



US Army Corps
of Engineers
Baltimore District




Washington Aqueduct

U.S. ARMY Corps of Engineers

Annual Report of Water Analysis 2009

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**WASHINGTON AQUEDUCT, US ARMY CORPS OF ENGINEERS
ANNUAL REPORT OF WATER ANALYSIS (2009)**

Potomac River Raw Water Supply

	Miscellaneous Physical Parameters										Inorganic Ions									Microorganisms					
	pH	ALKALINITY	CONDUCTIVITY	DISSOLVED SOLIDS	SUSPENDED SOLIDS	TEMPERATURE	TOTAL HARDNESS	TOTAL ORGANIC CARBON	TOTAL SOLIDS	TURBIDITY	TOTAL AMMONIA - N	BROMIDE	CHLORIDE	FLUORIDE	IODIDE	NITRATE - N	NITRITE - N	ORTHOPHOSPHATE - PO4	PERCHLORATE	SULFATE	ALGAE COUNT	TOTAL COLIFORM	E. COLI	GIARDIA	CRYPTOSPORIDIUM
	ppm	uS/cm	ppm	ppm	°F	ppm	ppm	ppm	NTU	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppb	ppm	org/mL	MPN/100mL	MPN/100mL	cysts/L	Oocysts/L	
Jan	7.7	71	338	165	ND	45	113	2.18	165	9	ND	ND	24	0.25	3.4	2.24	0.02	0.77	ND	35	213	282	19	ND	ND
Feb	8.3	77	446	140	ND	46	125	2.21	140	4	ND	ND	43	0.23	---	1.87	ND	ND	ND	34	304	8	1	ND	ND
Mar	8.2	89	423	211	ND	52	131	2.41	211	10	0.07	ND	41	0.13	---	1.48	0.03	ND	ND	38	336	56	1	ND	ND
Apr	7.7	63	262	130	ND	59	92	3.15	130	16	0.07	ND	29	0.14	ND	1.29	0.04	ND	ND	28	308	446	5	ND	ND
May	7.6	65	260	150	3	67	99	3.69	153	19	0.05	ND	21	0.13	---	1.48	0.03	ND	ND	24	357	4813	251	ND	ND
Jun	7.7	72	251	142	14	74	105	3.79	156	14	ND	ND	20	0.31	---	1.56	0.03	ND	0.5	25	448	2590	47	ND	ND
Jul	8.0	94	363	203	1	79	135	2.39	204	4	ND	ND	28	0.26	5.5	1.09	ND	ND	1.2	37	747	653	4	ND	ND
Aug	8.0	97	351	209	ND	81	137	3.22	209	6	ND	ND	29	0.31	---	1.10	ND	ND	0.9	36	618	739	8	ND	ND
Sep	8.5	95	402	235	ND	74	137	2.80	235	4	ND	ND	32	0.28	---	0.75	ND	ND	1.2	42	469	4329	13	ND	ND
Oct	8.1	87	448	266	2	63	140	3.96	268	6	ND	ND	34	0.29	5.1	1.14	ND	ND	ND	42	600	1857	76	ND	ND
Nov	7.8	86	330	197	4	59	127	3.31	201	6	ND	ND	29	0.27	---	1.86	ND	ND	ND	29	294	122	7	ND	ND
Dec	7.8	62	301	5	35	50	98	2.79	40	16	ND	ND	30	0.16	---	1.88	ND	ND	0.6	23	248	4835	32	ND	ND
Avg	7.9	80	348	171	5	62	120	2.99	176	10	ND	ND	30	0.23	3.5	1.48	ND	ND	ND	33	412	1728	39	ND	ND
Max	8.5	97	448	266	35	81	140	3.96	268	19	0.07	ND	43	0.31	5.5	2.24	0.04	0.77	1.2	42	747	4835	251	ND	ND
Min	7.6	62	251	5	ND	45	92	2.18	40	4	ND	ND	20	0.13	ND	0.75	ND	ND	ND	23	213	8	1	ND	ND

	Metals																											
	ALUMINIUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	LITHIUM	MAGNESIUM	MANGANESE	MOLYBDENUM	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	STRONTIUM	THALLIUM	THORIUM	URANIUM	VANADIUM	ZINC	
	ppb	ppb	ppb	ppb	ppb	ppb	ppm	ppb	ppb	ppb	ppb	ppb	ppb	ppm	ppb	ppb	ppb	ppm	ppb	ppb	ppm	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Jan	295	ND	ND	31.8	ND	ND	33	1.4	ND	1.5	276	0.5	2.1	7	44	ND	1.9	2.6	ND	ND	17	135	ND	ND	ND	ND	0.5	3.8
Feb	247	ND	ND	34.2	ND	ND	36	0.8	ND	1.9	136	0.8	2.1	9	36	0.6	2.3	---	ND	ND	---	174	ND	ND	ND	ND	ND	4.5
Mar	296	ND	ND	34.3	ND	ND	38	2.6	ND	1.9	106	ND	2.5	9	48	0.6	2.3	---	ND	ND	---	177	ND	ND	ND	ND	1.1	3.2
Apr	485	ND	0.8	45.9	ND	ND	27	1.9	0.7	2.9	763	1.4	3.0	6	89	ND	3.1	2.2	ND	ND	11	183	ND	ND	ND	ND	1.2	5.0
May	279	ND	ND	36.9	ND	ND	30	1.1	ND	1.7	354	0.8	2.1	6	79	ND	2.1	---	ND	ND	---	131	ND	ND	ND	ND	1.0	3.0
Jun	252	ND	0.5	36.7	ND	ND	30	1.2	ND	2.3	283	0.6	1.9	8	50	0.5	2.4	---	ND	ND	---	133	ND	ND	ND	ND	1.0	2.5
Jul	198	ND	0.5	40.5	ND	ND	36	0.9	ND	1.9	145	ND	2.4	11	42	0.7	2.2	3.0	ND	ND	18	170	ND	ND	ND	ND	1.1	1.9
Aug	129	ND	1.0	41.5	ND	ND	37	1.1	ND	2.6	124	ND	2.4	11	39	1.1	2.4	3.0	ND	ND	17	178	ND	ND	ND	ND	1.6	2.1
Sep	255	ND	0.8	34.6	ND	ND	36	0.9	ND	2.4	210	ND	1.9	12	44	1.1	2.2	---	ND	ND	---	156	ND	ND	ND	ND	1.3	2.1
Oct	214	ND	0.6	36.6	ND	ND	37	2.0	ND	1.8	68	ND	2.9	12	25	1.3	2.1	5.3	ND	ND	12	223	ND	ND	ND	ND	1.5	1.5
Nov	187	ND	ND	31.8	ND	ND	39	0.8	ND	2.0	185	ND	1.4	8	39	0.7	2.1	---	ND	ND	---	141	ND	ND	ND	ND	ND	2.2
Dec	229	ND	ND	32.6	ND	ND	28	1.3	ND	1.7	251	ND	1.7	7	39	0.8	2.3	---	ND	ND	---	150	ND	ND	ND	ND	ND	3.0
Avg	256	ND	ND	36.5	ND	ND	34	1.3	ND	2.0	242	ND	2.2	9	48	0.7	2.3	3.2	ND	ND	15	163	ND	ND	ND	ND	0.8	2.9
Max	485	ND	1.0	45.9	ND	ND	39	2.6	0.7	2.9	763	1.4	3.0	12	89	1.3	3.1	5.3	ND	ND	18	223	ND	ND	ND	ND	1.6	5.0
Min	129	ND	ND	31.8	ND	ND	27	0.8	ND	1.5	68	ND	1.4	6	25	ND	1.9	2.2	ND	ND	11	131	ND	ND	ND	ND	ND	1.5

ppb = Parts Per Billion

ppm = Parts Per Million

ND = Not Detected

"---" = No Analysis Required



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Synthetic Organic Compounds

Table with columns for chemical names (e.g., Aldicarb Sulfoxide, Aldrin, Anthracene) and rows for EPA, MCL*, and Units.

Dalecarlia Water Treatment Plant Finished Water

Table showing monthly and average data for Dalecarlia Water Treatment Plant, with columns for months (Jan-Dec, Avg, Max, Min) and 38 parameters.

McMillan Water Treatment Plant Finished Water

Table showing monthly and average data for McMillan Water Treatment Plant, with columns for months (Jan-Dec, Avg, Max, Min) and 38 parameters.

*EPA MCL = Environmental Protection Agency's Maximum Contaminant Level for regulated parameters.

ppb = Parts Per Billion

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EPA MCL*	Synthetic Organic Compounds														Miscellaneous					
	PENDIMETHALIN	PERMETHRIN	PENTACHLOROPHENOL	PHENANTHRENE	PICLORAM	PROPACHLOR	PYRENE	SIMAZINE	TERBACIL	TERBUTHYLAZINE	THIOBENCARB	TRIFLURALIN	TOXAPHENE	2,4,5-T	2,4,5-TP (SILVEX)	DIBROMOCHLOROPROPANE (DBCP)	ETHELYNE DIBROMIDE (EDB)	CYANIDE	DIOXIN	N-nitrosodimethylamine (NDMA)
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.2	50	0.2	30		
	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppt	ppm	ppq	ppt
Dalecarlia Water Treatment Plant Finished Water																				
Jan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Feb	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Mar	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Apr	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
May	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Jun	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Jul	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aug	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Sep	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Oct	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nov	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dec	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Avg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Max	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Min	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
McMillan Water Treatment Plant Finished Water																				
Jan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Feb	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Mar	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Apr	ND	ND	ND	ND	ND	ND	0.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
May	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Jun	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Jul	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aug	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Sep	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Oct	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nov	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dec	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Avg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Max	ND	ND	ND	ND	ND	ND	0.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Min	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*EPA MCL = Environmental Protection Agency's
Maximum Contaminant Level for regulated parameters.

ppm = Parts Per Million (mg/L)

ppb = Parts Per Billion (µg/L)

ppt = Parts Per Trillion (ng/L)

ppq = Parts per Quadrillion (pg/L)

ND = Not Detected

"---" = No Analysis Required