

Drinking Water Analysis SUMMARY 2022

Drinking Water Analysis Summary for all Plants and Distribution for January 1 to December 31, 2022

	Units	AO/OG	MAC/IMAC	Sampling Date	Number of Sampes	Reporting Limits	Number of Detectable Results	Max.	Min.	Avg.
Microbiological Parameters										
E. coli - Presence/Absence			A	1/01 - 12/31	12259		1	Present	Absent	99.99% Absent
Ecoli - membrane filtration	CFU/100mL			1/01 - 12/31	243		1	1	0	0.004 99.99% passed
Heterotrophic Plate Count	CFU/mL			1/01 - 12/31	12489		1952	5700	0	4.4
Total Coliform - Presence/Absence			A	1/01 - 12/31	12259		54	Present	Absent	99.56% Absent
Total Coliform - membrane filtration	CFU/100mL			1/01 - 12/31	243		34	11	0	0.3 86.0 % passed
Microcystin	µg/L		1.5	1/01 - 12/31	93	0.10	0	0	0	0
Operational Parameters										
Aluminum	mg/L	0.1		1/01 - 12/31	222	0.01	222	0.22	0.01	0.03
Fluoride	mg/L		1.5	1/01 - 12/31	1551	0.10	1551	0.75	0.13	0.62
Total Chlorine residual (Chloramines)	mg/L		3.0	1/01 - 12/31	6924	0.1	6924	2.5	0	1.7
Turbidity (Distribution only)	NTU	5		1/01 - 12/31	6877	0.1	6238	6.9	0	0.4
General Chemical and Physical Parameters										
Alkalinity	mg/L	30-500		1/01 - 12/31	116	5.0	116	95.6	82.9	91.7
Colour	T.C.U.	5		1/01 - 12/31	42		42	1	1	1
Conductivity	µmhos/cm			1/01 - 12/31	116	1.5	116	389	306	328
Hardness (as CaCO3 - calculated)	mg/L	80-100		1/01 - 12/31	116	1	116	126	115	119
pH		6.5-8.5		1/01 - 12/31	974		974	7.8	7.3	7.5
TOC	mg/L	5		1/01 - 12/31	49	1.0	49	2.3	1.5	1.9
Dissolved Solids (calculated)	mg/L	500		1/01 - 12/31	116	3.25	116	253	199	213
Inorganic Parameters										
Antimony	mg/L		0.006	1/01 - 12/31	31	0.0005	0	0	0	0
Arsenic	mg/L		0.01	1/01 - 12/31	31	0.00005	31	0.00090	0.00040	0.00072
Barium	mg/L		1.0	1/01 - 12/31	31	0.0005	31	0.0258	0.0188	0.0216
Beryllium	mg/L			1/01 - 12/31	31	0.00005	0	0	0	0
Boron	mg/L		5.0	1/01 - 12/31	31	0.005	31	0.026	0.021	0.023
Cadmium	mg/L		0.005	1/01 - 12/31	31	0.00001	2	0.00002	0	0.000001
Caesium	mg/L			1/01 - 12/31	31	0.00001	1	0.00001	0	0.0000003
Calcium	mg/L			1/01 - 12/31	123	0.2	123	35.2	32.0	33.4
Chloride	mg/L	250		1/01 - 12/31	117	0.2	117	47.1	24.8	27.6

	Units	AO/OG	MAC/IMAC	Sampling Date	Number of Sampses	Reporting Limits	Number of Detectable Results	Max.	Min.	Avg.
Chromium	mg/L		0.05	1/01 - 12/31	31	0.0002	31	0.0004	0.0002	0.0003
Cobalt	mg/L			1/01 - 12/31	31	0.00001	2	0.00003	0	0.000001
Copper	mg/L	1		1/01 - 12/31	205	0.0008	204	0.0566	0	0.0058
Cyanide (Free)	mg/L		0.2	1/01 - 12/31	16	0.003	0	0	0	0
Iron	mg/L	0.3		1/01 - 12/31	102	0.01	82	1.01	0	0.04
Lead	mg/L		0.010	1/01 - 12/31	209	0.00005	130	0.00386	0	0.00032
Magnesium	mg/L			1/01 - 12/31	123	0.1	123	9.4	8.1	8.6
Manganese	mg/L	0.05		1/01 - 12/31	31	0.0005	13	0.0108	0	0.0010
Mercury	mg/L		0.001	1/01 - 12/31	16	0.00005	0	0	0	0
Molybdenum	mg/L			1/01 - 12/31	31	0.00003	31	0.00130	0.00099	0.00117
Nickel	mg/L			1/01 - 12/31	31	0.0002	31	0.0009	0.0004	0.0005
Nitrate	mg/L		10.0	1/01 - 12/31	117	0.01	117	0.59	0.19	0.37
Nitrite	mg/L		1.0	1/01 - 12/31	117	0.002	25	0.009	0	0.0008
Orthophosphate	mg/L			1/01 - 12/31	1484	0.50	1484	3.07	0.76	1.60
Potassium	mg/L			1/01 - 12/31	123	0.05	123	1.70	1.30	1.54
Selenium	mg/L		0.05	1/01 - 12/31	31	0.0005	0	0	0	0
Silver	mg/L			1/01 - 12/31	31	0.00001	2	0.00002	0	0.000001
Sodium	mg/L	200		1/01 - 12/31	175	0.4	175	24.1	11.8	14.2
Strontium	mg/L			1/01 - 12/31	31	0.003	31	0.182	0.168	0.176
Sulphate	mg/L	500		1/01 - 12/31	117	0.2	117	29.2	22.0	25.0
Terbium	mg/L			1/01 - 12/31	31	0.00005	0	0	0	0
Thallium	mg/L			1/01 - 12/31	31	0.00005	0	0	0	0
Tin	mg/L			1/01 - 12/31	31	0.0005	0	0	0	0
Titanium	mg/L			1/01 - 12/31	31	0.0002	31	0.0014	0.0007	0.0009
Tungsten	mg/L			1/01 - 12/31	31	0.00005	31	0.00020	0.00007	0.00010
Uranium	mg/L		0.02	1/01 - 12/31	31	0.00005	31	0.00043	0.00028	0.00034
Vanadium	mg/L			1/01 - 12/31	31	0.00005	31	0.00029	0.00021	0.00026
Zinc	mg/L	5		1/01 - 12/31	31	0.01	0	0	0	0

Disinfection Byproducts- Trihalomethanes

Bromodichloromethane	µg/L			1/01 - 12/31	72	0.2	72	7.5	1.1	3.1
Bromoform	µg/L			1/01 - 12/31	72	0.2	41	1.3	0	0.2
Chloroform	µg/L			1/01 - 12/31	72	0.2	72	14.0	0.8	3.8
Dibromochloromethane	µg/L			1/01 - 12/31	72	0.2	72	5.8	0.9	2.3
THM (total)	µg/L		100	1/01 - 12/31	72	0.2	72	26.1	2.7	9.3
THM (total - end of line)	µg/L		100	1/01 - 12/31	12	0.2	12	16.8	3.9	9.3

Disinfection Byproducts- Haloacetic Acids

Bromoacetic acid	µg/L			1/01 - 12/31	72	2.0	0	0	0	0
Bromochloroacetic acid	µg/L			1/01 - 12/31	72	1.2	40	4.4	0	1.2
Chloroacetic acid	µg/L			1/01 - 12/31	72	2.0	1	2.2	0	0.03
Dibromoacetic acid	µg/L			1/01 - 12/31	72	2.0	0	0	0	0
Dichloroacetic acid	µg/L			1/01 - 12/31	72	1.0	55	8.9	0	1.7
HAA-5 (total)	µg/L		80	1/01 - 12/31	72	2.0	45	17.4	0	2.9
Trichloroacetic acid	µg/L			1/01 - 12/31	72	0.8	52	8.5	0	1.5

	Units	AO/OG	MAC/IMAC	Sampling Date	Number of Samps	Reporting Limits	Number of Detectable Results	Max.	Min.	Avg.
Disinfection Byproducts- Other										
1,1,1-Trichloro-2-propanone	µg/L			1/01 - 12/31	12	0.50	0	0	0	0
1,1-Dichloro-2-propanone	µg/L			1/01 - 12/31	12	0.50	0	0	0	0
Bromate	mg/L		0.01	1/01 - 12/31	23	0.005	19	0.004	0	0.002
Bromochloroacetonitrile	µg/L			1/01 - 12/31	12	0.50	2	0.52	0	0.08
Chloropicrin	µg/L			1/01 - 12/31	12	0.50	0	0	0	0
Dibromoacetonitrile	µg/L			1/01 - 12/31	12	0.50	4	0.61	0	0.20
Dichloroacetonitrile	µg/L			1/01 - 12/31	12	0.50	2	0.50	0	0.08
Trichloroacetonitrile	µg/L			1/01 - 12/31	12	0.50	0	0	0	0
Organic Parameters										
1,1,1-Trichloroethane	µg/L			1/01 - 12/31	72	0.2	0	0	0	0
1,1,2,2-Tetrachloroethane	µg/L			1/01 - 12/31	72	0.2	0	0	0	0
1,1,2-Trichloroethane	µg/L			1/01 - 12/31	72	0.2	0	0	0	0
1,1-Dichloroethane	µg/L			1/01 - 12/31	72	0.2	0	0	0	0
1,1-Dichloroethylene	µg/L		14	1/01 - 12/31	72	0.2	0	0	0	0
1,2-Dibromoethane	µg/L			1/01 - 12/31	72	0.2	0	0	0	0
1,2-Dichlorobenzene	µg/L	3	200	1/01 - 12/31	72	0.2	0	0	0	0
1,2-Dichloroethane	µg/L		5	1/01 - 12/31	72	0.2	0	0	0	0
1,2-Dichloropropane	µg/L			1/01 - 12/31	72	0.2	0	0	0	0
1,3-Dichlorobenzene	µg/L			1/01 - 12/31	72	0.2	0	0	0	0
1,4-Dichlorobenzene	µg/L	1	5	1/01 - 12/31	72	0.2	0	0	0	0
2,3,4,6-Tetrachloroanisole	µg/L			1/01 - 12/31	93	0.006	0	0	0	0
2,3,4,6-Tetrachlorophenol	µg/L	1	100	1/01 - 12/31	16	1.0	0	0	0	0
2,3,6-Trichloroanisole	µg/L			1/01 - 12/31	93	0.006	0	0	0	0
2,4,6-Trichlorophenol	µg/L	2	5	1/01 - 12/31	16	0.5	0	0	0	0
2,4,6-Trichloroanisole	µg/L			1/01 - 12/31	93	0.006	0	0	0	0
2,4-Dichloroanisole	µg/L			1/01 - 12/31	93	0.006	0	0	0	0
2,4-Dichlorophenol	µg/L	0.3	900	1/01 - 12/31	16	0.5	0	0	0	0
2-Isobutyl-3-methoxypyrazine	µg/L			1/01 - 12/31	93	0.006	0	0	0	0
2-Isopropyl-3-methoxypyrazine	µg/L			1/01 - 12/31	93	0.006	0	0	0	0
2-Methylisoborneol(MIB)	µg/L			1/01 - 12/31	93	0.006	0	0	0	0
Benzene	µg/L		1	1/01 - 12/31	72	0.1	0	0	0	0
Benzo(a)pyrene	µg/L		0.01	1/01 - 12/31	15	0.01	0	0	0	0
Bromomethane	µg/L			1/01 - 12/31	72	0.2	0	0	0	0
Carbon Tetrachloride	µg/L		2	1/01 - 12/31	72	0.2	0	0	0	0
Chlorobenzene	µg/L	30	80	1/01 - 12/31	72	0.2	0	0	0	0
Chloroethane	µg/L			1/01 - 12/31	72	0.2	0	0	0	0
Chloromethane	µg/L			1/01 - 12/31	72	0.2	0	0	0	0
cis-1,2-Dichloroethylene	µg/L			1/01 - 12/31	72	0.2	0	0	0	0
cis-1,3-Dichloropropylene	µg/L			1/01 - 12/31	72	0.2	0	0	0	0
Dichlorodifluoromethane	µg/L			1/01 - 12/31	72	0.2	0	0	0	0
Dichloromethane(Methylene Chloride)	µg/L		50	1/01 - 12/31	72	0.3	0	0	0	0
Ethylbenzene	µg/L	2.4	140	1/01 - 12/31	72	0.2	0	0	0	0
Geosmin	µg/L			1/01 - 12/31	93	0.006	17	19.5	0	2.0

	Units	AO/OG	MAC/IMAC	Sampling Date	Number of Samps	Reporting Limits	Number of Detectable Results	Max.	Min.	Avg.
m- & p-Xylene	µg/L			1/01 - 12/31	72	0.3	0	0	0	0
NDMA	µg/L		0.009	1/01 - 12/31	15	0.0008	5	0.0027	0	0.0007
o-Xylene	µg/L			1/01 - 12/31	72	0.2	0	0	0	0
Pentachlorophenol	µg/L	30	60	1/01 - 12/31	16	0.5	0	0	0	0
Styrene	µg/L			1/01 - 12/31	72	0.2	0	0	0	0
Tetrachloroethylene	µg/L		10	1/01 - 12/31	72	0.2	0	0	0	0
Toluene	µg/L	24	60	1/01 - 12/31	72	0.2	0	0	0	0
trans-1,2-Dichloroethylene	µg/L			1/01 - 12/31	72	0.2	0	0	0	0
trans-1,3-Dichloropropylene	µg/L			1/01 - 12/31	72	0.2	0	0	0	0
Trichloroethylene	µg/L		5	1/01 - 12/31	72	0.2	0	0	0	0
Trichlorofluoromethane	µg/L			1/01 - 12/31	72	0.2	0	0	0	0
Vinyl Chloride	µg/L		1	1/01 - 12/31	72	0.1	1	0.10	0	0.001
Xylenes (total) calculated	µg/L	300	90	1/01 - 12/31	72	0.3	0	0	0	0
Pesticides										
2,4-D	µg/L		100	1/01 - 12/31	16	0.028	0	0	0	0
Alachlor	µg/L		5	1/01 - 12/31	16	0.0005	0	0	0	0
Atrazine	µg/L			1/01 - 12/31	16	0.0005	16	0.0699	0.0296	0.0416
Atrazine + N-dealkylated metabolites	µg/L		5	1/01 - 12/31	16	0.0025	16	0.1210	0.0700	0.0953
Azinphos Methyl (Guthion)	µg/L		20	1/01 - 12/31	16	0.001	0	0	0	0
Bromoxynil	µg/L		5	1/01 - 12/31	16	0.075	0	0	0	0
Caffeine	µg/L			1/01 - 12/31	16	0.020	0	0	0	0
Carbaryl	µg/L		90	1/01 - 12/31	16	0.0015	0	0	0	0
Carbofuran	µg/L		90	1/01 - 12/31	16	0.0025	0	0	0	0
Chlorpyrifos (Dursban)	µg/L		90	1/01 - 12/31	16	0.01	0	0	0	0
Des-ethyl atrazine	µg/L			1/01 - 12/31	16	0.0025	15	0.0815	0	0.0534
Diazinon	µg/L		20	1/01 - 12/31	16	0.0005	0	0	0	0
Dicamba	µg/L		120	1/01 - 12/31	16	0.2	0	0	0	0
Diclofop-methyl	µg/L		9	1/01 - 12/31	16	0.5	0	0	0	0
Dimethoate	µg/L		20	1/01 - 12/31	16	0.001	0	0	0	0
Diquat	µg/L		70	1/01 - 12/31	4	1.0	0	0	0	0
Diuron	µg/L		150	1/01 - 12/31	16	0.001	0	0	0	0
Glyphosate	µg/L		280	1/01 - 12/31	4	25	0	0	0	0
Malathion	µg/L		190	1/01 - 12/31	16	0.001	0	0	0	0
MCPA (2-methyl-4-chlorophenoxyacetic acid)	µg/L		100	1/01 - 12/31	16	0.2	0	0	0	0
Metolachlor	µg/L		50	1/01 - 12/31	16	0.001	16	0.010	0.003	0.007
Metribuzin (Sencor)	µg/L		80	1/01 - 12/31	16	0.001	0	0	0	0
Paraquat	µg/L		10	1/01 - 12/31	4	1.0	0	0	0	0
PCBs	µg/L		3	1/01 - 12/31	16	0.3	0	0	0	0
Phorate	µg/L		2	1/01 - 12/31	16	0.01	0	0	0	0
Picloram	µg/L		190	1/01 - 12/31	16	0.3	0	0	0	0
Prometryne	µg/L		1	1/01 - 12/31	16	0.0005	0	0	0	0
Simazine	µg/L		10	1/01 - 12/31	16	0.001	15	0.005	0	0.003
Terbufos	µg/L		1	1/01 - 12/31	16	0.006	0	0	0	0
Triallate	µg/L		230	1/01 - 12/31	16	0.01	0	0	0	0
Trifluralin	µg/L		45	1/01 - 12/31	16	0.265	0	0	0	0

Notes:

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

Chlorine residual and Turbidity values are for distribution system only

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

All results below reporting limit are recorded as zero in this report

AO/OG - Aesthetic Objective/Operational Guideline

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

P/A = Presence / Absence

mg/L - milligrams per litre

µg/L - micrograms per litre

TCU - True Colour Unit

NTU - Nephelometric Turbidity Unit

CFU - Colony forming unit

µmhos/cm - Micromhos per centimeter

< - Less than