

# EXPLANATION SHEET FOR WATER QUALITY ANALYSIS

**A & L LABORATORY INC.**  
P.O. Box 1087  
 1000 Westwood  
 Lubbock, Texas 79411-1087

**CERTIFICATE OF ANALYSIS**  
Client Name: April 30, 2013  
 Date Received: May 01, 2013  
 Class Information: Property Tested: This water is used for: Unidentified

PARAMETER	RESULTS	REMARKS	DATE/TIME ANALYZED
Total Coliform	0220*	ABSENT (0/100 mL)	5/10/13 11:20:00 AM
E. coli	0220*	ABSENT (0/100 mL)	5/10/13 11:20:00 AM
Nitrate-N	4030.5030P*	1.0 mg/L	5/10/13 11:40:00 AM
Nitrite-N	4030.5030P*	100 mg/L	5/10/13 11:40:00 AM
pH	4030.5030P*	6.3-6.7	5/10/13 11:40:00 AM
Copper	3113P*	1.3 mg/L	5/10/13 11:40:00 AM
Chloride	3113P*	600 mg/L	5/10/13 11:40:00 AM
Iron	3113P*	0.30 mg/L	5/10/13 11:40:00 AM
Lead	4030.5030P*	20 mg/L	5/10/13 11:40:00 AM
Hardness (DTH)	2140C*	300 mg/L	5/10/13 11:40:00 AM
Arsenic	3113P*	0.010 mg/L	5/10/13 11:40:00 AM

For an explanation of your test results please see our website at [www.al-lab.com](http://www.al-lab.com). All other questions should be directed to the ANALYST/CLIENT SERVICE at [info@al-lab.com](mailto:info@al-lab.com). The testing facility is located at 1000 Westwood, Lubbock, Texas 79411. The report applies only to the sample(s) analyzed at the time stated. The laboratory is not responsible for the accuracy of the results if the sample is not properly labeled, stored, or handled. The laboratory is not responsible for the accuracy of the results if the sample is not properly labeled, stored, or handled. The laboratory is not responsible for the accuracy of the results if the sample is not properly labeled, stored, or handled. The laboratory is not responsible for the accuracy of the results if the sample is not properly labeled, stored, or handled.

**This is a generic explanation sheet. Please refer only to the numbers below that correspond to the numbers listed on your certificate of analysis. All other numbers do not apply to your water sample.**

**All of the following interpretations and limits are based on the The Safe Drinking Water Act (SDWA). The SDWA is the main federal law that ensures the quality of Americans' drinking water. Under SDWA, EPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards. For more information please visit their website at <http://water.epa.gov/lawsregs/rulesregs/sdwa/index.cfm>**

<b>#1 SATISFACTORY</b>	<b>#7 COPPER</b>	<b>LIMIT:</b>	<b>1.30 mg/L</b>
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This water sample is **SATISFACTORY FOR DRINKING** based on the results of the parameters tested. All the parameters tested are within the limits set by the Safe Drinking Water Act from the EPA. It is recommended to annually test for bacteria / nitrate as well as a more comprehensive package every three to five years to ensure your water quality has not changed.

This water is considered **UNSATISFACTORY FOR DRINKING** due to the elevated levels of copper. Some people who drink water containing copper in excess of the action level may, with short term exposure, experience gastrointestinal distress, and with long-term exposure may experience liver or kidney damage. It is typically introduced into the water from household plumbing systems. We advise that you do not drink this water until you have contacted a water treatment specialist.

<b>#2 BACTERIA</b>	<b>LIMIT: &lt; 1 / 100 mL / ABSENT</b>	<b>#8 SODIUM / CHLORIDE</b>	<b>LIMIT: 100 mg/L / 250 mg/L</b>
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This water is considered **UNSATISFACTORY FOR DRINKING** due to the presence of Coliform and/or E.coli Bacteria. Total Coliform is a type of bacteria which should not be present in ground water and indicates potential contamination. E. Coli is a type of bacteria found in feces of warm blooded animals. If E. coli is positive the water is unsafe to drink without treatment. Do not drink the water until you have followed the enclosed chlorination procedures and have retested your well.

This mineral exceeds the recommended limit. There are no health based standards for sodium or chloride. EPA has recommended that sodium levels not exceed 20 mg/L for those persons on a "no salt diet." EPA has identified 250 mg/L as a concentration at which chloride can be expected to cause a salty taste in water. Excess salts in the water may be due to road salt, seawater, malfunctioning water softener, or a "perched" water table.

<b>#3 NITRATE/NITRITE</b>	<b>LIMIT: 10.0 mg/L / 1.0 mg/L</b>	<b>#9 ARSENIC</b>	<b>LIMIT: 0.010 mg/L</b>
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This water is considered **UNSATISFACTORY FOR DRINKING** due to the elevated levels of Nitrate and/or Nitrite. Nitrate can occur naturally, from septic tanks and wastewater treatment, or from agricultural practices. It causes oxygen deficiency in infants under 6 months of age and unborn babies. Nitrates move easily in ground water so increasing nitrate levels can be an early warning that other contaminants are moving toward a well.

This water sample is **UNSATISFACTORY FOR DRINKING** due to the elevated level of Arsenic. Studies have shown that chronic or repeated ingestion of water with arsenic over a person's lifetime is associated with increased risk of cancer (of the skin, bladder, lung, kidney, nasal passages, liver or prostate) and non-cancerous effects (diabetes, cardiovascular, immunological and neurological disorders). Do not drink this water until you have contacted a water treatment specialist. **See the reverse side of this sheet for a more detailed explanation of arsenic.**

<b>#4 LEAD</b>	<b>LIMIT: 0.015 mg/L</b>	<b>#10 FLUORIDE</b>	<b>Advisory: 2.0 mg/L LIMIT: 4.0 mg/L</b>
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This water is considered to be **UNSATISFACTORY FOR DRINKING** due to the elevated level of Lead. Lead can cause delays in physical or mental development in children and could cause slight deficits in attention span and learning abilities. In adults lead can cause kidney problems and high blood pressure. It is typically introduced into the water from household plumbing systems. We advise that you do not drink this water until you have contacted a water treatment specialist.

This mineral exceeds the recommended limit. Fluoride in drinking water is beneficial at low concentrations, but can pose health concerns at higher concentrations. Fluoride has been shown to reduce tooth decay in children's teeth if they receive an adequate level. The optimal concentration, as recommended by CDC is approximately 1.1 mg/L. In the range of 2.0-4.0 mg/L of fluoride, staining of tooth enamel is possible. This water sample is **UNSATISFACTORY FOR DRINKING** if your result is over 4.0 mg/L. Above 4.0 mg/L, studies have shown the possibility of skeletal fluorosis, as well as the staining of teeth.

<b>#5 IRON</b>	<b>LIMIT: 0.30 mg/L</b>	<b>#11 HARDNESS</b>	<b>LIMIT: 500 mg/L</b>
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This metal exceeds the recommended limit. There are no health based standards for iron in drinking water. However, iron and other metals can appreciably affect the taste of water. At concentrations above 0.5 mg/L, parkinsonian type symptoms may occur. Excess iron can cause yellow/orange/brown staining on your fixtures and laundry. A water softener is the primary form of treatment.

Hardness in drinking water is defined as those minerals that dissolve in water having a positive electrical charge primarily calcium and magnesium. The presence of the hardness minerals in drinking water is not known to pose a health risk. At higher concentrations hardness can cause soap scum most noticeable on tubs and showers, white mineral deposits on dishes and glassware and can reduce the efficiency of devices that heat water. **(SOFT 0-75mg/L) (MODERATELY HARD 76-150mg/L) (HARD 151-300mg/L) (VERY HARD 301+mg/L).**

<b>#6 MANGANESE</b>	<b>LIMIT: 0.05 mg/L</b>	<b>NOTE: pH</b>	<b>NEUTRAL ZONE: 6.5 - 8.5 pH Units</b>
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This metal exceeds the recommended limit. There are no health based standards for manganese in drinking water. However, manganese is also present in many foods and infant formulas, and because infants are unable to purge excess manganese, recent studies suggest that infant exposure to manganese in drinking water should be avoided. Excess manganese can cause gray to black staining on your bathroom fixtures and clothes.

pH level is an indicator of the acid or alkaline condition of water. The pH of drinking water is not a health concern, but acidic water, which has a low pH rating, can leach some metals from plumbing systems, causing health problems. The pH of water can vary greatly with time and temperature changes. Therefore, pH measurements will be most accurate when conducted on site. All pH readings measured in the laboratory are reported as estimates only.

## # 9. ARSENIC EXPLANATION

### WHAT IS ARSENIC?

Arsenic is a natural occurring element found in both bedrock and overburden and is commonly detected in groundwater. The type of rock that contains arsenic is known as arsenopyrite. In some areas, past use of arsenic in pesticides on blueberry, apple and potato crops may add to the water problem. Even pre-Civil War graveyards may be a source of arsenic as it was used as an embalming solution.

### WHAT ARE THE GUIDELINES?

The original limit for arsenic was set in 1947. This limit was set at 0.050mg/L (50 parts- per- billion [ppb]). The EPA maximum contaminant level (MCL) was lowered from 0.050mg/L to 0.010mg/L effective February 22, 2002. This new limit was phased into public water systems over the past years and compliance was required of all public water systems by January 23, 2006. The State Exposure Guideline (MEG) is set at 0.010mg/L for arsenic in drinking water. This guideline for water set by the state suggests that anything over 0.010mg/L may be potentially harmful to human health. For more information please visit the Environmental Protection Agency's arsenic website at <http://www.epa.gov/safewater/arsenic/index.html> or contact the State Toxicologist.

### WHAT ARE THE HEALTH EFFECTS?

On average we consume 5 to 10 micrograms ( $\mu\text{g}$ ) of arsenic everyday through the food we digest. Add to this the arsenic in the water that we drink and it begins to add up if the water contains high amounts of arsenic. For instance, the State recommends no more than 0.010 mg/L or 10  $\mu\text{g}$  of arsenic per liter of drinking water. At this level one would add an additional 10  $\mu\text{g}$  more of arsenic on top of the 5 to 10 they already ingest for every liter of water they drink. Increased intake of arsenic can intensify the chances of cancer development.

### WHAT EFFECT DOES THIS HAVE ON THE HOMEOWNER?

An elevated arsenic level (in this case greater than 0.010mg/L) could affect the resale value of the house. One should approach this issue from a fiscal, as well as a physical point of view. The buyer should be made aware that if they do not deal with this arsenic issue before they buy the home then they will probably have to deal with it as sellers, when they eventually put the house on the market. The seller should consider at least a POU (point of use) or under-the-sink RO (reverse-osmosis) unit to eliminate the arsenic from the drinking water supply at the kitchen faucet.

### WHAT EFFECT DOES THIS HAVE ON REAL ESTATE TRANSACTIONS?

It is the responsibility of the real estate agent to become familiar with arsenic issues in their area. A better understanding provides for a more informative arbitration between buyer and seller. Arsenic in the well water should not be a "show stopper" as far as a house sale goes. The arsenic should be taken care of with the least amount of financial stress to the seller and the least amount of anguish to the buyer.

### WHAT IS THE BOTTOM LINE?

It is the responsibility of the informed consumer to decide whether to drink this water as is or to treat it. There are various ways to treat the problem. We advise calling a water treatment specialist. For names and contact information of the qualified companies please visit our website at [www.allaboratory.com](http://www.allaboratory.com).