Xpress Water Testing - Informational Report

Sample ID: DWT-20-NNNN

Validation Key:	Report ID:	NN	Validation Sample ID:	DWT-20-NNNN	Report Approved By Electronic Signature:	Rob Stinolis, Technical Director

Date Of Report: 12/15/2020

Client And Order Information

Client Name: Home Inspection Professionals - HIP Services

Date Ordered: 12/09/2020

Test Ordered: Comprehensive

Sample Information

Sampling Address: Your New Home

Date/Time Sampled: 12/12/2020 16:00:00

City, State, Zip:

Date Received: 12/13/2020

Sample Point:

Sample Type: Check

Collected By: Home Inspection Professionals - HIP Services

SampleID: DWT-20-NNNN

Metals

Your Sample			Compare to		Analytical Details			
	Analyte (unit)	Result	EPA Limit	Recommended Limit	Analyst	Analysis Time	Method	Reporting Limit
	Aluminum (ppb)	Not Detected	200		RS	12/15/2020 12:10 PM	EPA 200.8	0.5
	Antimony (ppb)	Not Detected	6	1	RS	12/15/2020 12:10 PM	EPA 200.8	0.5
	Arsenic (ppb)	2.5	10	0.17	RS	12/15/2020 12:10 PM	EPA 200.8	0.5
	Barium (ppb)	7.1	2000		RS	12/15/2020 12:10 PM	EPA 200.8	0.5
	Berylllium (ppb)	Not Detected	4	1	RS	12/15/2020 12:10 PM	EPA 200.8	0.5
	Cadmium (ppb)	Not Detected	5	0.13	RS	12/15/2020 12:10 PM	EPA 200.8	0.5
	Calcium (ppm)	51.9			RS	12/15/2020 12:10 PM	EPA 200.8	0.1
	Chromium (ppb)	1.2	100	0.12	RS	12/15/2020 12:10 PM	EPA 200.8	0.5

	Copper (ppb)	22.4	1300	300	RS	12/15/2020 12:10 PM	EPA 200.8	0.5
	Iron (ppb)	355	300		RS	12/15/2020 12:10 PM	EPA 200.8	0.5
	Lead (ppb)	1.9	15	0.2	RS	12/15/2020 12:10 PM	EPA 200.8	0.5
	Magnesium (ppm)	66.7			RS	12/15/2020 12:10 PM	EPA 200.8	0.1
	Manganese (ppb)	< 0.5	50		RS	12/15/2020 12:10 PM	EPA 200.8	0.5
	Mercury (ppb)	Not Detected	2	1.2	RS	12/15/2020 12:10 PM	EPA 200.8	0.05
	Potassium (ppm)	24.3			RS	12/15/2020 12:10 PM	EPA 200.8	0.1
	Nickel (ppb)	1.8		12	RS	12/15/2020 12:10 PM	EPA 200.8	0.5
	Selenium (ppb)	4.4	50	30	RS	12/15/2020 12:10 PM	EPA 200.8	0.5
	Silver (ppb)	0.9	100		RS	12/15/2020 12:10 PM	EPA 200.8	0.5
	Sodium (ppm)	643.1		20	RS	12/15/2020 12:10 PM	EPA 200.8	0.1
	Strontium (ppb)	1521.1		3000	RS	12/15/2020 12:10 PM	EPA 200.8	0.5
	Thallium (ppb)	Not Detected	2	0.1	RS	12/15/2020 12:10 PM	EPA 200.8	0.5
	Uranium (ppb)	1.6	30	0.5	RS	12/15/2020 12:10 PM	EPA 200.8	0.5
	Zinc (ppb)	70.4	5000	5000	RS	12/15/2020 12:10 PM	EPA 200.8	0.5

Inorganics

Your Sample			Compare To		Analytical Details			
	Analyte (unit)	Result	EPA Limit	Recommended Level	Analyst	Analysis Date	Method	Reporting Limit
	Chloride (ppm)	1115.48	250		RS	12/14/2020 03:46 PM	EPA 300.0	0.15
	Fluoride (ppm)	< 0.1	4	0.7	RS	12/14/2020 03:46 PM	EPA 300.0	0.1
	Nitrate-N (ppm)	0.87	10		RS	12/14/2020 03:46 PM	EPA 300.0	0.125
	Nitrite-N (ppm)	Not Detected	1	0.02	RS	12/14/2020 03:46 PM	EPA 300.0	0.15
	Sulfate (ppm)	138.02	250		RS	12/14/2020 03:46 PM	EPA 300.0	0.75

Microbiology

Your Sample			Compare to		Analytical Details			
	Analyte (unit)	Result	EPA Limit	Recommended Limit	Analyst	Analysis Date	Method	Reporting Limit
	Total Coliforms	Negative	0		ZS	12/13/2020 01:50 PM	SM 9223-B	1 cfu/mL
	E Coli	Negative	0		ZS	12/13/2020 01:50 PM	SM 9223-B	1 cfu/mL
	HPC (cfu/mL)	555		500	ZS	12/13/2020 01:50 PM	SM 9215-E	10 cfu/mL

General Characteristics

Your Sample			Compare to		Analytical Details			
	Analyte (unit)	Result	EPA Limit	Recommended Limit	Analyst	Analysis Time	Method	Reporting Limit
	Alkalinity (mg/L)	169		30-400	RS	12/15/2020 02:25 PM	Hach 10239	25
	Conductivity (uS/cm)	4208			RS	12/15/2020 03:00 PM	SM 2510-B	
	Hardness (ppm CaCO3)	404		180	RS	12/15/2020 12:10 PM	SM 2340-B	20
	pH	7.8	6.5-8.5		RS	12/15/2020 02:00 PM	EPA 150.1	
	Total Dissolved Solid (ppm)	2063	500		RS	12/15/2020 03:00 PM	SM 2510-B	
	Turbidity (NTU)	0.3	5		RS	12/15/2020 03:20 PM	EPA 180.1	0.1

These test results may not be used for compliance purposes and are intended to be informational only. Analytical methods are either US EPA Methods or approved variations thereof.

Understanding Your Results

Result for tested sample is within EPA and recommended health-based limits

Result for tested sample is above the recommended health-based limit but does not exceed the EPA limit

Result for tested sample exceeds established EPA limit

No EPA or other recommended health-based limit has been established for this analyte

Overview

The Safe Drinking Water Act (SDWA) requires EPA to establish and enforce standards that public drinking water systems must follow. Approximately 150,000 public water systems provide drinking water to most Americans. About 10 percent of people in the United States rely on water from private wells. Private wells are not regulated under the SDWA. Drinking water can expose people to a variety of harmful pollutants and pathogens. Public water systems use water treatment and monitoring to protect consumers from such contaminants, however, annual reports from public water systems only provide a high-level system-wide picture of water safety and do not reflect conditions at a specific household faucet. Generally, private wells do not receive the same services that wells supplying the public do. Well owners are responsible for protecting their drinking water. To do so, a well owner must be aware of their well's potential for contamination and the possible health effects those potential contaminants can have.

Discussion

This report compares the levels of contaminants found in the tested sample to the Maximum Contaminant Level (MCL), as established by EPA under the National Primary Drinking Water Regulations or, as applicable to the analyte, to the Secondary Maximum Contaminant Level (SMCL), as established by EPA under the National Secondary Drinking Water Regulations. The MCL is the highest level of a contaminant that is allowed in drinking water.

In addition to comparing the levels of contaminants found in the tested sample to limits established by the EPA, this report also compares the levels of these contaminants and characteristics to recommended levels. These recommended levels are based upon current clinical and scientific data and literature, and are often lower than those established by EPA.

Findings - Metals

Although the level of arsenic found to be present did not exceed the established EPA limit, it is above our scientists' recommended limit. Treatment is advised. Arsenic is a heavy metal. Common sources of arsenic in drinking water are natural deposits in soil, coal burning power plants, and metal production facilities. People that are exposed to high levels of arsenic are at increased risk of liver, kidney, and intestinal damage, anemia, and cancer. The level of arsenic present makes this water unsuitable for the preparation of infant formula.Although the level of chromium found to be present did not exceed the established EPA limit, it

is above our scientists' recommended limit. Treatment is advised. Chromium is a heavy metal that is widely used in industry. There are two forms of chromium, trivalent (Cr III) and hexavalent (Cr VI). While Cr VI is more soluble in water and more toxic than Cr III, presence of either in drinking water is undesirable and your results are therefore presented as Total Chromium, which is the level of all chromium found in your sample. While some chromium is naturally present in the environment, elevated levels are often caused by contamination by electroplating facilities, leather tanneries, and textile manufacturers. Exposure to chromium has been proven to cause cancer, especially of the stomach and lungs. The level of chromium present makes this water unsuitable for the preparation of infant formula.Iron was found to be present at levels which exceed the established EPA limit. Iron is a metal that can be naturally present in groundwater or the result of rusting or corroding pipes.Iron is classified as a secondary contaminant by the EPA. There are a wide variety of problems which are related to secondary contaminants: aesthetic effects such as undesirable tastes or odors, cosmetic effects, and technical effects such as damage to water equipment or plumbing. Specific noticeable effects of iron at levels above the SMCL include rusty color, sediment, metallic taste, and reddish or orange staining.Although the level of lead found to be present did not exceed the established EPA limit, it is above our scientists' recommended limit. Treatment is advised. Lead is a heavy metal. Common sources of lead in drinking water include corrosion of household plumbing systems, including lead pipes, brass or chrome plated faucets, and in homes built prior to 1986, lead based solder used in plumbing. Less commonly, lead may enter drinking water through erosion of natural deposits. Effects of elevated lead levels in infants and children include delays in physical or mental development including deficits in attention span, and learning disabilities. Effects of elevated lead levels in adults include kidney problems and high blood pressure. Lead is also a suspected to cause cancer in humans. The level of lead present makes this water unsuitable for the preparation of infant formula.Although the level of uranium found to be present did not exceed the established EPA limit, it is above our scientists' recommended limit. Treatment is advised. Uranium is a naturally occurring radioactive element that exists around the world at low concentrations. Water sources are contaminated with uranium primarily through the erosion of soil that contains uranium. Uranium exposure is known to damage the kidneys and radiation emitted by uranium is known to cause cancer.The level of sodium found to be present is above our scientists' recommended limit. Treatment should be considered. Sodium is a naturally occurring element that is the sixth most abundant in the Earth’s crust. Sodium is present in all water sources because of the high solubility of sodium containing compounds. Those on reduced sodium diets should limit their sodium intake from drinking water to less than 20 ppm. Sodium in concentrations in excess of this level may also give the water an unpleasant salty taste. The level of sodium present makes this water unsuitable for the preparation of infant formula.

Treatment Recommendations - Metals

Reverse osmosis systems, particularly when used in tandem with distillation systems, are effective at removing arsenic from drinking water. If only one of these systems is to be employed, studies have demonstrated that distillation is the more effective of the two. For higher levels of arsenic, iron oxide/hydroxide filtration media and/or titanium dioxide filtration media have demonstrated efficacy.Reverse osmosis and distillation systems have been shown to be effective at the reduction or removal of chromium in drinking water.Reverse osmosis and distillation systems, particularly when used together, are both highly effective at removing iron from drinking water systems. An alternate remediation approach would be the use of a water softener system that features ion exchange technology specifically targeted to reduce iron.Reverse osmosis systems have been shown to be effective at reducing or removing lead from drinking water. Distillation systems or the use of water filters certified to remove lead represent alternate remediation approaches.Reverse osmosis and anion exchange have been shown to be effective at the reduction or removal of uranium from drinking water. Note that special wastewater disposal precautions may be necessary and these should be discussed with a licensed professional.Sodium may be reduced or removed from drinking water through the use of reverse osmosis or

distillation systems.

Findings - Inorganics

Chloride was found to be present at levels which exceed the established EPA limit. Chloride is an inorganic anion that is ubiquitous in nature. Although chloride can be found almost everywhere on Earth, notable sources that can contaminate drinking water include run-off from fertilizers, landfill leachates, septic tank or industrial effluents, animal feeds, irrigation drainage, run-off containing road de-icing salts, and seawater intrusion in coastal areas. Chloride in water may also be considerably increased by treatment processes in which chlorine or chloride is used. High levels of chloride in drinking water may contribute to corrosion of household plumbing and can increase the levels of metals in drinking water. Excess chloride may also affect the taste of water.

Treatment Recommendations - Inorganics

Reverse osmosis systems have demonstrated efficacy with regard to reduction of chloride in drinking water.

Findings - Microbiology

The heterotrophic plate count (HPC) is above our scientists' recommended limit. Treatment should be considered. HPC is a measurement of the total amount of all bacteria in the water. On its own, a high HPC may not necessarily pose a health risk but is used as an indicator of the overall quality of the water, particularly if sudden spikes upward in HPC occur or increasing counts over time persist. A higher HPC indicates that more bacteria are living in the water and there is a greater risk that some of those bacteria are infectious.

Treatment Recommendations - Microbiology

Initial remediation measures to address an elevated heterotrophic plate count (HPC) in drinking water include making system repairs, flushing, and adding chlorine for a short period of time. Such measures are typically provided by or under the guidance of a licensed professional. Alternate and additional approaches include filtration, distillation, reverse osmosis, and ultraviolet treatment systems, all of which are effective at removing microorganisms from drinking water. Note that if an ultraviolet treatment approach is selected that pre-filtration using a pore size of 0.001 to 0.01 micron is recommended, with the former being more effective.

Findings - General Characteristics

Hardness levels were found to be above the recommended range. You may wish to consider treatment. Water hardness has been considered a traditional measure of the capacity of water to react with soap. As a water's hardness increases, more soap is required to produce a lather. Hard water commonly causes deposits on fixtures and may damage or shorten the usable life of water softeners, dishwashers, and other appliances, particularly those which heat water or use heated water.Total dissolved solids (TDS) were found to be present at levels which exceed the established EPA limit. TDS is a measure of the total amount of material dissolved in water. High TDS can lead to coloration of water, deposits on fixtures, and unpleasant taste. Water becomes increasingly undrinkable as TDS

increases, particularly beyond 1000 ppm.

Treatment Recommendations - General Characteristics

Hard water may be effectively treated through the use of a water softener system. It should be noted that water softener systems are not effective at the reduction or removal of bacteria or other microorganisms.Filtration, reverse osmosis, and distillation systems are all effective at lowering the level of Total Dissolved Solids (TDS) in drinking water.

Analyst Notes

Glossary Of Analyst Notes

a Result for this analyte may not be used for compliance purposes under the Safe Drinking Water Act and is for informational purposes only
b The US EPA has not formally established an MCL for heterotrophic plate count, but has recommended a target level below 500 cfu/mL
c Secondary Maximum Contaminant Level
d Sample not provided for this analysis
e Reported as Eastern Time, US
f Inherent properties of the sample matrix may contribute to a low bias for this analyte
g Inherent properties of the sample matrix may contribute to a high bias for this analyte
h Sample received beyond maximum allowable hold time for this analyte. No testing performed
i Sample received beyond maximum allowable hold time for this analyte. Results are for informational purposes only
j Sample did not meet quality control requirements for this analyte
k Secondary sample point connected to reverse osmosis system

Definitions

Detected: The actual amount of the analyte found to be present in the provided sample EPA Limit: The U.S. Environmental Protection Agency (EPA) has established National Primary Drinking Water Regulations (NPDWRs) that set mandatory water quality standards and Maximum Contaminant Levels (MCL) for drinking water contaminants4. In addition, the EPA has established National Secondary Drinking Water Regulations (NSDWRs) that set non mandatory water quality standards and Secondary Maximum Contaminant Levels (SMCL) for additional contaminants; they have been established as guidelines to assist public water systems in managing their drinking water5. The MCL or SMCL, as applicable, is listed for each analyte as the “EPA Limit” and should be compared to the amount detected in the sample Reporting Limit: The lowest concentration of standard used for analytical calibration. This is the lowest concentration of analyte reported by the laboratory and is analyte and test specific

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