



## User-Friendly Summary of Test Results for the H<sub>2</sub> Series UltraWater Filter



Eaton Analytical



MWH®



All test results are certified and performed in NELAP accredited labs to proper EPA Standards.

**Abstract:** All tests performed were done in manner to replicate the flow rates and contact times of AlkaViva H<sub>2</sub> Series ionizers with a flow rate of 3 liters per minute. No ionization, or form of electrolysis was used in testing to avoid the effect of ionic separation.

All control water samples, influent samples, were created using DI water then spiked with contaminant samples from ERA Labs (<http://www.eraqc.com>) and scanned separately for accurate starting values without passing through UltraWater filters. Start values were prepared to be as close as possible to EPA MCL levels where applicable. In the case of contaminants that are added during treatment such as the chlorine based disinfectant group, start values were prepared to be at least the level that typically found in municipally treated water.

All filters were flushed prior to testing using 10 gallons of DI water, then cleared of excess water by air. Prior to collection approximately 2 liters of control water sample was passed through and the effluent samples were collected at this time.

Testing for the VOC, disinfectant and heavy metals and fluoride sample groups was performed by Silver State Analytical Laboratories and completed on 12/10/12 and 2/19/16 respectively. Fluoride was tested with the addition of a Fluoride Shield. Testing for a sample group of PPCP (pharmaceuticals / personal care products / herbicides and pesticides) was performed by MHW on 8/3/12. Glyphosate testing was performed by eurofins / Eaton Analytical on 4/14/16. Testing for the PFOA's, additional VOC's, additional herbicides, and additional pesticide sample groups was performed by eurofins / Eaton Analytical between 2/20/2020 and 2/28/2020 respectively. Original lab reports available upon request.

### **Test Result Definitions:**

**Influent** = The levels found in the control sample prior to passing through the UltraWater Filtration System.

**Effluent** = The levels found in the collected sample after passing through the UltraWater Filtration System.

**mg/L** = Milligrams per liter, or Parts Per Million (PPM)

**ug/L** = Nanograms per Liter, or Parts Per Billion (PPB)

**ND** = Nondetectable levels were found in testing. ND is an indicator if the lowest level of accurate reporting based on the equipment's capabilities and the type of tests performed.

User-Friendly Summary of UltraWater Test Results

Drinking Water Contaminant	Influent Contaminant Level	Unit of Measure	UltraWater Results (Effluent)	Reporting Limits
<b>Disinfectant and Disinfectant Byproduct Sample Group</b>				
Total Residual Chlorine	1	mg/L	ND	0.25
Free Chlorine	0.33	mg/L	ND	0.25
Fluoride	2	mg/L	ND	1
Bromodichloromethane	820	ug/L	ND	250
Bromoform	810	ug/L	ND	250
Chlorodibromomethane	3800	ug/L	ND	250
Chloroform (Trichloromethane)	1000	ug/L	ND	250
Total THM (Trihalomethane)	6400	ug/L	ND	1
TDS	105	mg/L	100	10

<b>Heavy Metals Sample Group</b>				
A+A12:B32luminum	0.065	mg/L	ND	0.05
Antimony	0.038	mg/L	ND	0.001
Arsenic	0.043	mg/L	ND	0.001
Barium	1.6	mg/L	0.009	0.001
Beryllium	0.003	mg/L	ND	0.001
Boron	1.7	mg/L	ND	0.01
Cadmium	0.017	mg/L	ND	0.001
Chromium	0.059	mg/L	ND	0.001
Chromium VI	0.958	mg/L	ND	0.005
Copper	0.22	mg/L	ND	0.001
Iron	1.2	mg/L	ND	0.01
Lead	0.061	mg/L	ND	0.001
Manganese	0.31	mg/L	0.003	0.01
Molybdenum	0.038	mg/L	ND	0.001
Mercury	0.0008	mg/L	ND	0.002
Nickle	0.054	mg/L	ND	0.001
Selemium	0.08	mg/L	ND	0.001
Silver	0.28	mg/L	ND	0.001
Thalium	0.009	mg/L	ND	0.001
Vanadium	0.31	mg/L	ND	0.001
Zinc	0.23	mg/L	ND	0.001

<b>PFOA's (Forever Chemicals) Sample Group</b>				
Perfluorbutanesulfonic Acid (PFBS)	0.33	ug/L	0.002	0.002
Perfluorohexanesulfonic Acid (PFHxS)	0.17	ug/L	ND	0.002
Perfluorohexanoic Acid (PFHxA)	0.32	ug/L	0.003	0.002
Perfluorononanoic Acid (PFNA)	0.25	ug/L	ND	0.002
Perfluorooctanesulfonic Acid (PFOS)	0.38	ug/L	ND	0.002
Perfluorooctanoic Acid (PFOA)	0.21	ug/L	ND	0.002

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User-Friendly Summary of UltraWater Test Results

Drinking Water Contaminant	Influent Contaminant Level	Unit of Measure	UltraWater Results (Effluent)	Reporting Limits
<b>VOC Sample Group</b>				
1, 1-Dichloroethene	38.5	ug/L	ND	0.1
1, 3-Dichlorobenzene	45	ug/L	ND	0.1
1,1,1,2-Tetrachloethane	201	ug/L	ND	5
1,1,1-Trichlorethane	156	ug/L	ND	5
1,1,2,2-Tetrachloroethane	616	ug/L	ND	5
1,1,2-Trichloroethane	60.2	ug/L	ND	5
1,1-Dichlorethane	397	ug/L	5.43	5
1,1-Dichloroethene	98.5	ug/L	ND	5
1,1-dichloropropene	246	ug/L	ND	5
1,2,3-Trichloropropane	528	ug/L	ND	5
1,2,4-Trichlorobenzene	101	ug/L	ND	5
1,2,4-Trimethylbenzene	192	ug/L	ND	5
1,2-Dichlorobenzene	228	ug/L	ND	5
1,2-Dichloroethane	108	ug/L	ND	5
1,2-Dichloropropane	186	ug/L	ND	5
1,3,5-Trimethylbenzene	387	ug/L	ND	5
1,3-Dichloropropane	275	ug/L	ND	5
1,4-Dichlorobenzene	203	ug/L	ND	5
2,2-Dichloropropane	179	ug/L	ND	5
2-Chlorotoluene	429	ug/L	ND	5
4-Chlorotoluene	94.5	ug/L	ND	5
Benzene	172	ug/L	ND	5
Bromobenzene	59.6	ug/L	ND	5
Bromochloromethane	32	ug/L	ND	0.1
Bromodichloromethane	820	ug/L	ND	250
Bromoform	810	ug/L	ND	250
Carbon Tetrachloride	153	ug/L	ND	5
Chlorobenzene	34.8	ug/L	ND	0.1
Chlorodibromomethane	3800	ug/L	ND	250
Chloroethane	47	ug/L	ND	0.1
Chloroform (Trichloromethane)	1000	ug/L	ND	250
Chlorobenzene	231	ug/L	ND	5
cis-1,2-dichloroethane	366	ug/L	ND	5
cis-1,3-Dichloropropene	145	ug/L	ND	5
Dibromomethane	156	ug/L	ND	5
Dichlorodifluoromethane	160	ug/L	ND	5
Ethylbenzene	262	ug/L	ND	5
Flourotrichloromethane	38	ug/L	5.36	0.1
Glyphosate	860	ug/L	ND	6
Hexachlorobutadine	80.3	ug/L	ND	5
Isopropylbenzene	328	ug/L	ND	5
m+p-Xylene	72.5	ug/L	ND	5
Methylene chloride	266	ug/L	ND	5
methyl-t-butyl ether (MTBE)	372	ug/L	5.36	5

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User-Friendly Summary of UltraWater Test Results

Drinking Water Contaminant	Influent Contaminant Level	Unit of Measure	UltraWater Results (Effluent)	Reporting Limits
<b>VOC Sample Group (cont'd)</b>				
Napthalene	124	ug/L	ND	5
n-Butylbenzene	24	ug/L	ND	0.1
n-Propylbenzene	247	ug/L	ND	5
o-Xylene	60	ug/L	ND	5
p-isopropyltoluene	124	ug/L	ND	5
sec-Butylbenzene	44	ug/L	ND	0.1
Styrene	85.4	ug/L	ND	5
tert-Butylbenzene	318	ug/L	ND	5
Tetrachloroethane	168	ug/L	ND	5
Tetrachloroethene	46	ug/L	ND	0.1
Toluene	265	ug/L	ND	5
Total THM (Trihalomethane)	6400	ug/L	ND	1
trans-1,2-Dichloroethane	186	ug/L	ND	5
trans-1,3-Dichloropropene	205	ug/L	ND	5
Trichloroethane	259	ug/L	ND	5
Trichloroethene	38	ug/L	ND	0.1
Vinylchloride	41.5	ug/L	ND	0.1
Vinyl Chloride	136	ug/L	ND	5

<b>SOC Sample Group</b>				
Acenaphthylene	48.5	ug/L	ND	0.1
Anthracene	160	ug/L	ND	0.1
Benzo (a) Anthracene	139	ug/L	ND	0.1
Benzo (a) Pyrene	38.5	ug/L	ND	0.1
Benzo (b) Fluoranthene	48.8	ug/L	ND	0.1
Benzo Perylene	50.2	ug/L	ND	0.1
Bis Phthalate	50.2	ug/L	ND	0.1
Butylate	50.2	ug/L	0.5	0.1
Butylbenzylphthalate	52.1	ug/L	0.3	0.1
Chrysene	45.2	ug/L	ND	0.1
Dibenzo Anthracene	53.3	ug/L	ND	0.1
Diethylphthalate	49.2	ug/L	0.1	0.1
Di-n-butylphthalate	54	ug/L	ND	0.1
Di-n-butylphthalate	54	ug/L	ND	0.1
Di-n-Octylthalate	49	ug/L	ND	0.1
Endrin	1.2	ug/L	ND	0.2
Endrin Aldehyde	3.2	ug/L	ND	0.1
Endrin Ketone	50.2	ug/L	ND	0.1
Fluoranthene	21.4	ug/L	ND	0.1
Heptachlor	0.76	ug/L	ND	0.04
Heptachlor	0.76	ug/L	ND	0.04
Heptachlor Epoxide (isomer B)	1.4	ug/L	ND	0.05
Hexachlorobenzene	0.89	ug/L	ND	0.05
Hexachlorocyclopentadiene	5.7	ug/L	ND	0.05

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User-Friendly Summary of UltraWater Test Results

Drinking Water Contaminant	Influent Contaminant Level	Unit of Measure	UltraWater Results (Effluent)	Reporting Limits
<b>SOC Sample Group (cont'd)</b>				
Indeno Pyrene	44.1	ug/L	ND	0.1
Methoxychlor	9.2	ug/L	ND	0.1
Metolachlor	13	ug/L	ND	0.05
Metribuzin	8.2	ug/L	ND	0.05
Molinate	7.6	ug/L	ND	0.1
Norflurazon	50.4	ug/L	ND	0.1
p,p'-DDE	49.5	ug/L	ND	0.1
Phenanthrene	125	ug/L	ND	0.1
Prometon	12	ug/L	ND	0.1
Propachlor	8.2	ug/L	ND	0.05
Pyrene	143	ug/L	ND	0.1
Simazine	14	ug/L	ND	0.05
Thiobencarb (ELAP)		ug/L		0.2
Trifluralin	2.8	ug/L	ND	0.1

Compounds Action	Compound Name	Influent Compound Level	UltraWater Results (Effluent)	Reporting Limits (ng/L)
<b>Hormone Sample Group</b>				
Estrogenic Hormone	EE2 (17 Alpha ethynlestradiol)	500	ND	5
Estrogenic Hormone	E2 (17 Beta-Estradiol)	380	ND	5
Estrogenic Hormone	Estrone	400	ND	5
Steroid Hormone	Androstenedione	370	ND	5
Steroid Hormone	Norethisterone	600	ND	5
Steroid Hormone	Progesterone	550	ND	5
Steroid Hormone	Testosterone	410	ND	10

<b>Over the Counter Pharmaceutical Sample Group</b>				
Analgesic	Acetaminophen	640	ND	5
Analgesic	Phenazone	530	ND	5
Analgesic-NSAID	Ibuprofen	1800	ND	10

<b>Prescription Drug Sample Group</b>				
Analgesic	Lidocaine	280	ND	5
Analgesic-NSAID	Butalbital	310	ND	5
Anti anxiety	Meprobamate	520	ND	5
Anti Asthmatic	Albuterol	1800	ND	5
Anti Asthmatic	Theophylline	310	ND	10
Anti Convulsant	Primidone	230	ND	5
Anti Inflammatory	Diclofenac	390	ND	5
Anti Inflammatory	Ketoprofen	280	ND	5

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<i>Compounds Action</i>	<i>Compound Name</i>	<i>Influent Compound Level</i>	<i>UltraWater Results (Effluent)</i>	<i>Reporting Limits (ng/L)</i>
<b>Prescription Drug Sample Group (cont'd)</b>				
Anti Inflammatory	Ketorolac	230	ND	5
Anti Inflammatory	Meclofenamic Acid	380	ND	5
Anti seizure	Carbamazepine	480	ND	5
Anti seizure	Phenytoin	243	ND	5
Antibiotic	Amoxicillin	480	ND	20
Antibiotic	Azithromycin	31000	810	5
Antibiotic	Carbadox	360	ND	5
Antibiotic	Chloramphanicol	360	ND	5
Antibiotic	Erythroycin	110	ND	10
Antibiotic	Flumequine	110	ND	10
Antibiotic	Lincomycin	270	ND	10
Antibiotic	Oxolinic acid	1200	ND	10
Antibiotic	Trimethoprim	84	ND	5
Anti-cholesterol	Clofbric acid	470	ND	5
Anticoagulant	Warfarin	860	ND	5
Antidepressant	Fluoxetine (Prozac)	470	ND	10
Anti-Seizure	Dilantin	2400	ND	20
Beta Blocker	Atenolol	1000	ND	5
Beta Blocker	Lopressor	3400	ND	20
Blood thinner	Pentoxifylline	490	ND	5
Calcium Blocker	Nifedipine	1600	87	20
Enzyme	Chloridazon	120	ND	5
H2 Blocker	Cimetidine	4400	ND	5
Heart Medication	Dehydronifedipine	230	ND	5
Lipid Regulator	Bezafibrate	1200	ND	5
Lipid Regulator	Gemfibrozil	450	ND	5
Muscle Relaxant	Carisoprodol	540	ND	5
Sulfa Antibiotic	Sulfachloropyridazine	3400	ND	5
Sulfa Antibiotic	Sulfamerazine	170	ND	5
Sulfa Antibiotic	Sulfadiazine	630	ND	5
Sulfa Antibiotic	Sulfamethoxine	550	ND	5
Sulfa Antibiotic	Sulfamethazine	200	ND	5
Sulfa Antibiotic	Sulfamethizole	270	ND	5
Sulfa Antibiotic	Sulfathiazole	200	ND	5
Sulfa Antibiotic	Sulfamethoxazole	290	ND	5
Triazide	Bendroflumethiazide	880	ND	5
Valium- Antianxiety	Diazepam	620	ND	5

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<b>Stimulant Sample Group</b>				
Caffeine Degradate	1,7-dimethylxanthine	700	ND	5
Caffeine Degradate	Theobromine	560	ND	5
Nicotine Degradate	Cotinine	1900	ND	10
Stimulant	Caffeine	780	ND	5
Analgesic-NSAID	Naproxen	240	ND	10

<b>Personal Care Product Sample Group</b>				
Antibacterial	Triclosan	1000	ND	10
Mosquito Repellant	DEET	340	ND	2

<b>Preservative Sample Group</b>				
Preservative	Butylparaben	730	ND	5
Preservative	Ethylparaben	2100	ND	20
Preservative	Isobutylparaben	780	ND	5
Preservative	Methylparaben	1400	ND	20
Preservative	Propylparaben	270	ND	5

<b>Pesticide/Herbicide Sample Group</b>				
Herbicide	2, 4 - DB	52	ND	0.1
Herbicide	2,4,5-TP (Silvex)	26	ND	0.1
Herbicide	2,4-D	250	ND	0.1
Herbicide	3, 5 - Dichlorobenzoic Acid	70	ND	0.1
Herbicide	Acifluorfen	24	ND	0.1
Herbicide	Bentazon	14	ND	0.1
Herbicide	Bromacil	480	ND	0.1
Herbicide	Butachlor	49	ND	0.1
Herbicide	Chloramben	58	0.78	0.1
Herbicide	Chlorotoluron	440	ND	5
Herbicide	Dalapon	32	1.2	1
Herbicide	Dichloprop	10	ND	1
Herbicide	Dinoseb	10	ND	2
Herbicide	Diphenamid	50	1.2	0.1
Herbicide	Diuron	940	ND	5
Herbicide	Fluridone	51	ND	0.1
Herbicide	Glyphosate (Roundup)	860	ND	5
Herbicide	Isoproturon	2000	ND	0
Herbicide	Linuron	420	ND	5
Herbicide	Metazachlor	520	ND	5
Herbicide	Napropamide	48	ND	0.1
Herbicide	Picloram	52	0.65	0

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User-Friendly Summary of UltraWater Test Results

<i>Compounds Action</i>	<i>Compound Name</i>	<i>Influent Compound Level</i>	<i>UltraWater Results (Effluent)</i>	<i>Reporting Limits (ng/L)</i>
<b>Pesticide/Herbicide Sample Group (cont'd)</b>				
Herbicide	Propyzimide	37	ND	0.1
Herbicide	Terbacil	47	ND	0.1
Herbicide	Tot DCPA Mono&Diacid Degradate	51	10	2
Herbicide	Tridemefon	51	ND	0.1
Herbicide	Vinclozalin	51	ND	0.1
Pesticide	4 - Nitrophenol	12	ND	1
Pesticide	Beta-BHC	49	ND	0.1
Pesticide	Dicamba	110	1.6	10
Pesticide	Dieldrin	50	ND	0.1
Pesticide	Endosulfan II	51	ND	0.1
Pesticide	Endosulfan Sulfate	51	ND	0.1
Pesticide	Pentachlorophenol	16	ND	1
Pesticide	Quinoline	250	ND	5
Pesticide	Tebuconazole	45	ND	0.1
Triazine Herbicide	Cyanazine	16	ND	5
Triazine Herbicide	Propazine	340	ND	5
Triazine Herbicide	Simazine	120	ND	5

<b>Wastewater Indicator Sample Group</b>				
Flame Retardant	TCEP	29	ND	5
Flame Retardant	TCPD	440	ND	5
Flame Retardant	TDCPP	1000	ND	5
Plasticizer	BPA (Bis Phenol A)	270	ND	10
Sugar Substitute	Acesulfame-K	1300	ND	20
Sugar Substitute	Sucralose	15000	ND	100
Surfactant	4-nonylphenol	710	ND	100
Surfactant	4-tert-octylphenol	400	ND	50
X-ray Contrast agent	Iohexol (Iohexal)	240	ND	10
X-ray Contrast agent	Iopromide	290	ND	5

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