AJ Billig Company
Dan Billig
6500 Falls Rd
Baltimore Md
21209

8/23/2024

See below for well yield and testing report for 1036 Upper Glencoe Rd. Sparks Glencoe Md., 21152

Well Yield Test:

- **6.25 Gallons Per Minute**

Lab Testing:

- **Arsenic – 0 ug/L Pass, threshold 10.00 per EPA Limits**
- **Lead – 5.45 ug/L Pass, threshold 15.00 per EPA Limits**
- **Nitrates – 3.04 mg/L Pass, threshold 10.00 per EPA Limits**
- **Nitrites – 0 mg/L Pass, threshold 1.00 per EPA Limits**
- **E. Coli – Detected Fail**
- **Total Coliform – Detected Fail**

General Testing:

- **Hardness – 8 GPG**
- **Ph – 6.0**
- **Total Dissolved Solids – 180 PPM**
- **Iron – 1.75 PPM**

Chris Umbarger
Service Manager
Culligan Mid Atlantic
717-479-5331

9399 W Higgins Rd Suite 1100
Rosemont, IL 60018

Phone: 877-889-8195
Web: www.culligan.com

Report Date: 8/21/2024

CERTIFICATE OF ANALYSIS

Analysis Number: **2409265**

Sharp Water Culligan - Shrewsbury, PA
8290 Miller Park Drive
umbarger@culliganma.com

Customer: **AJ Billig**
1036 Upper Glencoe
Sparks Glencoe MD, 21152

Control Number:

Account Number: 10004934
Collected By: Steve Snymanik

Misc:
cc:

SAMPLE INFORMATION:

Analysis Type Requested: Silver/Realtor Well Test

Sampled:	8/19/2024 at 12:00 PM	**Supply/Source:**	Private Well	**Condition:**	Untreated Water
Received:	8/20/2024 at 12:10 PM	**Sampling Point:**	Well tanl	**Application:**	Household

This Certificate of Analysis compares the actual test result to national standards as defined in the EPA 's Primary and Secondary Drinking Water Regulations.

mg/L (ppm): Unless otherwise indicated, results and standards are expressed as an amount in milligrams per liter or parts per million.

ug/L (ppb): Unless otherwise indicated, results and standards are expressed as an amount in micrograms per liter or parts per billion.

CFU/ml: colony-forming units per milliliter

Reporting Level (RL): The lowest concentration level that the laboratory can detect a contaminant.

ND: The contaminant was not detected above the minimun detection level.

NA: The contaminant was not analyzed.

* - non-TNI accredited parameter ** - IL-IDPH accredited parameter

Status

The contaminant was not detected in the sample above the minimum detection level.

The contaminant was detected below National Standard limit.

The contaminant was detected above National Standard limit.

Status	Contaminant	Results	RL	Units	Method	EPA Limit	Analysis Date/Time	Qual
	Total Arsenic	<1.000	1.000	ug/L	200.8 R5.4	10.00	8/21/2024 at 11:16:00AM	
	Lead (Pb)	5.45	1.000	ug/L	200.8 R5.4	15.00	8/21/2024 at 11:16:00AM	
	Nitrate as N	3.04	0.200	mg/L	300.0 R2.1	10.00	8/21/2024 at 7:19:00AM	
	Nitrite as N	<0.100	0.100	mg/L	300.0 R2.1	1.00	8/21/2024 at 7:19:00AM	
	E. Coli**	E. Coli Detected			SM9223B Coli-18		8/20/2024 at 12:10:00PM	*
	Total Coliform**	Coliform Detected			SM9223B Coli-18		8/20/2024 at 12:10:00PM	*

This report can only be reproduced in its entirety. The results reported here are representative of the sample as received in the laboratory. Unless noted holding times and temperature requirements for method 300 are not followed. pH results are out of hold time.

This analysis will not determine whether a water is safe for human consumption.

ANALYTE QUALIFIERS

H1 Analysis conductied outiside tihe EPA metihod holding time
H2 Sample received outiside EPA metihod tiemperatiure requirementis
P Sample received outiside tihe EPA metihod preservative requirementi
C Sample received in an inappropriatie sample contiainer
T Insuficienti sample received firom clienti tio perfiorm tihe analysis per EPA metihod requirementis
B Analytie was detiected in an associatied blank ati a concentiration greatier tihan tihe MDL
M Microbiological analysis initiatied more tihan30 hours afier sample collection. Analysis was completied upon clienti approval
SH The sampler's name and signatiure were noti listied on tihe COC
SF Sample collection daties and times were noti listied on tihe COC
A The sample was analyzed by serial dilution
D The precision betiween tihe sample and sample duplicatie exceeded laboratiory contirol limitis
I This analytie exceeded secondary source verification critieria low/high fior tihe initial calibration. This reportied resulti should be considered an estimatied value.
SS This analytie did noti meeti tihe secondary source verification critieria fior tihe initial calibration. The reportied resulti should be considered an estimatied value
FS The sample was filtiered in tihe laboratiory prior tio analysis
R Resultis confirmed by second analysis
SC This reporti contiains datia tihati were produced by subcontiractied laboratiory certified fior tihe fields ofi tiesting perfiormed
DM Non-metihod digestion process is fiollowed
MM Metihod modification- noti firom tihe acidified well mixed sample

NELAP Certifications: IL-100213; PA-68-04623; NY-11756; TX-TX269-2007A
State Certifications: IL-IDPH-17598; CA-2958; MT-CERT0091; IA-369; VA-00466
VT-02199; WI-105-10119; CO-IL100213; MI-9988; MO-1060

Maria Mozdzen
Analytical Lab Manager

NELAP ACCREDITED TNI LABORATORY

pH – stands for "potential of hydrogen" and indicates the acidity or alkalinity level of water on a scale of 0 to 14 (neutral = pH 7.0). Levels below 7.0 are acidic and above 7.0 are alkaline. pH is logarithmic – 6.0 is 10 X more acidic and 5.0 is 100 X more acidic than 7.0.
Conductivity - the ability of water to conduct electrical current, used to estimate the total concentration of dissolved mineral ions.
TDS - Total Dissolved Solids – the total amount of minerals dissolved in the water as determined by the conductivity level.
Turbidity - cloudiness in water caused by the dispersion of light by extremely tiny particles. Measured on an arbitrary scale of Nephelometric Turbidity Units (NTUs). **Turbidity after filtration** is measured after passing water through and 11-micron filter paper.
Color - the amount of color in the water. Color can be caused by organic matter or oxidized metals and their combinations.
Color after Acidification - Acid added to the sample dissolves oxidized metals and the result after acidification is due to organics.
Hardness – The sum of calcium and magnesium ions and any metals. Calcium and magnesium are the cause of "hard water".
Sodium – is naturally occurring. Sources can be sea water, underground deposits or the result of road salting in colder climates.
Iron – elemental metal responsible for orange, rust stains on laundry and fixtures and a metallic smell to water.
Manganese – elemental metal responsible for brown and black stains. Very soluble and often found in combination with iron.
Copper - causes blue/green staining in sinks and showers. Usually from copper pipe corrosion due to low pH and/or high TDS.
Zinc – may cause metallic taste and upset stomach, usually due to corrosion of galvanized plumbing materials.
Chloride – often found where sodium is present and is responsible for the "salty" taste associated with salt (sodium chloride).
Nitrate – sources of nitrate are human/animal wastes and fertilizers. Water supplies with high levels should also be tested for bacterial contamination and pesticides if in an agricultural area. Nitrate can be toxic to infants if ingested by causing "blue baby syndrome".
Nitrite – may be present where nitrate is found and is more toxic at lower levels than nitrate.
Sulfate – a naturally occurring mineral in groundwater. At high levels it can cause a bitter taste and have a laxative effect.
Fluoride - often added to municipal water to inhibit tooth decay. Can also be present in well water at excessive levels.
Total Alkalinity - the sum of hydroxide (OH^-), carbonate (CO_3^{-2}), and bicarbonate (HCO_3^-) ions which buffer changes in pH level.
Bicarbonate – present in water from pH level 4.7 up to a pH level 8.3 in combination with carbon dioxide.
Carbonate – present where pH level is above 8.3. Typically, only present after the pH level has been increased chemically.
Silica - a naturally occurring dissolved mineral that can cause a glass etching, scale and water spots that are difficult to remove.
Cations – are ions with a positive (+) electrical charge. Cations are attracted to negatively charged cation ion-exchange resins.
Anions – are ions with a negative (-) electrical charge. Anions are attracted to positively charged anion ion-exchange resins.
TOC / Total Organic Carbon – the level of dissolved natural organic matter in water excluding carbon dioxide.
Hydrogen Sulfide / H_2S - a corrosive gas that smells like "rotten eggs". Testing requires submitting water in a preserved sample bottle.
Arsenic – is a naturally occurring and toxic semi-metal element found in groundwater in some areas of the US and Canada.
Arsenic-Speciated – the specific amounts of Arsenite (Type III/Trivalent) and Arsenate (Type V/Pentavalent) concentrations.
Aluminum – occurs naturally in ground water leached from rock and soil. Can also be the result of municipal water treatment.
Lead – the source is often within the plumbing system. It is present in older brass valves and fixtures and lead solder joints.
Coliform Bacteria – a non-pathogenic, vegetative bacteria used as an "indicator" organism to determine a water's overall potability.
E. Coli Bacteria – a pathogenic bacteria only found in the digestive systems of warm-blooded animals and humans. Sources include poorly constructed wells and cisterns, shallow wells, streams, springs, lakes, ponds and failed septic systems.
Slime Forming Bacteria – a nuisance bacteria that can cause odor and thick slime build-up, particularly when water is aerated.
Iron Related Bacteria – a nuisance bacteria that metabolizes iron causing red/brown film, stringy growths and many types of odor.
Sulfate Reducing Bacteria – anaerobic bacteria that reduces the sulfate ion to hydrogen-sulfide gas and causes "rotten egg" odor.

NUISANCE BACTERIA POPULATION LEVELS (reported in cfu/ml – colony forming units per milliliter)

Slime Forming Bacteria	Iron Related Bacteria	Sulfate Reducing Bacteria
1,7500,000 - Aggressive	570,000 - Aggressive	2,200,000 – Aggressive
440,000 – Aggressive	140,000 - Aggressive	500,000 – Aggressive
67,000 – Aggressive	35,000 – Aggressive	115,000 – Aggressive
13,000 - Moderate	9,000 – Aggressive	27,000 – Aggressive
2,500 - Moderate	2,200 – Aggressive	6,000 – Aggressive
500 – Moderate	500 – Moderate	1,400 – Moderate
100 – Not Aggressive	150 – Moderate	325 – Moderate
0 – None Present	25 - Moderate	75 – Moderate
	8 – Not Aggressive	20 – Not Aggressive
	0 – None Present	5-Not Aggressive
		0 – None Present

Quick Guide - Systems Solution Options

Parameter/Contaminant	Reverse Osmosis - RO System	RO with Total Defense Cartridge	RO with Arsenic Cartridge	Water Softener	Salt-Free Conditioner	Iron Cleer - Iron OX5	Sulfur-Cleer / Sulfur-OX3	Cullar - Activated Carbon	Filter-Cleer - Depth Filter	Neutralizing Filter - Culligneu	Arsenic Filter - Whole House	Anion Exchange - Chloride Form	Chemical Feed System	Chlorination	Catalytic Carbon	Carbon Block Filter	Non-Backwashing System	Ultra-Violet Light	De-Ionization - Mixed-Bed/PEDI	No Reliable Treatment	Application Notes
Alkalinity - high	●	●	●								●	●							●		Anion exchange will lower pH
Alkalinity - low										●		●									Chemical Feed w/ Soda Ash
Aluminum	●	●	●	●															●		Difficult to regenerate off resin
Ammonia	●	●	●	●															●		as ammonia ion
Antimony	●	●	●																●		
Arsenic	●		●							●											RO only is for +5 only
Arsenic +3 /Trivalent/Arsenite			●							●											RO alone = +/- 60% removal
Arsenic +5/Pentavalent/Arsenate	●		●							●											AS cartridge recommended
Barium	●	●	●	●															●		
Beryllium	●	●	●	●															●		
Cadmium	●	●	●																●		
Calcium (Hardness)	●	●	●	●	●														●		Salt-Free does not remove
Chloride	●	●	●																●		
Chlorine	●	●	●					●							●	●	●				RO when used with carbon filter
Chloramine		●													●	●	●				
Chromium	●	●	●																●		
Coliform Bacteria													●	●				●			Chlorination - 20 minute rule
Color								●	●			●									Pilot testing recommended
Conductivity (TDS) - High	●	●	●																●		
Copper	●	●	●							●			●						●		May need to increase pH
E. Coli Bacteria													●	●				●			Chlorination - 20 minute rule
Fluoride	●	●	●																●		
Hardness (as CaCO3)				●	●														●		Combined Calcium & Magnesium
Hydrogen Sulfide (Gas/Odor)						●	●						●	●							Iron-OX5 not for H2S removal
Iron - Soluble/Ferrous/Clear Water				●		●	●												●		Iron will oxidize after sampling
Iron - Insoluble/Ferric/Rust						●			●												Cartridge filter option 10-micron
Iron Related Bacteria													●	●							UV not recommended
Lead - Point-of-Use	●	●	●													●					RO or Preferred Series Filters
Lead - Point-of-Entry																●					Pioneer Filter-4 gpm@15 psi loss
Magnesium (Hardness)				●	●														●		Salt-Free does not remove
Manganese				●															●		Iron filters will not remove
Mercury	●	●	●																●		
Nitrate	●	●	●								●								●		RO will reduce by 70% to 80%
Nitrite	●	●	●																●		Not removed by anion exchange
pH - Low										●			●								Chemical Feed w/Soda Ash
pH - High	●	●	●								●	●							●		Chemical Feed w/Citric Acid
PFOA / PFOS		●															●				Certified POU and POE systems
Potassium	●	●	●																●		
Phosphate	●	●	●																●		
Radium 226 & 228	●	●	●	●															●		
Selenium	●	●	●																●		
Silica	●	●	●																●		Whole House RO for POE
Silver	●	●	●																●		
Slime Forming Bacteria													●	●							UV not recommended
Sodium	●	●	●																●		
Suspended Solids									●				●								Cartridge filter < 10-microns
Strontium																				●	Difficult to remove from water
Sulfate	●	●	●								●								●		Sulfate ion - Hydrogen Sulfide gas
Sulfate Reducing Bacteria													●	●							UV not recommended
Tannins (color present)								●				●									Pilot testing required
Thallium	●	●	●																●		
TOC - Total Organic Carbon								●							●	●	●	●			UV destruct -285 nm for pure water
Trihalomethanes / DBPs		●													●		●				Requires long contact times
Turbidity		●							●				●								5 NTU or less for private wells
Uranium	●	●	●									●							●		Anion exchange is more complex
Volatile Organic Compounds - VOCs		●														●	●				Preferred Series Filters-POU
Zinc	●	●	●	●															●		

Notes: The product recommendations listed are potential solutions and may not be available in all states.

Each water analysis is unique and must be reviewed to determine the best treatment approach.

These recommendations are not guaranteed solutions and dealer/client is solely responsible for selection and application.

Assistance with product selection is available from Technical Services, Regional Technical Advisors and Problem Water Specialist.

Culligan

2409265

ntrol Number: _____

SAMPLE SUBMITTED

RW

Culligan International Company Analytical Laboratory
9399 W. Higgins Road Suite 1100
Rosemont, IL 60018

SAMPLE SUBMITTED BY:

Account Number: 37708-1
Account Name: Culligan Md Atlantic
Phone Number: 717-477-5331
E-mail: Lmbarger@Culliganmd.com
Person Taking Sample: Stevie Szymanik
Date Sample Taken: 8/19/24 Time Sample Taken: 12 pm

CUSTOMER INFORMATION:

Customer Name: RJ Billig
Address: 10316 Upper Glencoe Rd
City: Sparks Glencoe State: md Zip: 21152
Customer reported concern: Selling

SAMPLE INFORMATION:

Water Supply: Private ✓ Municipal ____
Source: Surface ____ Well ✓ Unknown ____
Condition: Treated ____ Untreated ✓
Sample Point: Faucet ____ Equipment ____ Other Well Tank
Application: Household ✓ Commercial ____ National Account ____
General Sample* ✓ Compliance Sample* ____
* if not marked, will treat as general sample

ANALYSIS REQUESTED:

Standard Analysis: ____
Problem Water Analysis: ____
RO/HANS Well Analysis: ____
RO/HANS Municipal Analysis: ____
Silver/Realtor Well: ✓
Expended Well: ____
Gold Well: ____

Comprehensive Analysis: ____
Arsenic System Well Water: ____
Arsenic System POU/POE: ____
Depth Filter Analysis: ____
Resin Analysis: ____
Scale Analysis: ____
Iron/Slime/Sulfate Bacteria: ____
Total Coliform/e-Coli: ____

AUG 12:10p

Other Analysis: (List Analysis Requested): ____

For Questions contact Maria Mozdzen at (847) 430-1219 or maria.mozdzen@culligan.com

LAB USE ONLY FOR COMPLIANCE SAMPLES:

Sample received in acceptable condition: Yes ____ No ____ Received by: ____ Date: ____ Time: ____
If not reason: ____
Disposition of sample: ____

Litigation samples are not accepted by the laboratory

Customer:
Please Sign: ____
Print Name: ____

Form 01009480 Rev K