WATER TEST AMERICA LLC.

"Using Only USEPA Approved Testing Methods"

www.watertestamerica.com

Laboratory Information - 609-291-9072
lab@watertestamerica.com

Sales Office – 201-820-4464
info@watertestamerica.com

Ron Cousineau
Company
1875 Long Pointe Dr
suite apt#
Bloomfield Hills, MI 48302

PARAMETERS FOR TEST #779

Matrix: Water
Source: Other
Collected by: Owner
WTA Lab Sample #: WTA-5229
WTA Order #: N/A

Date Collected: 10/3/15

Report Date: 11/7/15

LABORATORY REPORT SUMMARY

Comments:

PLEASE SEE THE LAST 3 PAGES OF THIS DOCUMENT WHICH CONTAIN AN INFORMATION FILE WITH EXPLANATIONS OF THE PARAMETERS AND CONTAMINANTS AS WELL AS TREATMENT IF NECESSARY.

(P-1: 79) 319140

By: Thomas Mullen
Laboratory Director

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PARAMETERS FOR TEST #779

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Matrix: Water
Source: Other
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WTA Lab Sample #: WTA-5229
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Date Collected: 10/3/15

Report Date: 11/7/15

Analysis: **INORGANIC CHEMICALS**
HEAVY & SECONDARY METALS
PHYSICAL PROPERTIES

All testing performed using USEPA testing guidelines

Parameter	MCL (mg/L)	MDL (mg/L)	Result (mg/L)
TOTAL COLIFORM BACTERIA	<1/100ml (absent)		>1/100ml(present)
E. COLI BACTERIA	<1/100ml (absent)		>1/100ml(present)
Alkalinity (total)	no mcl	-	130
Aluminum	0.2	.01	nd
Antimony	.006	.005	nd
Arsenic	0.01	.002	nd
Barium(total)	2.0	0.1	nd
Beryllium	.004	.002	nd
Boron	no mcl	.005	nd
Bromine	-	-	nd
Cadmium(total)	.005	.004	nd
Calcium	no mcl	0.1	46.8
Cesium(total)	-	-	nd
Chloride	250	.05	81

MCL = Maximum Contaminant Level
nd = none detected at the level of the mdl
ug/L = **ppb** (parts per billion)
mg/L = ppm (parts per million)
ntu = Nephelometric Turbidity Unit
MDL = Minimum Detection Level
mho = Reciprocal ohm
ton = Threshold Odor Number
** Exceeds USEPA Limits
pCi/L = Picocuries per liter
c.u. = Color Unit
> = greater than
< = less than
* - Closet Match

Remarks:

(P-2:79) 319140

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BB

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WTA Lab Sample #: WTA-5229
WTA Order #: N/A

ADDITIONAL PARAMETERS FOR TEST #779

Analysis: **INORGANIC CHEMICALS**
HEAVY & SECONDARY METALS
PHYSICAL PROPERTIES

Matrix: Water   Collected by: Owner

Parameter/Method VOC/EPA 524.2	MCL (mg/L)	MDL (mg/L)	Result (mg/L)
Chromium	0.1	.002	nd
Hexavalent Chromium	no mcl	.002	nd
Color	15.0 c.u.	-	< 1 cu
Conductivity	no mcl	-	216umho's
Copper	1.0	.01	nd
Corrosivity/ Index Langlier	-5 to + 5	-	.38
Fluoride	2.0	0.2	.29
Hardness (CaCO3)	250	0.5	120
Iodine(total)	-	-	nd
Iron	0.3	.03	nd
Lead	0.01	.002	nd
Magnesium	no mcl	.005	nd
Manganese	0.05	.01	nd
Mercury	0.002	.002	nd
Molybdenum	no mcl	.002	nd
Nickel	no mcl	.005	nd
Nitrates	-	-	nd
Odor	3 ton	-	< 1 ton

MCL = Maximum Contaminant Level   **MDL** = Minimum Detection Level
nd = none detected at the level of the mdl   **ug/L** = **ppb** (parts per billion)   **mg/L = ppm** (parts per million)
c.u. = Color Unit   **mho** = Reciprocal ohm   **ton** = Threshold Odor Number   > = greater than
ntu = Nephelometric Turbidity Unit   * - Closest Match   ** = Exceeds USEPA Limits   < = less than
pCi/L = Picocuries per liter

Remarks:
Corrosivity - None

Report Date: 11/7/15
(P-3: 79) 319140

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WTA Lab Sample #: WTA-5229
WTA Order #: N/A

ADDITIONAL PARAMETERS FOR TEST #779

Analysis: **INORGANIC CHEMICALS**
HEAVY & SECONDARY METALS
PHYSICAL PROPERTIES

Matrix: Water Collected by: Owner

Parameter/Method VOC/EPA 524.2	MCL (mg/L)	MDL (mg/L)	Result (mg/L)
pH	6.5-8.5	-	8.05
Potassium	no mcl	.01	34.1
Radium (total)	-	-	nd
Salinity	50	-	high
Selenium	.05	.002	nd
Silica	-	-	nd
Silver	1.0	.005	nd
Sodium	50	.01	102
Strontium(total)	-	-	nd
Sulfate	250	1.0	14
Tin	-	-	nd
Thallium	2.0	.002	nd
Titanium(total)	-	-	nd
(TDS) Total Dissolved Solids	500	-	423
Turbidity	no mcl	-	< 1 ntu
Uranium (total)	-	-	nd
Vanadium	-	-	nd
Zinc	5.0	.01	nd

MCL = Maximum Contaminant Level **MDL** = Minimum Detection Level
nd = none detected at the level of the mdl **ug/L** = **ppb** (parts per billion) **mg/L = ppm** (parts per million)
c.u. = Color Unit **mho** = Reciprocal ohm **ton** = Threshold Odor Number > = greater than
ntu = Nephelometric Turbidity Unit * - Closest Match ** = Exceeds USEPA Limits < = less than
pCi/L = Picocuries per liter

Remarks:

Report Date: 11/7/15
(P-4: 79) 319140

By: Thomas Mullen
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Ron Cousineau
Company
WTA Lab Sample #: WTA-5229
WTA Order #: N/A

ADDITIONAL PARAMETERS FOR TEST #779

Analysis: **POLY CHLORINATED BI-PHENOLS (PCB) PESTICIDES**

Matrix: Water Collected by:

Parameter/Method EPA 505	**MDL** (ug/L)	**Result** (ug/L)
PCB 1061	0.05	nd
PCB 1221	0.79	nd
PCB 1232	0.17	nd
PCB 1242	0.14	nd
PCB 1248	0.089	nd
PCB 1254	0.11	nd
PCB 1260	0.16	nd
PCB 1262	0.19	nd
DDD	0.21	nd
4,4 - DDD	-	nd
DDE	0.13	nd
4,4 – DDE	-	nd
DDT	0.17	nd
4,4 - DDT	-	nd
DTT	-	nd
Alachlor	0.16	nd
Aldrin	0.002	nd
Atrazine	0.26	nd
a-BHC	0.001	nd
b-BHC	0.001	nd
g-BHC	0.001	nd

Maximum Contaminant Level   **MDL** = Minimum Detection Level
nd = none detected   **ug/L = ppb (parts per billion)**   *** - Closest Match**

Report Date: 11/7/15
(P-5: 79) 319140

By: Thomas Mullen
Laboratory Director

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Ron Cousineau
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WTA Lab Sample #: WTA-5229
WTA Order #: N/A

ADDITIONAL PARAMETERS FOR TEST #779

Analysis: **POLY CHLORINATED BI-PHENOLS (PCB) PESTICIDES**

Matrix: Water Collected by:

Parameter/Method EPA 505	**MDL** (ug/L)	**Result** (ug/L)
Chlordane	0.1	nd
Tech Chlordane	-	nd
a-Chlordane	-	nd
b-Chlordane	-	nd
c-Nonachlor	0.009	nd
t-Nonachlor	0.007	nd
Dieldrin	0.008	nd
Endosulfan I	0.18	nd
Endosulfan II	0.21	nd
Endosulfan Sulfate	0.26	nd
Endrin	0.027	nd
Endrin Ketone	-	nd
Endrinaldehyde	0.17	nd
Heptachlor	0.001	nd
Heptachlor Epox	0.002	nd
Hexachlorobenzene	0.001	nd
Hexachlorocyclopentadiene	0.006	nd
Lindane	0.001	nd
Methoxychlor	0.31	nd
Simazine	0.87	nd
Toxaphene	0.78	nd

Maximum Contaminant Level   **MDL** = Minimum Detection Level
nd = none detected   **ug/L = ppb (parts per billion)**   *** - Closest Match**

Report Date: 11/7/15   By: Thomas Mullen
(P-6: 79) 319140   Laboratory Director

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Ron Cousineau
Company
WTA Lab Sample #: WTA-5229
WTA Order #: N/A

ADDITIONAL PARAMETERS FOR TEST #779

Matrix: Water | Collected by: Owner | Analysis: **VOLATILE ORGANIC COMPOUNDS – (VOC)**

Parameter/Method VOC/EPA 524.2	**MCL** (ug/L)	**MDL** (ug/L)	**Results** (ug/L)
Acetone		0.400	nd
Acrylontrile		0.490	nd
Allyl Chloride		0.480	nd
Benzene **(BTEX)**	**1**	0.220	nd
Bromobenzene		0.300	nd
Bromochloromethane		0.460	nd
Bromodichloromethane **(THM)**		0.310	nd
Bromoform **(THM)**		0.280	nd
Bromomethane		0.250	nd
Carbon Disulfide		0.370	nd
Carbon Tetrachloride	**2**	0.340	nd
Chloroacetontrile		0.380	nd
Chlorobenzene	**50**	0.230	nd
Chloroethane		0.290	nd
Chloroform **(THM)**		0.240	nd
Chloromethane		0.300	nd
Chlorotoluene – 2		0.21	nd
Chlorotoluene – 4		0.2	nd
cis-1,2 Dichloroethene	**70**	0.24	nd
cis-1,3 Dichloropropene		0.230	nd
Dibromochloromethane **(THM)**		0.290	nd
Dibromomethane		0.120	nd
Dichloroflouromethane		0.360	nd
Diethylether		0.480	nd
Ethyl Methacrylate		0.430	nd
Ethylbenzene **(BTEX)**	**700**	0.220	nd
Hexachloroethane		0.390	nd
Hexachlorobutadione		0.25	nd

MCL = Maximum Contaminant Level | **MDL** = Minimum Detection Level
nd = none detected | **ug/L** = **ppb** (parts per billion) | ** = Exceeds **USEPA** limits

Page 3-1

Report Date: 11/7/15
(P-7: 79) 319140

By: Thomas Mullen
Laboratory Director

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WATER TEST AMERICA LLC.

Ron Cousineau
Company
WTA Lab Sample #: WTA-5229
WTA Order #: N/A

ADDITIONAL PARAMETERS FOR TEST #779

Matrix: Water Collected by: Owner Analysis: **VOLATILE ORGANIC COMPOUNDS – (VOC)**

Parameter/Method **VOC/EPA 524.2**	**MCL** (ug/L)	**MDL** (ug/L)	**Results** (ug/L)
Isopropylbenzene		0.290	nd
m,p – Xylene **(BTEX)**		0.440	nd
Methacrylonitrile		0.320	nd
Methyl Tertiary Butyl Ether **(MTBE)**	**70**	0.290	nd
Methylacrylate		0.320	nd
Methylene Chloride	**3**	0.320	nd
Methyliodide		0.530	nd
Methylmethacrylate		0.430	nd
n-Butylbenzene		0.25	nd
n-Propylbenzene		0.230	nd
Naphthalene	**300**	0.17	nd
Nitrobenzene		0.260	nd
o-Xylene **(BTEX)**		0.350	nd
p-Isopropyltoluene		0.26	nd
p-Xylene		-	nd
Pentachloroethane		0.180	nd
Propionitrile		0.420	nd
sec-Butylbenzene		0.23	nd
Styrene	**100**	0.380	nd
tert-Butylbenzene		0.42	nd
Tetrachloroethylene **(PCE)**	**1**	0.200	nd
Tetrahydrofuran		-	nd
Toluene **(BTEX)**	**1000**	0.150	nd
Total Xylenes	**1000**	0.44	nd
Trans-1,2-Dichloroethane		-	nd
Trans-1,2 - Dichloroethene	**100**	0.330	nd
Trans-1,3 Dichloropropene		0.280	nd
Trichloroethene		-	nd
Trichloroethylene **(TCE)**	**1**	0.360	nd
Trichlorofluoromethane		0.270	nd
Vinyl chloride	**2**	0.250	nd
1-Chlorobutane		0.440	nd
1,1 - Dichloroethane	**50**	0.260	nd
1,1 - Dichloroethene	**2**	0.330	nd
1,1 - Dichloropropene		0.440	nd
1,1 - Dichloropropanone		0.330	nd

Report Date: 11/7/15
(P-8: 79) 319140

By: Thomas Mullen
Laboratory Director

WATER TEST AMERICA LLC.

Ron Cousineau
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WTA Lab Sample #: WTA-5229
WTA Order #: N/A

ADDITIONAL PARAMETERS FOR TEST #779

Matrix: Water Collected by: Owner Analysis: **VOLATILE ORGANIC COMPOUNDS – (VOC)**

Parameter/Method VOC/EPA 524.2	**MCL** (ug/L)	**MDL** (ug/L)	**Results** (ug/L)
1,1,1 Trichloroethane	**30**	0.210	nd
1,1,1,2 Tetrachloroethane	**1**	0.180	nd
1,1,2 Trichloroethane	**3**	0.290	nd
1,1,2,2 Tetrachloroethane	**1**	0.240	nd
1,2 Dibromo-3-Chloropropane		0.25	nd
1,2 Dibromoethane		0.130	nd
1,2 Dichlorobenzene	**600**	0.34	nd
1,2 Dichloroethane	**2**	0.370	nd
1,2 Dichloropropane	**5**	0.240	nd
1,2,3 Trichlorobenzene		0.26	nd
1,2,3 Trichloropropane		0.150	nd
1,2,4 Trichlorobenzene	**9**	0.25	nd
1,2,4 Trimethylbenzene		0.23	nd
1,3 Dichlorobenzene	**600**	0.26	nd
1,3 Dichloropropane		0.250	nd
1,3,5 Trimethylbenzene		0.240	nd
1,4 Dichlorobenzene	**75**	0.31	nd
2-Butanone		0.350	nd
2-Hexanone		0.380	nd
2-Nitropropane		0.350	nd
2,2 Dichloropropane		0.350	nd
4-Methyl-2-Pentanone		0.450	nd
Library Search	**-**	-	nd

MCL = Maximum Contaminant Level **MDL** = Minimum Detection Level
nd = none detected **ug/L** = **ppb** (parts per billion) ****** = Exceeds **USEPA** limits
ntic = no tentatively identified compounds

Page 3-3

- Includes: THM's Total and 4 Individual; Chloroform, Benzene, Ethane, Methane; BTEX, and MTBE; TCE and PCE

Remarks:

Report Date: 11/7/15
(P-9: 79) 319140

By: Thomas Mullen
Laboratory Director

Description of Parameters and Treatment if necessary:

Coliform Bacteria/E-Coli:

Bacteria such as this and many others are found in all drinking water supplies to a greater or lesser extent. If left untreated they can propagate and form large colony counts and can quickly affect health. In fact the single largest health threat associated with water supplies is infection by bacteria. Total coliform is used as an indicator for general well infection. If a well is found to contain coliform colonies greater than one colony per hundred milliliters of water, it is assumed to be possibly infected by other forms of bacteria and should be disinfected immediately. Some research suggests that certain hard to detect bacteria found in water supplies worldwide, including the US, can lead to serious gastro-intestinal diseases, including ulcers and certain cancers. (See H-pyroli) the EPA, and numerous health agencies recommend that private well water users disinfect the well at least every 2 years. The simplest and cheapest way is by chlorination of the well. Because of the above problems associated with bacterial infection, public water supplies disinfect daily, usually by chlorination, and maintain a chlorine residual of 1-2 parts per million free chlorine.

Taste and Odor:

For private well water users the most common complaint we find is poor taste and sulphur like smell. The most common cause of these problems are also certain forms of bacteria. These include sulphate reducing bacteria, iron related bacteria (IRB), and other forms of H2S producing bacteria found in many water supplies. The treatment is once again, chlorination of the well, and disinfection of any water treatment systems used. In fact before any watertreatment system is installed; it is recommended that the well be chlorinated first, to eliminate possible contamination of the treatment equipment. For public water consumers, odor and taste complaints are ironically due to the residual chlorine or other disinfection procedures unused by the water supplier.

Iron (Fe):

Iron is a common secondary metal parameter found in many ground water supplies. Unless found in very large amounts, it poses no health risks, but can cause rust staining of fixtures, sidewalks, etc. Iron is usually present as ferrous (non staining), ferric, (rust staining), or both. The most common treatment for iron is water softening, however if large amounts of ferric iron are present, a two tank system is employed, preceded by an acid neutralizer to help precipitate the ferric component.\

Manganese (Mn):

Manganese is another common secondary metal parameter found in many drinking water supplies. It also poses no health risks in small amounts, however like Iron; this can also produce brown rust like staining. In large amounts, Manganese can cause discoloration of teeth, and potential bone disorders. The Treatment of Manganese is the same as for Iron.

Lead: (Pb)

Lead is a toxic heavy metal, usually found as a result of degradation of lead based Solder joints. Lead can also be found as a result of lechate from some land fill or industrial sites, but this is less common. In general the older the plumbing system, the more likely lead will be detected. The treatment of the removal of lead can be varied, with reverse osmosis being the most common. In certain cases, depending on the form that lead is present in the water system, activated carbon can be used.

Arsenic: (As)
Arsenic is a toxic heavy metal that can be found to an extent in natural ground formations. It can also be present in water supplies as a result of agricultural runoff, industrial waste pollution, and some pharmaceutical waste pollution. Arsenic can be removed by reverse osmosis filtration, or by arsenic specific treatment systems.

Mercury: (Hg)
Mercury is a toxic heavy metal that can be found in water supplies from a variety of sources. These include industrial waste, medical waste, pesticides, and general land fill operations. Mercury in its pure form as the metal, once ingested, tends to be stored in the body. In many instances Mercury is combined with other molecules that have the effect of reducing its toxicity and making it harder for humans to absorb and store mercury. The treatment for the removal of mercury can be by reverse osmosis, activated carbon, or by specific removal systems.

Sodium,(Na) Calcium, (Ca)
Potassium,(K) Magnesium, (Mg):
All of these metals can be found in ground formations, and hence in water Supplies everywhere. All of these are considered nontoxic secondary Parameters. All can be removed by reverse osmosis, ion exchange, and in the case of Calcium and Magnesium, by water conditioning. Water Conditioners use either Sodium or Potassium to regenerate so if Water softeners aren't maintained, these can become elevated in the treated water.

Other toxic heavy metals (eg, selenium, Thallium, Beryllium, Chromium, etc.):
When any metal is analyzed the results are usually given for the concentration of the total metal in its elemental form. This therefore assumes that if the total metal is present above maximum set levels, the water supply is not safe for consumption unless treated. However it is possible to have certain metals combined in such a way with other molecules that, like Mercury render them less toxic. Luckily the chances of these metals being found in most Potable water sources in the US is low. However the most usual treatment for most of the heavy Metals is the same as above, reverse osmosis, activated carbon, or ion exchange.

Nitrates (NO3-):
Nitrates can be found in potable water from several sources. The principal ones are, nitrogen containing fertilizers, lechate from septic systems, or run off from agricultural activity. Nitrates are mainly a concern for infants under the age of two. Nitrates can be removed by reverse osmosis or by an anion exchange resin specific for nitrate removal, which functions much like a water conditioner.

pH and Corrosivity:
The pH of potable water varies across the nation. The pH is mainly dependent on the type of geological formation that the ground water is in contact with. A low pH indicates that the water is more acidic, and in extreme cases, pH less than 5.0, can cause a shortening of the life span of metal plumbing and fixtures. (however pH is not the only factor affecting plumbing. The pH is combined with other measurements such as the total dissolved solids (TDS), the total hardness, CaCO3, and the alkalinity of the water to determine a number called the corrosivity or langlier index. This number is used on a scale from-5 to +5, with 0 being completely non aggressive water. The more negative the number, the more aggressive the water is to Metal plumbing, boiler cores etc. On the other side the more positive the number is the more likely the water will cause scale build up in plumbing. Most waters tend to be acidic, so the corrosivity will most likely be on the - side of the scale. In order to raise the pH, and therefore lower the corrosive nature of the water, an acid neutralizer is commonly used. This consists of a tank filled with calcium carbonate, or lime which dissolves in the water and neutralizes the acid.

Fluoride (F-):
Fluoride can be found in some natural geological formations and therefore in potable water. The most usual cause for fluoride in drinking water is that added to municipal supplies. More recently fluoride has been linked to contamination from some fracking operations. The most common treatment for fluoride is reverse osmosis treatment.

Organics:
The type of contamination most closely associated with causing cancers are the Organic compounds such as Volatile Organics (VOC's) and synthetic organic compounds such as the chlorinated pesticides and poly chlorinated biphenyls (PCB's).Most of these compounds find their way into water supplies as a result of industrial wastes, or through disposal into landfills. Some also contaminate local water supplies as a result of underground tank leakage. Luckily, most chlorinated pesticides and PCB's have not been used in years and are less likely to be found in water supplies today, compared to 25 years ago. Many landfills have been cleaned as a result of the Superfund laws as well, so industrial waste contamination is down. However some industrial solvents and gasoline additives still are found due to processes used today. The Tri Halo Methane's, (THM's) are found in public water supplies due to chlorination treatment for bacteria. There are many ways to remove these from drinking water, but the most effective and cheapest for the home owner remains carbon filtration, or reverse osmosis and carbon filtration.

Remember that a single water test only provides the user with a snap shot of the water being tested. It is best used as a base line to determine changes in a water system. When a priority contaminate such as benzene is found in a public supply system for example, the system is placed on a monitoring program for that contaminant to see if it reduces, remains constant or increases. Then appropriate treatment to remove the contaminant is performed. For the private well user it is best to confirm the presence of any priority contaminant with a second analysis for it within a short period to see if it is still present, and then treat accordingly. Thereafter periodic testing to determine the effectiveness of the treatment is advised.

Keep in mind that the most common contamination is bacteriological requiring at least annual testing for presence and disinfection of private wells at least every 2 years to maintain safe bacteria levels.

Report Date: 11/7/15
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