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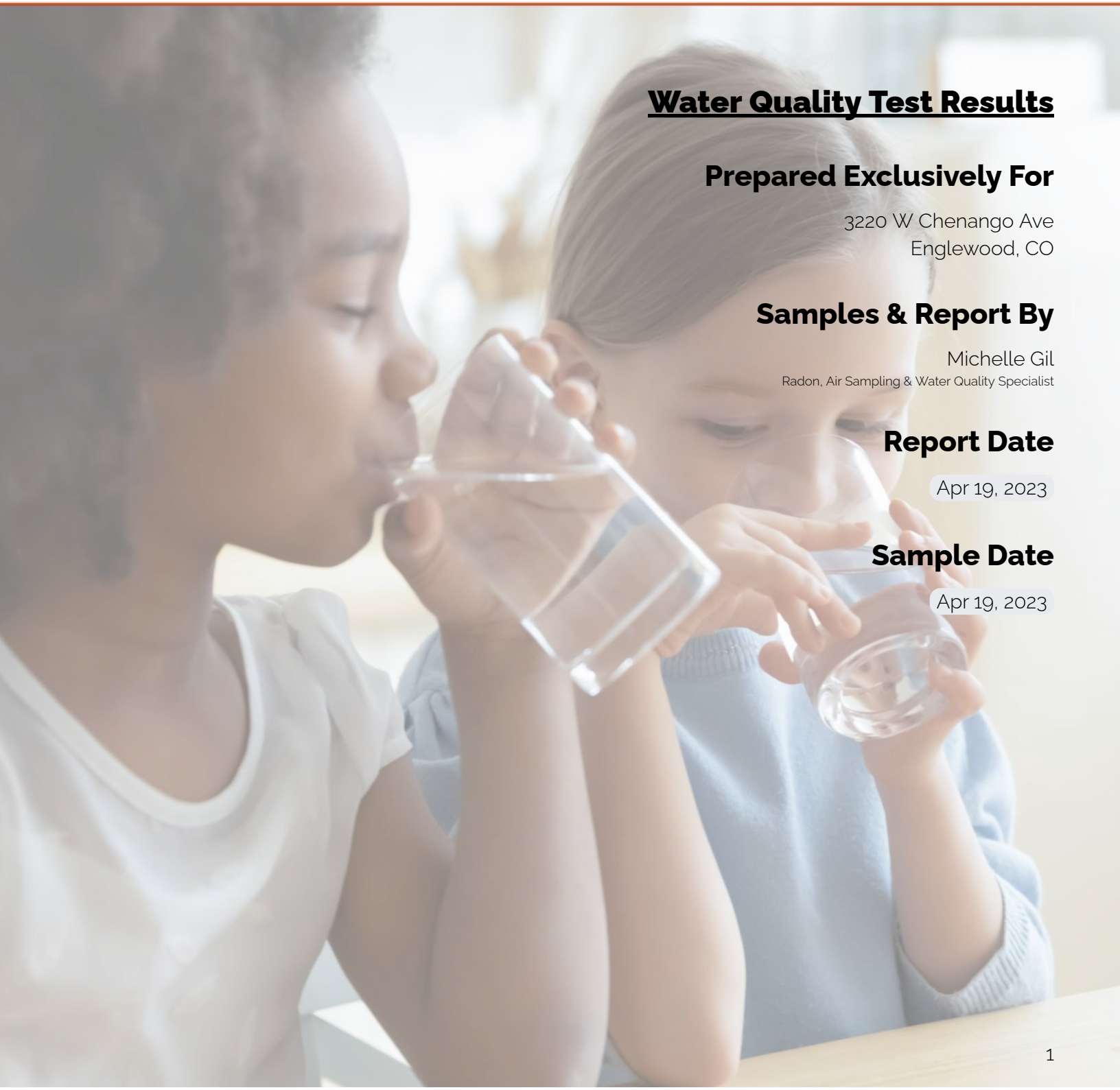

Water Quality Test Results

Prepared Exclusively For

3220 W Chenango Ave
Englewood, CO

Samples & Report By

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Report Date

Apr 19, 2023

Sample Date

Apr 19, 2023

WATER QUALITY TEST PARAMETERS, RESULTS, & RECOMMENDATIONS

WATER QUALITY PARAMETER	PARAMETER UNITS	SAMPLE RESULT LEVEL	SAMPLE RESULT LEVEL CATEGORY	RECOMMENDED LEVELS	RECOMMENDED ACTION LEVEL
Lead**	ppb - parts/billion	**18**	Action Recommended	0-10	15
Copper	ppb - parts/billion	**1100**	Acceptable	< 1300	> 1300
pH	Logarithmic unit	**6.9**	Acceptable	6.5-8.5	> 8.5 and < 6.5
Total Chlorine	ppm - parts/million	**8**	Action Recommended	0.2-4	≥ 4
Free Chlorine	ppm - parts/million	**7**	Action Recommended	0.2-4	≥ 4
Hardness	$CaCO_3$ gpg - grains/gallon	**4**	Acceptable	1-7	> 7
Alkalinity	$CaCO_3$ ppm - parts/million	**236**	Acceptable	20-200	>200

Lead - The most common forms of lead in household water are water service lines and copper pipes connected with solder made of lead. Homes built before 1951 are more likely to have lead service lines while homes built before 1987 often contain lead solder service lines or fixtures. Additionally, homes with fixtures installed before 2014 do not tend to meet today's standards of lead- free fixtures. Drinking water containing elevated levels of lead can have serious health effects, particularly in infants, children, and pregnant women.

- **Lead in Drinking Water** | Sources of Lead | CDC
- **Basic Information about Lead in Drinking Water** | US EPA

What does the Denver Lead Reduction Program say about this home?	Likely to have a lead service line; included in replacement program

For More Information about the Denver Water Lead Replacement Program:

- **Lead Reduction Program** | Denver Water
- **How does Denver Water schedule lead service line replacement?**
- **Denver Water Construction Projects Map**
- Denver Water Quality Report - **Water Quality Report 2022**

Your home may not be within the Denver Water Service Area. For more information, refer to this map:

- **Map of Denver Water Service Area** (Municipality Detailed)

Copper - Similar to lead, copper can be found in residential drinking water as a result of copper service lines and copper or brass fixtures installed within the home. Most people are able to properly process trace amounts of copper in drinking water, but in larger concentrations, copper can have adverse physical effects, including headaches, vomiting, diarrhea, stomach cramps, nausea, liver damage, and kidney disease.

- **EPA Consumer Fact Sheet on Copper in Drinking Water**

pH in drinking water is simply how acidic or basic the water is. Ideally, drinking water in the home should range from 6.5 - 8.5 as low pH is likely to corrode and dissolve metals whereas a high pH can cause a bitter taste, water pipes and appliances will be more susceptible to being encrusted with deposits, and lowers the effectiveness of water disinfection from chlorine.

Alkalinity is drinking water's capacity to neutralize acid, commonly referred to as the buffering capacity. In terms of drinking water, a minimum level of alkalinity is desired in order to prevent large variations in pH. On the other hand, water

that is too alkaline can have negative impacts when being used to irrigate soil with a lower alkalinity. In addition, when alkalinity becomes too high, typically it can be correlated with a higher pH, hardness, and dissolved solids, which can cause plumbing issues.

- **Adjusting the pH in Drinking Water** | Denver Water
- **pH in Drinking Water**

Chlorine (Free & Total) - The ABP water quality test consists of two chlorine tests - free and total. Free chlorine refers to the amount of chlorine that is able to sanitize the drinking water. Total chlorine is the sum of free and combined chlorine (where combined is chlorine that has directly combined with contaminants). Chlorine is an ingredient used in the water treatment process to kill bacteria and viruses, which should be reduced before reaching the home's drinking supply. In terms of safe drinking water, we primarily look to free chlorine, as levels above 4 mg/L can have adverse health effects and can result in unpleasant tastes and smells (stomachaches, vomiting, diarrhea, dry/itchy skin).

- **Water Disinfection with Chlorine and Chloramine | Public Water Systems** | Drinking Water | Healthy Water | CDC

Water hardness is a measure of the concentration of minerals in the water, mainly magnesium and calcium. Water with elevated levels of calcium carbonate ($CaCO_3$) can cause issues with plumbing, laundry staining, and dry skin and hair from washing.

- **Water Hardness** | Denver Water

RECOMMENDATIONS

So what should you do now that you have your results?

Depending upon the parameter action levels, you may want to pursue more information regarding water filtration technologies that may help increase the quality of your water. ***Alpine Building Performance cannot certify any specific technology***, but the following resources may help you determine what might be best for you.

- **Drinking Water Treatment Technologies for Household Use** - Centers for Disease Control
- **Water Health Series - Filtration Facts** - Environmental Protection Agency
- **Certified Drinking Water Treatment Units Search** - National Science Foundation

If actionable levels of Lead are identified, we recommend you take the following steps:

- Check to see if your home is identified in the Denver Water Lead Reduction Program - *(see the section below Lead information)*
- Review and understand the Denver Water Lead Reduction Program, as your home may be scheduled for service line repair/replacement
- Take action - ***it is recommended*** that you choose and install a filtration/treatment system that reduces any actionable levels of the above parameters identified to or below recommended level
- If your home is not included in the reduction program, or you would rather not wait on the program, contact a qualified professional for evaluation of your line and any recommended repairs, replacement and associated costs. A $3800 reimbursement may be available from the city to those that qualify.

We hope the results of this water quality test brings you peace-of-mind, and some direction with regards to solutions if actionable levels of the above parameters were identified. Do not hesitate to reach out with any further questions you may have. You may reach our Environmental Testing Specialist, Michelle Gil via email - testing@alpinebuildingperformance.com