27 - 11/13	15	0.0002	0	0	0	0
Simazine	µg/L		10	3/27 - 11/13	15	0.0004	15	0.0066	0.0015	0.0047
Terbufos	µg/L		1	3/27 - 11/13	15	0.0054	0	0	0	0
Triallate	µg/L		230	3/27 - 11/13	17	0.0104	0	0	0	0
Trifluralin	µg/L		45	3/27 - 11/13	15	0.2623	0	0	0	0

	Units	AO/OG	MAC/IMAC	Sampling Date	Number of Samples	Reporting Limits	Number of Detectable Results	Max.	Min.	Avg.
Radiation Monitoring										
Tritium	Bq/L		7000.0	01/03/16 - 12/31/16	201	5	62	10.0	0	2.0
Cesium-134	Bq/L		7.0	01/01/17 - 12/30/17	15	0.3	0	0	0	0
Cesium-137	Bq/L		10.0	01/01/17 - 12/30/17	15	0.3	0	0	0	0
Cobalt-60	Bq/L		2.0	01/01/17 - 12/30/17	15	0.3	0	0	0	0
Iodine-131	Bq/L		6.0	01/01/17 - 12/30/17	15	0.3	0	0	0	0
Gross Alpha	Bq/L			01/01/17 - 12/30/17	15	0.04	0	0	0	0
Gross Beta	Bq/L			01/01/17 - 12/30/17	15	0.04	15	0.06	0.04	0.05

Notes:

Microbiological P/A samples include Water Treatment Plants treated water samples, Distribution samples, as well as samples collected after Water main repair work, Water Quality Inquiry Microbiological analyses for resamples and vicinities is conducted using the Membrane Filtration technique.

One sample was reported as NDOGT (No data overgrown with target colonies) to MOECC-SAC.

Where standards are based on sums of components, the following calculations are used:

Atrazine + N-dealkylated metabolites = Atrazine + Desethylatrazine

HAA5 (total) = Bromoacetic acid + Chloroacetic acid + Dibromoacetic acid + Dichloroacetic acid + Trichloroacetic acid

PCB total = Arochlor 1232 + 1242 + 1248 + 1254 + 1260 + 1262

THM (total) = Bromodichloromethane + Bromoform + Chloroform + Dibromochloromethane

Xylenes (total) = m- & p-Xylene + o-Xylene

Nitrate + Nitrite = Nitrate + Nitrite

AO/OG - Aesthetic Objective/Operational Guideline

MAC/IMAC - Maximum Acceptable Concentration/Interim Maximum Acceptable Concentration

mg/L - milligrams per litre

µg/L - micrograms per litre

Bq/L - Becquerel per litre

TCU - True Colour Units

NTU - Nephelometric Turbidity Units

CFU - Colony forming unit

µmhos/cm - Micromhos per centimeter

< - Less than