



US Army Corps  
of Engineers  
Baltimore District



**Washington Aqueduct**

**U.S. ARMY Corps of Engineers**

# **Annual Report of Water Analysis 2012**

Prepared by:

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Approved by the Chief, Washington Aqueduct





# WASHINGTON AQUEDUCT, US ARMY CORPS OF ENGINEERS ANNUAL REPORT OF WATER ANALYSIS (2012)

## Potomac River Raw Water Supply

	Miscellaneous Physical Parameters										Inorganic Ions										Microorganisms					
	pH	ALKALINITY	CONDUCTIVITY	DISSOLVED SOLIDS	SUSPENDED SOLIDS	TOTAL SOLIDS	TEMPERATURE	TOTAL HARDNESS	TOTAL ORGANIC CARBON	TURBIDITY	TOTAL AMMONIA - N	HEXAVALENT CHROMIUM	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	ppm	°F	ppm	ppm	NTU	ppm	ppb	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppb	ppm	org/mL	MPN /100mL	MPN /100mL	cysts/L	Oocysts/L
Jan	7.8	69	304	160	ND	160	50	98	2.0	12	ND	---	ND	24	ND	2.1	ND	ND	0.4	25	349	334	3	ND	ND	
Feb	8.1	77	318	170	ND	170	54	113	1.8	4	ND	0.11	ND	29	ND	2.2	ND	ND	0.5	28	864	5	ND	0.2	ND	
Mar	7.7	72	278	152	ND	152	58	106	2.3	17	ND	---	ND	22	ND	1.8	ND	ND	0.4	25	1544	45	4	ND	ND	
Apr	7.8	84	325	189	13	202	63	116	2.0	4	ND	---	ND	25	ND	1.5	ND	ND	0.4	28	1012	231	6	ND	ND	
May	7.6	78	295	156	ND	156	71	112	2.6	5	ND	0.06	ND	22	0.10	---	1.4	ND	ND	0.4	29	722	1188	13	ND	ND
Jun	7.8	85	294	201	5	206	77	112	3.0	6	ND	---	ND	23	0.13	---	1.7	ND	ND	0.8	25	808	1204	9	ND	ND
Jul	8.0	90	337	216	ND	216	84	126	3.2	4	ND	---	ND	27	0.15	ND	1.0	ND	ND	0.7	37	908	1518	4	ND	ND
Aug	8.2	91	329	178	ND	178	81	125	2.9	3	ND	0.06	ND	27	0.12	---	0.8	ND	ND	0.4	35	706	591	5	ND	ND
Sep	8.1	97	340	198	1	199	75	129	2.7	3	ND	---	ND	25	0.11	---	1.1	ND	ND	0.6	34	727	540	7	ND	ND
Oct	7.9	96	347	186	2	188	66	122	4.6	5	ND	---	ND	27	0.33	ND	1.6	ND	ND	0.5	39	797	847	27	ND	ND
Nov	7.9	89	316	176	ND	176	57	121	2.3	7	ND	0.08	0.05	26	ND	---	2.6	ND	ND	0.4	28	648	3236	883	ND	ND
Dec	8.0	94	380	214	ND	214	53	132	2.4	6	ND	---	0.06	29	ND	---	2.3	ND	ND	0.5	35	762	20	1	ND	ND

	Metals																									
	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	LITHIUM	MAGNESIUM	MANGANESE	MOLYBDENUM	NICKEL	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	ppb	ppb	ppm	ppb	ppb	ppb	ppb	ppb	ppb
Jan	317	ND	ND	34	ND	ND	32	1.1	ND	1.2	270	ND	1.7	5	25	ND	2.1	ND	ND	13	122	ND	ND	ND	ND	3.0
Feb	232	ND	ND	33	ND	ND	36	1.0	ND	1.2	118	ND	2.0	6	24	0.6	1.7	ND	ND	14	144	ND	ND	ND	ND	3.0
Mar	364	ND	0.5	39	ND	ND	32	0.9	ND	1.4	300	ND	2.1	6	59	ND	2.2	ND	ND	12	132	ND	ND	ND	ND	3.5
Apr	199	ND	ND	37	ND	ND	36	2.3	ND	1.5	173	ND	2.0	6	43	0.7	3.1	ND	ND	13	158	ND	ND	ND	ND	3.0
May	266	ND	ND	37	ND	ND	36	0.6	ND	1.8	149	ND	2.3	5	51	0.6	2.1	ND	ND	13	156	ND	ND	ND	ND	2.7
Jun	313	ND	ND	37	ND	ND	35	0.8	ND	2.0	247	ND	1.7	6	63	0.6	2.2	ND	ND	14	145	ND	ND	ND	0.9	3.1
Jul	352	ND	0.7	41	ND	ND	37	0.9	ND	2.0	169	ND	3.3	8	90	1.1	1.7	ND	ND	17	193	ND	ND	ND	0.5	2.1
Aug	213	ND	0.7	37	ND	ND	40	0.7	ND	1.6	62	ND	3.1	6	21	1.4	2.1	ND	ND	17	194	ND	ND	ND	ND	1.9
Sep	268	ND	0.7	42	ND	ND	41	0.7	ND	1.7	84	ND	2.7	7	27	1.2	2.6	ND	ND	16	192	ND	ND	ND	ND	2.1
Oct	217	ND	0.7	37	ND	ND	39	0.8	ND	1.7	103	ND	2.2	6	26	0.9	2.4	ND	ND	15	178	ND	ND	ND	ND	2.3
Nov	196	ND	0.6	37	ND	ND	38	0.9	ND	1.4	144	ND	1.7	6	25	0.6	2.3	ND	ND	13	157	ND	ND	ND	ND	2.8
Dec	301	ND	ND	35	ND	ND	41	ND	ND	1.3	82	ND	2.3	7	19	0.6	2.2	ND	ND	16	190	ND	ND	ND	ND	2.3

ppb = Parts Per Billion

ppm = Parts Per Million

ND = Not Detected

"---" = No Analysis Required



**WASHINGTON AQUEDUCT, US ARMY CORPS OF ENGINEERS  
ANNUAL REPORT OF WATER ANALYSIS (2012)**

EPA MCL*	Inorganic Ions										Metals																												
	TOTAL AMMONIA - N	BROMIDE	CHLORIDE	FLUORIDE	IODIDE	NITRATE - N	NITRITE - N	ORTHOPHOSPHATE - PO4	PERCHLORATE	SULFATE	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	LITHIUM	MAGNESIUM	MANGANESE	MERCURY	MOLYBDENUM	NICKEL	SELENIUM	SILVER	SODIUM	STRONTIUM	THALLIUM	THORIUM	URANIUM	VANADIUM	ZINC		
				4		10	1				6	10	2000	4	5		100										2			50				2			30		
Units	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	ppb	ppm	ppb	ppb	ppb	ppb	ppb	ppm	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppm	ppb	ppb	ppb	ppb	ppb	ppb	ppm	ppb	ppb	ppb	ppb	ppb	ppb	ppb	

**Dalecarlia Water Treatment Plant Finished Water**

Jan	0.7	ND	26	0.6	ND	2.2	ND	2.4	0.4	39	26	ND	ND	30	ND	ND	34	0.9	ND	0.7	ND	ND	1.3	5	0.9	ND	ND	1.8	ND	ND	17	119	ND	ND	ND	ND	0.9
Feb	0.7	ND	30	0.6	---	2.1	ND	2.3	0.5	42	19	ND	ND	33	ND	ND	36	0.9	ND	0.7	ND	ND	1.7	6	0.7	ND	0.6	1.9	ND	ND	21	145	ND	ND	ND	ND	1.7
Mar	0.6	ND	26	0.6	---	1.7	ND	2.4	0.4	43	24	ND	ND	36	ND	ND	33	1.6	ND	0.7	ND	ND	2.1	7	0.6	ND	ND	2.1	0.5	ND	19	133	ND	ND	ND	0.6	1.0
Apr	ND	ND	26	0.6	ND	1.5	ND	2.4	0.5	46	27	ND	ND	35	ND	ND	40	1.1	ND	0.8	ND	ND	1.9	6	0.5	ND	ND	2.3	0.5	ND	17	161	ND	ND	ND	0.5	1.0
May	0.7	ND	27	0.7	---	1.4	ND	2.4	0.5	44	30	ND	ND	36	ND	ND	39	1.1	ND	1.0	ND	ND	2.2	6	0.7	ND	0.7	1.9	0.7	ND	18	159	ND	ND	ND	0.7	1.2
Jun	0.7	ND	28	0.7	---	1.6	ND	2.5	0.6	42	42	ND	ND	35	ND	ND	37	1.1	ND	1.0	ND	ND	1.6	6	0.8	ND	0.7	1.5	0.5	ND	19	141	ND	ND	ND	0.9	0.7
Jul	0.7	ND	33	0.7	ND	1.0	ND	2.4	0.6	54	68	ND	ND	38	ND	ND	39	0.8	ND	1.0	ND	ND	2.3	9	1.4	ND	1.1	1.2	0.7	ND	24	192	ND	ND	ND	1.2	0.8
Aug	0.7	ND	32	0.7	---	0.8	ND	2.4	0.5	54	62	ND	0.5	35	ND	ND	41	1.7	ND	1.0	ND	ND	2.7	7	0.9	ND	1.4	2.0	0.9	ND	23	190	ND	ND	ND	1.4	0.7
Sep	0.8	ND	29	0.7	---	1.1	ND	2.4	0.6	52	63	ND	ND	39	ND	ND	42	1.3	ND	1.1	ND	ND	2.4	7	0.7	ND	1.1	2.8	0.7	ND	23	188	ND	ND	ND	1.2	0.9
Oct	0.8	ND	31	0.7	ND	1.6	ND	2.4	0.5	52	34	ND	ND	36	ND	ND	42	1.1	ND	1.1	ND	ND	1.6	7	0.7	ND	0.9	2.1	0.6	ND	22	182	ND	ND	ND	0.9	0.8
Nov	0.7	ND	26	0.6	---	2.4	ND	2.3	0.5	45	44	ND	ND	38	ND	ND	42	0.9	ND	0.8	ND	ND	1.2	6	0.7	ND	ND	2.5	0.6	ND	17	158	ND	ND	ND	ND	1.3
Dec	0.7	ND	32	0.6	---	2.1	ND	2.3	0.5	46	30	ND	ND	33	ND	ND	43	0.7	ND	0.9	ND	ND	1.6	7	0.9	ND	0.6	2.3	ND	ND	22	185	ND	ND	ND	ND	1.3

**McMillan Water Treatment Plant Finished Water**

Jan	0.8	ND	24	0.7	ND	2.1	ND	2.4	0.4	42	17	ND	ND	30	ND	ND	26	0.9	ND	2.7	ND	ND	1.3	6	ND	ND	ND	1.7	ND	ND	18	116	ND	ND	ND	ND	1.0
Feb	0.8	ND	30	0.7	---	2.1	ND	2.4	0.4	42	21	ND	ND	31	ND	ND	28	0.9	ND	2.3	ND	ND	1.5	6	ND	ND	ND	1.9	ND	ND	19	136	ND	ND	ND	ND	1.4
Mar	0.6	ND	26	0.6	---	1.7	ND	2.4	0.4	44	28	ND	ND	34	ND	ND	26	1.4	ND	2.7	ND	ND	1.8	7	ND	ND	ND	2.0	0.5	ND	18	132	ND	ND	ND	ND	1.0
Apr	ND	ND	26	0.6	ND	1.3	ND	2.4	0.6	47	43	ND	ND	35	ND	ND	32	1.3	ND	3.1	ND	ND	1.5	7	ND	ND	ND	2.0	0.6	ND	18	155	ND	ND	ND	0.5	0.7
May	0.7	ND	28	0.7	---	1.3	ND	2.4	0.4	48	47	ND	ND	36	ND	ND	30	0.9	ND	9.0	ND	ND	2.4	5	ND	ND	0.5	1.9	0.6	ND	20	157	ND	ND	ND	ND	0.8
Jun	0.8	ND	28	0.7	---	1.5	ND	2.5	0.5	48	37	ND	ND	35	ND	ND	29	0.7	ND	7.7	ND	ND	1.4	6	0.9	ND	0.5	1.3	0.6	ND	21	135	ND	ND	ND	0.5	0.6
Jul	0.8	ND	34	0.6	ND	0.9	ND	2.5	0.6	58	65	ND	ND	39	ND	ND	32	0.7	ND	7.3	ND	ND	2.2	9	0.8	ND	1.0	0.9	0.7	ND	24	190	ND	ND	ND	0.9	ND
Aug	0.8	ND	32	0.6	---	0.8	ND	2.4	0.5	59	65	ND	ND	35	ND	ND	34	1.3	ND	8.3	ND	ND	2.4	7	0.7	ND	1.3	1.7	0.9	ND	24	198	ND	ND	ND	1.1	0.5
Sep	0.8	ND	30	0.7	---	0.8	ND	2.3	0.6	55	82	ND	ND	41	ND	ND	36	1.1	ND	9.1	ND	ND	2.3	6	0.6	ND	1.1	2.5	0.7	ND	23	195	ND	ND	ND	0.9	ND
Oct	0.8	ND	30	0.6	ND	1.4	ND	2.4	0.5	57	50	ND	ND	37	ND	ND	33	0.9	ND	8.7	ND	ND	1.8	7	ND	ND	0.8	2.1	0.7	ND	22	173	ND	ND	ND	0.8	0.6
Nov	0.8	ND	27	0.6	---	2.1	ND	2.3	0.5	49	41	ND	ND	37	ND	ND	31	0.7	ND	4.9	ND	ND	1.3	6	ND	ND	0.5	2.2	ND	ND	19	151	ND	ND	ND	ND	1.1
Dec	0.8	ND	31	0.7	---	2.2	ND	2.3	0.5	50	21	ND	ND	35	ND	ND	32	ND	ND	2.7	ND	ND	1.8	8	ND	ND	0.6	2.3	ND	ND	20	186	ND	ND	ND	ND	1.1

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

ppb = Parts Per Billion

ppm = Parts Per Million

ND = Not Detected

"---" = No Analysis Required









