

# Drinking Water Analysis SUMMARY 2023

Drinking Water Analysis Summary for all Plants and Distribution for January 1 to December 31, 2023

	Units	AO/OG	MAC/IMAC	Sampling Date	Number of Samps	Reporting Limits	Number of Detectable Results	Max.	Min.	Avg.
<b>Microbiological Parameters</b>										
E. coli - Presence/Absence			A	1/01 - 12/31	12436		3	Present	Absent	99.98 % Absent
E. coli - membrane filtration	CFU/100mL			1/01 - 12/31	186		1	1	0	0.001 99.46% passed
Heterotrophic Plate Count	CFU/mL			1/01 - 12/31	12605		1578	5700	0	5
Total Coliform - Presence/Absence			A	1/01 - 12/31	12436		47	Present	Absent	99.62% Absent
Total Coliform - membrane filtration	CFU/100mL			1/01 - 12/31	186		13	8	0	0.2 93.0 % passed
Microcystin	µg/L		1.5	1/01 - 12/31	112	0.10	0	0	0	0
<b>Operational Parameters</b>										
Aluminum	mg/L	0.1		1/01 - 12/31	241	0.01	241	0.10	0.01	0.03
Fluoride	mg/L		1.5	1/01 - 12/31	1516	0.10	1516	0.75	0.28	0.64
Total Chlorine residual (Chloramines)	mg/L		3.0	1/01 - 12/31	7008	0.1	7008	2.5	0.16	1.7
Turbidity (Distribution system only)	NTU	5		1/01 - 12/31	6957	0.1	6957	4.6	0	0.3
<b>General Chemical and Physical Parameters</b>										
Alkalinity	mg/L	30-500		1/01 - 12/31	118	5.0	118	99.8	84.0	91.1
Colour	T.C.U.	5		1/01 - 12/31	46		46	1	1	1
Conductivity	µmhos/cm			1/01 - 12/31	117	1.5	117	428	305	328
Hardness ( as CaCO3 - calculated )	mg/L	80-100		1/01 - 12/31	112	1	112	126	115	120
pH		6.5-8.5		1/01 - 12/31	979		979	7.8	7.1	7.5
TOC	mg/L	5		1/01 - 12/31	46	1.0	46	2.3	1.5	1.8
Dissolved Solids (calculated)	mg/L	500		1/01 - 12/31	117	3.25	117	278	198	213
<b>Inorganic Parameters</b>										
Antimony	mg/L		0.006	1/01 - 12/31	23	0.0005	0	0	0	0
Arsenic	mg/L		0.01	1/01 - 12/31	23	0.00005	23	0.00092	0.00040	0.00063
Barium	mg/L		1.0	1/01 - 12/31	23	0.0005	23	0.023	0.018	0.021
Beryllium	mg/L			1/01 - 12/31	23	0.00005	0	0	0	0
Boron	mg/L		5.0	1/01 - 12/31	23	0.005	23	0.025	0.021	0.022
Cadmium	mg/L		0.005	1/01 - 12/31	23	0.00001	5	0.00002	0	0.000004
Caesium	mg/L			1/01 - 12/31	23	0.00001	1	0.00002	0	0.000001
Calcium	mg/L			1/01 - 12/31	112	0.2	112	35.9	32.8	34.0
Chloride	mg/L	250		1/01 - 12/31	112	0.2	112	53.1	23.8	29.3

	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	23	0.0002	10	0.0003	0	0.0001
Cobalt	mg/L			1/01 - 12/31	23	0.00001	3	0.00002	0	0.000002
Copper	mg/L	1		1/01 - 12/31	167	0.0008	165	0.094	0	0.006
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	166	0.01	125	0.22	0	0.02
Lead	mg/L		0.010	1/01 - 12/31	143	0.00005	92	0.0031	0	0.0004
Magnesium	mg/L			1/01 - 12/31	112	0.1	112	9.0	8.3	8.6
Manganese	mg/L	0.05		1/01 - 12/31	23	0.0005	2	0.001	0	0.0001
Mercury	mg/L		0.001	1/01 - 12/31	16	0.00005	0	0	0	0
Molybdenum	mg/L			1/01 - 12/31	23	0.00003	23	0.001	0.001	0.001
Nickel	mg/L			1/01 - 12/31	23	0.0002	23	0.001	0.0005	0.0006
Nitrate	mg/L		10.0	1/01 - 12/31	106	0.01	106	0.60	0.22	0.40
Nitrite	mg/L		1.0	1/01 - 12/31	106	0.002	26	0.003	0	0.0007
Orthophosphate	mg/L			1/01 - 12/31	1736	0.50	1736	3.0	0.86	1.5
Potassium	mg/L			1/01 - 12/31	112	0.05	112	1.9	1.5	1.6
Selenium	mg/L		0.05	1/01 - 12/31	23	0.0005	0	0	0	0
Silver	mg/L			1/01 - 12/31	23	0.00001	1	0	0	0
Sodium	mg/L	200		1/01 - 12/31	163	0.4	163	29.1	12.6	15.8
Strontium	mg/L			1/01 - 12/31	23	0.003	23	0.195	0.167	0.176
Sulphate	mg/L	500		1/01 - 12/31	112	0.2	112	29.1	23.1	25.5
Terbium	mg/L			1/01 - 12/31	23	0.00005	0	0	0	0
Thallium	mg/L			1/01 - 12/31	23	0.00005	0	0	0	0
Tin	mg/L			1/01 - 12/31	23	0.0005	0	0	0	0
Titanium	mg/L			1/01 - 12/31	23	0.0002	23	0.0009	0.0005	0.0008
Tungsten	mg/L			1/01 - 12/31	23	0.00005	23	0.0002	0.00007	0.00009
Uranium	mg/L		0.02	1/01 - 12/31	23	0.00005	23	0.00038	0.00028	0.00033
Vanadium	mg/L			1/01 - 12/31	23	0.00005	23	0.00027	0.00017	0.00021
Zinc	mg/L	5		1/01 - 12/31	23	0.01	2	0.02	0	0.001

#### Disinfection Byproducts- Trihalomethanes

Bromodichloromethane	µg/L			1/01 - 12/31	75	0.2	75	5.1	0.7	2.6
Bromoform	µg/L			1/01 - 12/31	75	0.2	27	0.6	0	0.1
Chloroform	µg/L			1/01 - 12/31	75	0.2	75	7.3	0.8	3.2
Dibromochloromethane	µg/L			1/01 - 12/31	75	0.2	69	3.8	0	2.0
THM (total)	µg/L		100	1/01 - 12/31	75	0.2	75	16.3	2.1	6.4
THM (total - end of line)	µg/L		100	1/01 - 12/31	11	0.2	11	15.0	3.6	8.5

#### Disinfection Byproducts- Haloacetic Acids

Bromoacetic acid	µg/L			1/01 - 12/31	53	2.0	0	0	0	0
Bromochloroacetic acid	µg/L			1/01 - 12/31	53	1.2	32	2.7	0	1.0
Chloroacetic acid	µg/L			1/01 - 12/31	53	2.0	1	2.3	0	0.04
Dibromoacetic acid	µg/L			1/01 - 12/31	53	2.0	0	0	0	0
Dichloroacetic acid	µg/L			1/01 - 12/31	53	1.0	38	4.4	0	1.4
HAA-5 (total)	µg/L	80		1/01 - 12/31	53	2.0	32	6.4	0	2.3
Trichloroacetic acid	µg/L			1/01 - 12/31	53	0.8	33	2.9	0	1.0

	Units	AO/OG	MAC/IMAC	Sampling Date	Number of Samps	Reporting Limits	Number of Detectable Results	Max.	Min.	Avg.
<b>Disinfection Byproducts- Other</b>										
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	24	0.003	23	0.007	0	0.002
Bromochloroacetonitrile	µg/L			1/01 - 12/31	12	0.50	0	0	0	0
Chloropicrin	µg/L			1/01 - 12/31	12	0.50	0	0	0	0
Dibromoacetonitrile	µg/L			1/01 - 12/31	12	0.50	0	0	0	0
Dichloroacetonitrile	µg/L			1/01 - 12/31	12	0.50	0	0	0	0
Trichloroacetonitrile	µg/L			1/01 - 12/31	12	0.50	0	0	0	0
<b>Organic Parameters</b>										
1,1,1-Trichloroethane	µg/L			1/01 - 12/31	75	0.2	0	0	0	0
1,1,2,2-Tetrachloroethane	µg/L			1/01 - 12/31	75	0.2	0	0	0	0
1,1,2-Trichloroethane	µg/L			1/01 - 12/31	75	0.2	0	0	0	0
1,1-Dichloroethane	µg/L			1/01 - 12/31	75	0.2	0	0	0	0
1,1-Dichloroethylene	µg/L		14	1/01 - 12/31	75	0.2	0	0	0	0
1,2-Dibromoethane	µg/L			1/01 - 12/31	75	0.2	0	0	0	0
1,2-Dichlorobenzene	µg/L	3	200	1/01 - 12/31	75	0.2	0	0	0	0
1,2-Dichloroethane	µg/L		5	1/01 - 12/31	75	0.2	0	0	0	0
1,2-Dichloropropane	µg/L			1/01 - 12/31	75	0.2	0	0	0	0
1,3-Dichlorobenzene	µg/L			1/01 - 12/31	75	0.2	0	0	0	0
1,4-Dichlorobenzene	µg/L	1	5	1/01 - 12/31	75	0.2	0	0	0	0
2,3,4,6-Tetrachloroanisole	µg/L			1/01 - 12/31	57	0.006	0	0	0	0
2,3,4,6-Tetrachlorophenol	µg/L	1	100	1/01 - 12/31	12	1.0	0	0	0	0
2,3,6-Trichloroanisole	µg/L			1/01 - 12/31	57	0.006	0	0	0	0
2,4,6-Trichlorophenol	µg/L	2	5	1/01 - 12/31	12	0.5	0	0	0	0
2,4,6-Trichloroanisole	µg/L			1/01 - 12/31	57	0.006	0	0	0	0
2,4-Dichloroanisole	µg/L			1/01 - 12/31	57	0.006	0	0	0	0
2,4-Dichlorophenol	µg/L	0.3	900	1/01 - 12/31	12	0.5	0	0	0	0
2-Isobutyl-3-methoxypyrazine	µg/L			1/01 - 12/31	57	0.006	0	0	0	0
2-Isopropyl-3-methoxypyrazine	µg/L			1/01 - 12/31	57	0.006	0	0	0	0
2-Methylisoborneol(MIB)	µg/L			1/01 - 12/31	57	0.006	1	3.3	0	0.06
Benzene	µg/L		1	1/01 - 12/31	75	0.1	0	0	0	0
Benzo(a)pyrene	µg/L		0.01	1/01 - 12/31	16	0.01	0	0	0	0
Bromomethane	µg/L			1/01 - 12/31	75	0.2	0	0	0	0
Carbon Tetrachloride	µg/L		2	1/01 - 12/31	75	0.2	0	0	0	0
Chlorobenzene	µg/L	30	80	1/01 - 12/31	75	0.2	0	0	0	0
Chloroethane	µg/L			1/01 - 12/31	75	0.2	0	0	0	0
Chloromethane	µg/L			1/01 - 12/31	75	0.2	0	0	0	0
cis-1,2-Dichloroethylene	µg/L			1/01 - 12/31	75	0.2	0	0	0	0
cis-1,3-Dichloropropylene	µg/L			1/01 - 12/31	75	0.2	0	0	0	0
Dichlorodifluoromethane	µg/L			1/01 - 12/31	75	0.2	0	0	0	0
Dichloromethane(Methylene Chloride)	µg/L		50	1/01 - 12/31	75	0.3	6	0.5	0	0.03
Ethylbenzene	µg/L	2.4	140	1/01 - 12/31	75	0.2	0	0	0	0
Geosmin	µg/L			1/01 - 12/31	57	0.006	3	5.2	0	0.2

	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	75	0.3	0	0	0	0
NDMA	µg/L		0.009	1/01 - 12/31	16	0.0009	2	0.002	0	0.0002
o-Xylene	µg/L			1/01 - 12/31	75	0.2	0	0	0	0
Pentachlorophenol	µg/L	30	60	1/01 - 12/31	12	0.5	0	0	0	0
Styrene	µg/L			1/01 - 12/31	75	0.2	0	0	0	0
Tetrachloroethylene	µg/L		10	1/01 - 12/31	75	0.2	0	0	0	0
Toluene	µg/L	24	60	1/01 - 12/31	75	0.2	0	0	0	0
trans-1,2-Dichloroethylene	µg/L			1/01 - 12/31	75	0.2	0	0	0	0
trans-1,3-Dichloropropylene	µg/L			1/01 - 12/31	75	0.2	0	0	0	0
Trichloroethylene	µg/L		5	1/01 - 12/31	75	0.2	0	0	0	0
Trichlorofluoromethane	µg/L			1/01 - 12/31	75	0.2	0	0	0	0
Vinyl Chloride	µg/L		1	1/01 - 12/31	75	0.1	0	0	0	0
Xylenes ( total) calculated	µg/L	300	90	1/01 - 12/31	75	0.3	0	0	0	0
<b>Pesticides</b>										
2,4-D	µg/L		100	1/01 - 12/31	12	0.028	0	0	0	0
Alachlor	µg/L		5	1/01 - 12/31	12	0.0005	0	0	0	0
Atrazine	µg/L			1/01 - 12/31	12	0.0005	12	0.048	0.030	0.041
Atrazine + N-dealkylated metabolites	µg/L		5	1/01 - 12/31	12	0.0025	12	0.093	0.070	0.084
Azinphos Methyl (Guthion)	µg/L		20	1/01 - 12/31	12	0.001	0	0	0	0
Bromoxynil	µg/L		5	1/01 - 12/31	12	0.075	0	0	0	0
Caffeine	µg/L			1/01 - 12/31	7	0.020	0	0	0	0
Carbaryl	µg/L		90	1/01 - 12/31	8	0.0015	0	0	0	0
Carbofuran	µg/L		90	1/01 - 12/31	8	0.0025	0	0	0	0
Chlorpyrifos (Dursban)	µg/L		90	1/01 - 12/31	12	0.01	0	0	0	0
Des-ethyl atrazine	µg/L			1/01 - 12/31	12	0.0025	12	0.045	0.037	0.042
Diazinon	µg/L		20	1/01 - 12/31	12	0.0005	0	0	0	0
Dicamba	µg/L		120	1/01 - 12/31	12	0.2	0	0	0	0
Diclofop-methyl	µg/L		9	1/01 - 12/31	12	0.5	0	0	0	0
Dimethoate	µg/L		20	1/01 - 12/31	12	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	12	0.001	4	0.002	0	0.0004
Glyphosate	µg/L		280	1/01 - 12/31	4	25	0	0	0	0
Malathion	µg/L		190	1/01 - 12/31	12	0.001	0	0	0	0
MCPA (2-methyl-4-chlorophenoxyacetic acid)	µg/L		100	1/01 - 12/31	12	0.2	0	0	0	0
Metolachlor	µg/L		50	1/01 - 12/31	12	0.001	12	0.008	0.003	0.006
Metribuzin (Sencor)	µg/L		80	1/01 - 12/31	12	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	12	0.01	0	0	0	0
Picloram	µg/L		190	1/01 - 12/31	12	0.3	4	0.4	0	0.1
Prometryne	µg/L		1	1/01 - 12/31	12	0.0005	0	0	0	0
Simazine	µg/L		10	1/01 - 12/31	12	0.001	12	0.004	0.002	0.003
Terbufos	µg/L		1	1/01 - 12/31	12	0.006	0	0	0	0
Triallate	µg/L		230	1/01 - 12/31	8	0.01	0	0	0	0
Trifluralin	µg/L		45	1/01 - 12/31	12	0.265	0	0	0	0

	Units	AO/OG	MAC/IMAC	Sampling Date	Number of Samples	Reporting Limits	Number of Detectable Results	Max.	Min.	Avg.
<b>Per and Polyfluoroalkyl substances (PFAS)</b>										
n-Perfluorobutane sulfonic acid (PFBS)	µg/L			1/01 - 12/31	25	0.002	0	0	0	0
n-Perfluorohexane sulfonic acid (PFHxS)	µg/L			1/01 - 12/31	25	0.002	0	0	0	0
n-Perfluorooctane sulfonic acid (PFOS)	µg/L			1/01 - 12/31	25	0.002	0	0	0	0
n-Perfluorodecane sulfonic acid (PFDS)	µg/L			1/01 - 12/31	25	0.002	0	0	0	0
n-Perfluorooctane sulfonamide (PFOSA)	µg/L			1/01 - 12/31	25	0.002	0	0	0	0
n-Perfluorohexanoic acid (PFHxA)	µg/L			1/01 - 12/31	25	0.002	9	0.0034	0	0.001
n-perfluoroheptanoic acid (PFHpA)	µg/L			1/01 - 12/31	25	0.002	1	0.002	0	0.00008
n-perfluorooctanoic acid (PFOA)	µg/L			1/01 - 12/31	25	0.002	6	0.0315	0	0.0020
n-perfluorononanoic acid (PFNA)	µg/L			1/01 - 12/31	25	0.002	0	0	0	0
n-perfluorodecanoic acid (PFDA)	µg/L			1/01 - 12/31	25	0.002	0	0	0	0
n-perfluoroundecanoic acid (PFUnA)	µg/L			1/01 - 12/31	25	0.002	0	0	0	0
n-perfluorododecanoic acid (PFDoA)	µg/L			1/01 - 12/31	25	0.002	0	0	0	0

**Notes:**

Microbiological P/A samples include treated water samples from the Water Treatment Plants, Distribution samples, as well as samples collected after Water main repair work and Water Quality Inquiry  
Microbiological analysis for resamples and vicinities is conducted using the Membrane Filtration technique.  
Chlorine residual values are for the distribution system which is a chloraminated system.

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 summary**

**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