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Walter Oldeck

Attn : ***Walter Oldeck***

KAR Project No. :	***610418***
Date Reported :	***08/15/16***
Date Activated :	***08/11/16***
Date Due :	***08/15/16***
Date Validated :	***08/15/16***

Project Description : ***Analysis of water from Test Kit-90***

Dear Client,

The laboratory analysis of your water is presented in this report. The purpose was to screen for key indicators of water quality, quickly and at a low cost, while maintaining professional laboratory data quality. This report cannot be used for Safe Drinking Water Act regulatory compliance purposes because it does not comply with all of the U.S. EPA regulations, mainly in the area of sample collection.

The "Comments" column contains guidelines for interpreting the results. Maximum Contaminant Levels (MCL's) established by the USEPA are included which protect health and should not be exceeded. Other MCL's indicate aesthetic water qualities such as taste, odor, or color, and these values are enclosed in brackets [ ]. Values in braces { } are non-USEPA MCL's such as World Health Org., Canada, etc. ***Please note that many contaminants listed on the report do not yet have a maximum contaminant level set for drinking water,*** *a consequence of being on the leading edge of contaminant testing.*

The low cost of our lab-grade water sampling kits does not include a professional one-on-one consultation regarding specific water problems or health concerns. Please visit the USEPA drinking water website at ***http://water.epa.gov/drink/***, or contact your local Health Department for information specific to your water supply. Always talk to your doctors about health concerns, and show them this report. Thank you for the pleasure and opportunity to serve you!

Respectfully submitted,

The professional staff at KAR Laboratories, Inc.

DRINKING WATER LABORATORY REPORT

Client: ***Walter Oldeck***

KAR Project No. : ***610418***

Date Reported: ***08/15/16***

Analysis of water from Test Kit-90

Sample ID : ***"Cabin"***

Sampled By : ***Walt Oldeck***
Sample Date : ***08/10/16***
Sample Time : ***1330***

Date Received : ***08/11/16***
Sample Type : ***domestic***
KAR Sample No. : ***610418-01W***

Test	Result	Units*	Method	Analyzed	Comments	Explanation
Water Test Kit-Anions	See below		EPA 300.0A	08/11/16 MHK		
Water Test Kit-Metals (MS)	See below		EPA 200.8	08/11/16 NHM		
Water Test Kit-Metals (OES1)	See below		EPA 200.7	08/11/16 JHB		
Prep, 1631	Completed		EPA 1631E	08/11/16 JHB		
Aluminum, total	<0.05	mg/L	EPA 200.7	08/11/16 JHB	MCL**=[0.050 mg/L]	None found (acceptable result)
Antimony, total	<0.005	mg/L	EPA 200.8	08/11/16 NHM	MCL**=0.006 mg/L	None found (acceptable result)
Arsenic, total	<0.002	mg/L	EPA 200.8	08/11/16 NHM	MCL**=0.01 mg/L	None found (acceptable result)
Barium, total	<0.05	mg/L	EPA 200.7	08/11/16 JHB	MCL**=2 mg/L	None found (acceptable result)
Beryllium, total	<0.002	mg/L	EPA 200.8	08/11/16 NHM	MCL**=0.004 mg/L	None found (acceptable result)
Bismuth, total	<0.1	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Boron, total	<0.05	mg/L	EPA 200.7	08/11/16 JHB	MCL**={500} ug/L	None found (acceptable result)
Cadmium, total	<0.001	mg/L	EPA 200.8	08/11/16 NHM	MCL**=0.005 mg/L	None found (acceptable result)
Calcium, total	43.7	mg/L	EPA 200.7	08/11/16 JHB		
Cerium, total	<0.005	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Cesium, total	<0.02	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Chromium, hexavalent	<0.025	mg/L	EPA 200.7	08/11/16 JHB		None found (acceptable result)
Chromium, total	<0.01	mg/L	EPA 200.7	08/11/16 JHB	MCL**=0.1 mg/L	None found (acceptable result)
Cobalt, total	<0.02	mg/L	EPA 200.7	08/11/16 JHB		None found (acceptable result)
Copper, total	<0.02	mg/L	EPA 200.7	08/11/16 JHB	MCL**=1.3 mg/L	None found (acceptable result)
Dysprosium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Erbium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Europium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Gallium, total	<0.02	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Germanium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Gold, total	<0.02	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Hafnium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Holmium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Indium, total	<0.02	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Iridium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Iron, total	0.42	mg/L	EPA 200.7	08/11/16 JHB	MCL**=[0.3 mg/L]	
Lanthanum, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Lead, total	<0.001	mg/L	EPA 200.8	08/11/16 NHM	MCL**=0.015 mg/L	None found (acceptable result)
Lithium, total	<0.05	mg/L	EPA 200.7	08/11/16 JHB		None found (acceptable result)
Lutetium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Magnesium, total	7.1	mg/L	EPA 200.7	08/11/16 JHB		
Manganese, total	0.032	mg/L	EPA 200.7	08/11/16 JHB	MCL**=[0.05 mg/L]	
Mercury by EPA 1631	<0.025	ug/L	EPA 1631E	08/11/16 JHB	MCL**=2 ug/L	None found (acceptable result)
Molybdenum, total	<0.02	mg/L	EPA 200.7	08/11/16 JHB	MCL**={70} ug/L	None found (acceptable result)
Neodymium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Nickel, total	<0.02	mg/L	EPA 200.7	08/11/16 JHB	MCL**=0.1 mg/L	None found (acceptable result)
Niobium, total	<0.05	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Palladium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Phosphorus, total, by ICP	<0.5	mg/L	EPA 200.7	08/11/16 JHB		None found (acceptable result)
Platinum, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Potassium, total	0.4	mg/L	EPA 200.7	08/11/16 JHB		
Praseodymium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Rhenium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Rhodium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Rubidium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)

DRINKING WATER LABORATORY REPORT

Client: ***Walter Oldeck***

KAR Project No. : ***610418***

Date Reported: ***08/15/16***

Analysis of water from Test Kit-90

Sample ID : ***"Cabin"***

Sampled By : ***Walt Oldeck***
Sample Date : ***08/10/16***
Sample Time : ***1330***

Date Received : ***08/11/16***
Sample Type : ***domestic***
KAR Sample No. : ***610418-01W***

Test	Result	Units*	Method	Analyzed	Comments	Explanation
Ruthenium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Samarium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Scandium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Selenium, total	<0.005	mg/L	EPA 200.8	08/11/16 NHM	MCL**=0.05 mg/L	None found (acceptable result)
Silver, total	<0.005	mg/L	EPA 200.8	08/11/16 NHM	MCL**=[0.1 mg/L]	None found (acceptable result)
Sodium, total	3.7	mg/L	EPA 200.7	08/11/16 JHB	MCL**=[20 mg/L]	
Strontium, total	<0.1	mg/L	EPA 200.7	08/11/16 JHB	MCL**={1500} ug/L	None found (acceptable result)
Sulfur, total, by ICP	<0.5	mg/L	EPA 200.7	08/11/16 JHB		None found (acceptable result)
Tantalum, total	<0.05	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Tellurium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Terbium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Thallium, total	<0.002	mg/L	EPA 200.8	08/11/16 NHM	MCL**=0.002 mg/L	None found (acceptable result)
Thorium, total	<0.02	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Thulium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Tin, total	<0.1	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Titanium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Tungsten, total	<0.05	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Uranium, total	<0.005	mg/L	EPA 200.8	08/11/16 NHM	MCL**=0.03 mg/L	None found (acceptable result)
Vanadium, total	<0.02	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Ytterbium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Yttrium, total	<0.01	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Zinc, total	0.04	mg/L	EPA 200.7	08/11/16 JHB	MCL**=[5 mg/L]	
Zirconium, total	<0.05	mg/L	EPA 200.8	08/11/16 NHM		None found (acceptable result)
Bacteria, E. coli	Negative		SM 9223 B	08/11/16 EIF		Negative indicates this bacteria was not detected by this screening method.
Bacteria, total coliform	Negative		SM 9223 B	08/11/16 EIF		Negative indicates this bacteria was not detected by this screening method.
Alkalinity (as CaCO3)	141	mg/L	SM 2320 B	08/11/16 AJK		
Bicarbonate (as CaCO3)	139	mg/L	SM 2320 B	08/11/16 AJK		
Bromide	<0.1	mg/L	EPA 300.0A	08/11/16 MHK		None found (acceptable result)
Carbonate (as CaCO3)	1.07	mg/L	SM 2320 B	08/11/16 AJK		
Chlorate	<0.1	mg/L	EPA 300.0A	08/11/16 MHK	MCL**={0.7} mg/L	None found (acceptable result)
Chloride	8.8	mg/L	EPA 300.0A	08/11/16 MHK	MCL**=[250 mg/L]	
Color	10	color units	SM 2120 B	08/12/16 EIF	MCL**=[15 c.u.]	
Conductivity	292	micromhos/cm	EPA 120.1	08/11/16 BAW		
Corrosivity, Langelier Index	0.4	S.U.	SM 2330 B	08/11/16 AJK		
Corrosivity, Ryznar Index	7.2	S.U.	SM 2330 B	08/11/16 AJK		
Fluoride	<0.1	mg/L	EPA 300.0A	08/11/16 MHK	MCL**=4 mg/L [2]	None found (acceptable result)
Hardness	138	mg/L (as CaCO3)	SM 2340 B	08/11/16 JHB		
Hardness (gpg)	8.1	grains/gallon	SM 2340 B	08/11/16 JHB		
Nitrogen, nitrate	<0.1	mg/L	EPA 300.0A	08/11/16 MHK	MCL**=10 mg/L	None found (acceptable result)
Nitrogen, nitrite	<0.1	mg/L	EPA 300.0A	08/11/16 MHK	MCL**=1 mg/L	None found (acceptable result)
Orthophosphate	<0.1	mg/L	EPA 300.0A	08/11/16 MHK		None found (acceptable result)
PH	7.9	S.U.	SM 4500-H B	08/11/16 AJK	MCL**=6.5-8.5su	
Salinity	0.144	ppt	SM 2520 B	08/11/16 AJK		
Silica	10.1	mg/L	EPA 200.7	08/11/16 JHB		
Sodium ads. ratio, adjusted	0.15		KAR	08/15/16 MID		
Sodium adsorption ratio	0.14		KAR	08/15/16 MID		
Sulfate	<1	mg/L	EPA 300.0A	08/11/16 MHK	MCL**=[250 mg/L]	None found (acceptable result)
Turbidity	<1	NTU	SM 2130 B	08/11/16 MID	MCL**={0.3}	None found (acceptable result)

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KAR Project No. : ***610418***

Date Reported: ***08/15/16***

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Sample ID : ***"Cabin"***

Sampled By : ***Walt Oldeck***
Sample Date : ***08/10/16***
Sample Time : ***1330***

Date Received : ***08/11/16***
Sample Type : ***domestic***
KAR Sample No. : ***610418-01W***

Test	Result	Units*	Method	Analyzed	Comments	Explanation
Tot. diss. solids, estimated	*196*	*mg/L*	*EPA 120.1*	*08/11/16 AJK*	*MCL**=[500 mg/L]*	

This report is informational and is not intended for use in SDWA regulatory compliance testing. Partial copies are invalid. Laboratory does not own the data and cannot provide copies. Copies cannot be made without the written consent of the owner of this data, **Walter Oldeck**

"<" (less than sign) indicates NOT FOUND. The number to the right of "<" is the lowest concentration that the test can detect (the reporting limit)
** please refer to Page 1 for more information

Terms	Explanation
Test	The property or contaminant we tested for in your sample.
Result	The actual findings of your test.
Units	The unit of measure used for the Result.
Method	The analytical test procedure that we used to measure that Test.
Analyzed	The date the test was performed and the initials of the analyst that performed that Test.
Comments	Guidelines for evaluating the Results (please see Page 1), and any testing issues or problems encountered.
Explanation	Supplemental information in plain English.
"MCL**=	The recommended Maximum Contaminant Level: USEPA Primary, [USEPA Secondary], {WHO, Canada, Etc.}

*Units of Measure

mg/L is milligrams per liter, also known as parts per million (ppm)
ug/L is micrograms per liter, also known as parts per billion (ppb)
ppm is parts per million
ppt is parts per thousand
micromhos/cm is micromhos per centimeter

ppb is parts per billion
gpg is grains per gallon
S.U. is Standard Units
NTU is Nephelometric Turbidity Units

This report cannot be used for the purposes of regulatory compliance due to sampling limitations and varying local regulations. Results are invalid if report is not presented in its entirety. Copies cannot be made without the written consent of the owner of this data, **Walter Oldeck**.

DESCRIPTION OF TESTS AND IF NECESSARY, TREATMENT

Always consult your doctor for health-related issues and show him/her your Analytical Report. Please refer to the body of our Analytical Report for U.S. EPA Maximum Contaminant Levels and how they relate to YOUR water sample. **Primary MCLs (example: MCL=0.5ug/L) should NOT be exceeded.** Secondary MCLs are indicated in brackets (example: MCL=[0.5ug/L] and are not health related, usually for aesthetic reasons (taste, color, iron staining, water spotting, etc.). Below is information based upon common questions we get:

Bacteria, E. coli and total Coliform These bacteria come from human and animal wastes and are found throughout the environment. Most coliform bacteria are not a health threat, but some strains are pathogenic. Testing for Coliforms is used to indicate whether other potentially harmful bacteria may be present. Kitchen faucets with an aerator screen, infrequently used faucets, and outdoor faucets are more prone to grow bacteria. It is not uncommon for the sample to become contaminated by touching the threads on the vial and/or placing the cap on a counter top. Chlorination/flushing of the well and plumbing system will help reduce or eliminate the bacteria. Most public water systems maintain a low concentration of chlorine to control bacteria.

Corrosivity, Langelier Saturation Index A negative value indicates the water will tend to be corrosive in the distribution system. A positive value indicates the water will tend to deposit calcium carbonate forming scales in the distribution system. If the Langelier Index is close to zero, then the water will neither be strongly corrosive nor scale forming.

Chlorate Chlorate can enter drinking water from several sources, including from hypochlorite or chlorine dioxide disinfectant use, ozone oxidation of hypochlorite or calorie, pesticide runoff or paper mill discharges. Chlorate is also used in explosives and as a pesticide. Hypochlorite and chlorine dioxide use as disinfectants are by far the principal sources in drinking water.

Fluoride Fluoride is naturally present in some water. Community water fluoridation is the adjustment of the natural fluoride level in public water systems to an optimal level to prevent tooth decay. It's added to achieve a low parts-per-million concentration (ppm). We've seen one case of over-fluorination that caused stomach illness to children at an elementary school and the neighborhood. The use of fluoride has been controversial for several decades. The USEPA primary limit is 4.0, the USEPA secondary limit is 2.0, and the DHSS level is 0.7 to prevent dental florists.

Hardness If a resin-bed water softener is being used, the Calcium and Magnesium results should be low (less than 5 mg/L). If they're not, double-check the softener's settings and make sure the end of the suction line in the brine tank isn't clogged with salt sludge. A well-maintained resin bed should last about 20 years.

Copper A common toxic contaminant in many drinking waters that we test. Usually attributable to the water distribution system and is directly effected by the corrosivity of the source water. The USEPA Primary Drinking Water limit is 1.3mg/L (1300ug/L).

Lead A common toxic contaminant in many drinking waters that we test. Usually attributable to the water distribution system and is directly effected by the corrosivity of the source water. The USEPA Primary Drinking Water limit is 0.015mg/L (15ug/L).

Uranium Uranium is naturally occurring in the soil and rock of certain regions, and decomposes to Radon and Radium, making Uranium a potential indicator of these other toxic breakdown products.

Nitrate The largest use of nitrates is in fertilizer. In the body, nitrates are converted to nitrites. Infants below six months of age who drink water containing nitrate in excess of the maximum contaminant level (MCL) could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome. The long-term effects of Nitrate on adults is still being studied.

Ryznar Stability Index A value of 6 or less indicates a tendency to form scale. A value 8 or more indicates a tendency to corrode metal. A value near 7 (neutral) may be slightly scale-forming or corrosive. A thin coating of scale inside a metal pipe may help protect it from corrosion.

Salinity The saltiness or dissolved salt content of water. Groundwater, inland lakes, and rivers are typically less than 0.5 parts-per-thousand (ppt). Brackish water is 0.5 to 30 ppt. Seawater and brines are 30 to 50 ppt.

Sodium adsorption ratio (SAR) Commonly used as an index for evaluating the sodium hazard associated with an irrigation water supply. Irrigation waters having high SAR levels can lead to the build-up of high soil Na levels over time, which in turn can adversely effect soil infiltration and percolation rates, due to soil dispersion. Additionally, excessive SAR levels can lead to soil crusting, poor seedling emergence and poor aeration.

Sodium ads. ratio, adjusted For high calcium and/or bicarbonate waters, primarily groundwater at elevated CO2 content used for crop irrigation, many soil scientists recommend that the Adjusted SAR formula be used.

Silica A small amount of silica is dissolved in drinking water from contact with soil.

Sulfate Usually found in drinking water. The USEPA secondary limit is 250ppm. Concentrations above 250ppm can cause gastrointestinal disturbances such as diarrhea. Sulfate in lower concentrations can actually improve the taste of water and is sometimes added to beverage products for that reason.

Sulfur Usually found in drinking water and is most often directly attributable to the sulfate ion (SO4).

Total Organic Carbon TOC does not identify specific organic contaminants. It will, however, detect the presence of all carbon-bearing molecules, thus identifying the presence of any organic contaminants, regardless of molecular make-up. A general water quality criteria for TOC is 2 mg/L for treated water and 4 mg/L for source water. TOC levels in chlorinated water influence the amount of Total Trihalomethanes (TTHMs) that are formed in that water.

Turbidity A cloudy or milky appearance of water. Turbidity is due to particles scattering or absorbing light, giving the water a cloudy appearance. Turbidity is caused by suspended particles such as rust, silt, limestone, microorganisms, etc. Turbidity should be below 5 nephelometric turbidity units (NTU), while systems that filter must ensure that the turbidity does not exceed 1 NTU, or 0.5 NTU for conventional or direct filtration in at least 95% of the daily samples for any two consecutive months.

Chloroform, Bromoform, Bromodichloromethane, Dibromochloromethane The maximum allowable concentration of the sum of these is 80 ug/L. These compounds are collectively called Total Trihalomethanes (TTHM) and are commonly found in municipal water supplies. Trihalomethanes are formed when chlorine is used to disinfect water for drinking and represent a group of chemicals called disinfection byproducts. They are a byproduct of the reaction of chlorine or bromine with organic matter present in the water being treated. A good charcoal filter is effective at removing trihalomethanes from water, just be sure to change the charcoal bed frequently to avoid bacteria and mold buildup.

Ethylene dibromide EDB is very rarely found in drinking water. We can report it down to 0.2 ug/L. The extremely low EPA MCL 0.05 ug/L detection limit is beyond the scope of our value-centric kits. We are however EPA certified to analyze EDB using EPA Method 504 at additional cost. Please give us a call if you have reason to believe this is a concern in your situation.

PCBs Polychlorinated biphenyls are very rarely found in drinking water. We can report it down to 2 ug/L. The extremely low EPA MCL 0.5 ug/L detection limit is beyond the scope of our value-centric kits. We are however EPA certified to analyze PCB using EPA Method 508 at additional cost. Please give us a call if you have reason to believe this is a concern in your situation.

VOC TICs Volatile Organic Tentatively Identified Compounds - in a GC-MS volatile analysis using EPA method 524.2, we directly calibrate the instrument using a 5-point calibration curve with pure, authentic analytical standards. These are called “target analytes”. But we also have the ability to detect other contaminants during the course of the test, and will report these “Tentatively Identified Compounds” that we may find. We use the NIST mass spectral database of about 250,000 compounds to identify the contaminant, then do a “raw” quanitification. It’s called raw because we did not directly calibrate the instrument with that authentic compound, but we have a pretty good idea what response it will provide. So statistically, we report the TICs to only one significant figure, whereas we use more significant figures elsewhere for organics. We rarely detect TICs, but when we do, they’re a very good thing to know about.

SVOC TICs Semi-Volatile Organic Tentatively Identified Compounds - In a GC-MS semi-volatile analysis using EPA Method 525.2, we directly calibrate the instrument using a 5-point calibration curve with pure, authentic analytical standards. These are called “target analytes”. But we also have the ability to detect other contaminants during the course of the test, and will report these “Tentatively Identified Compounds” that we may find. We use the NIST mass spectral database of about 250,000 compounds to identify the contaminant, then do a “raw” quanitification. It’s called raw because we did not directly calibrate the instrument with that authentic compound, but we have a pretty good idea what response it will provide. So statistically, we report the TICs to only one significant figure, whereas we use more significant figures elsewhere for organics. We rarely detect TICs, but when we do, they’re a very good thing to know about.