

WATER RESOURCES REPORT

for

FALCON HIGHLANDS FILING #3 PUD/PRELIMINARY PLAN

April 2022

Other reports indicate that water sufficiency is proposed for 256 lots. This information is not reflected in this report.

Prepared By:



FALCON HIGHLANDS METROPOLITAN DISTRICT

FALCON HIGHLANDS FILING #3

PUD/PRELIMINARY PLAN

WATER RESOURCES REPORT

April 2022

Prepared for:

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Table of Contents

1.0	INTRODUCTION AND CONCLUSION 1 -
2.0	PROJECTED LAND USES 1 -
2.1	Projected Land Uses 1 -
2.2	Projected Points of Tie-In1 -
3.0	WATER NEEDS AND CURENT SUPPLY 1 -
3.1	Water Demand 1 -
3.2	Current (2022) Demand versus Supply
4.0	LONG-TERM AND MASTER PLANNING ELEMENTS 4 -
4.1	El Paso County Water Planning Area
4.2	Adequacy of Water Rights for 2040 and 2060 Needs
4.3	Municipal Interconnects4 -
4.4	Recent and Upcoming System Expansions 5 -
5.0	WATER SYSTEM FACILITIES AND PHYSICAL SUPPLY 6 -
5.1	Source of Supply 6 -
5.2	Water Treatment 6 -
5.3	Water Storage 6 -
5.4	Distribution, Pumping, and Transmission Lines 6 -
5.5	Existing Infrastructure 6 -
5.6	Water Quality 6 -
5.7	Future Facilities 7 -

APPENDICES

Appendix A – Land Use Exhibit

Appendix B – Projected Points of Tie-In

Appendix C – 2021 FHMD Consumer Confidence Report

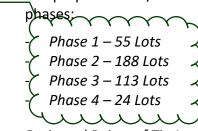
1.0 INTRODUCTION AND CONCLUSION

The purpose of this report is to provide an update to prior water resource supply reports for the Falcon Highlands Metropolitan District (FHMD, the District) and address the specific needs of Falcon Highlands Filing #3 PUD/Preliminary Plan in Falcon, CO. *Please note that this report supersedes prior reports for this filing and should not be counted as an addition to the prior Sketch Plan Amendment for this filing.*

2.0 PROJECTED LAND USES

2.1 Projected Land Uses

Same comments on the wastewater report. What is the significance of the phasing? The lands proposed for the Falcon Highlands Filing #3 PUD/Preliminary Plan are included within the FHMD boundary. Lands within the subject area were previously planned to anticipate 157 single-family homes on 114.1 acres of land. The proposed PUD/Preliminary Plan calls for 380 single-family lats in four (4)



Should this be 125 acres?

This report needs to clearly identify how many AFY of usage is proposed within the PUDSP boundary.

2.2 Projected Points of Tie-In

The locations for water and wastewater tie-ins are already established and the stub-out locations are in place.

I'm not sure I follow the logic in this report.

3.0 WATER NEEDS AND CURENT SUPPLY

3.1 Water Demand

There are AFY calculations and SFE calculations. I would recommend resolving all water usage calculations to AFY for ease of understanding.

Existing users represent 348 single-family nomes — 16 commercial taps (being the equivalent of 75 SFEs) and 6 irrigation taps (being the equivalent of 27 SFEs). This yields a current total of 450 SFEs in FHMD.

Based on the previously submitted water reports (dated March 2004 and prepared by URS Corporation) which were the basis for initial development, water requirements were based on an assumed water need of 0.23 acre-feet per single-family equivalent (AF/SFE) for indoor use and 0.0566 AF/SFE for outdoor use. Thus, the resulting total water use would be 0.2866 AF/SFE. This is roughly equal to the neighboring Woodmen Hills Metropolitan District (WHMD) actual annual average of 0.285 AF/SFE. Actual metered use over the last two years is an average of 0.2955 AF/SFE, which remains extremely close to the original anticipated values.

The following table provides a two-year history of usage in the District for the months of June and July.

Table 3-1: Two-Year Use History (June through July)

Year	Annual Water Use (AF)	SFE (No.)	Unit User Characteristic (AF/SFE)
2019	130.94	450	0.291
2020	135.88	450	0.302

For planning purposes, we are rounding up the resultant user characteristic to 0.30 AF/SFE.

3.2 Current (2022) Demand versus Supply

Legal Supply Component

The District's formal water inventory is noted in **Table 3.2** below. The total legal water supply for the District is estimated at 213.16 acre-feet when considered on a 300-year basis. Based on the previously established allocation standard, this will provide adequate 300-year supply to 710 total SFEs.

Table 3.2 Falcon Highlands Legal Water Supply

Land Formation/Aquifer	Finding/ Determination/ Decree	Tributary Status	Volume	Annual Allocation 100 Year	Annual Allocation 300 Year	Approved Well Locations	Notes	Area					
			Acre-Feet	A-F/Y ear	A-F/Year								
Currently Available Water Legal Sources													
Upper Black Squirrel													
Laramie Fox Hills	141 BD	NT	12,796	127.96	42.65	57949-F	449 acres UBS Only	Area A					
Arapahoe	142-BD	NT	11820	118.20	39.40	57950-F	449 acres UBS Only	Area A					
* Reduction by 11.56 annual AF 100 for pric		,,-,,,,,			2000		,						
Denver	BD-143	NNT 4 %	18931	189.31	63.10		449 acres UBS Only	Area A					
					145.16								
Outside UBS													
			1010										
Laramie Fox Hills	01CW065	NT	4910	49.10	16.37		183 acresNon UBS Use on or off Property	Area C					
Arapahoe	01CW065	NT	5760	57.60	19.20		183 acresNon UBS	Area C					
ruapanoc	01011000	111	5700	57.00	17.20		Use on or off Property	ruca c					
Potential Relingquishment		2 % of 01 CW 065		-0.71	-0.71		If 01 CW 065 is used outside of Sand Creek,						
					34.86		this relingquishment should be considered						
					24.00	180.01							
Laramie Fox Hills	83 CW 134	NT	6455		0.00		179 acres Non UBS	Area B					
Laramie Fox Hills	Split By SEO Sept 07			48.70	16.23		179 acres Non UBS	Area B					
Laramie Fox Hills Sands				15.85	5.28								
	01 CW 110	AugmentationV	acated			64	 4.55 Annual AF set aside as augmentationVacate	d					
			N. 17-412-12-1			19915	for 00 CW 110	2000					
Arapahoe	83 CW 133	NNT	5970	0.00	0.00		179 acres Non UBS						
мараное	00 CW 110	Augmentation Va	(iejensien)	0.00	0.00		19.9 Annual AF augmented by 00 CW 110						
	06 CW 102	Aug by Bissel	3490	34.90	11.63		Anywhere in current future Dist						
Denver	83 CW 135	NNT	480	0.00	0.00		179 acres Non UBS						
	00 CW 110	Augmentation Va	cated		0.00		1.6 Annual AF augmented by 00 CW 110						
	06 CW 102	Augmentation			0.00 33.15		Can only be used on 179 acres						
Total Current Legal Supply			70,612	640.91	213.16	213.16							

The District, therefore, has adequate (current) legal supply for 710 SFEs minus the existing 450 SFEs, for an additional 260 single-family equivalents.

Physical Supply Component

The District has been limited in recent years by the available, physical supply. Past operational characteristics limited the current supply to nearly the existing taps. However, in 2019, FHMD contracted with WHMD for operation and maintenance of the system. Numerous minor upgrades and operational improvements enhanced the available physical supply to roughly 501 SFEs; however, this still does not equal the available legal supply.

The 2022/2023 addition of an Arapahoe well outside of the Upper Black Squirrel (UBS) Groundwater Management District boundary will alleviate the remaining deficiency between available physical and legal supply. This will bring the number of potential SFEs within FHMD up to the 710 legal capacity by the end of 2022/23.

Adequacy of Water Supply

Once the new Arapahoe well is complete, an additional 210 SFE would potentially be available for Falcon Highlands #3 and other limited in-fill areas. This brings the physical supply to 710 SFEs, matching the available legal supply.

Long-Term Plans

FHMD is currently seeking additional water rights to develop either in their own right or in conjunction with a neighboring District. The District is seeking as much as 50 to 150 acre-feet $_{300}$ of new water in order to satisfy ultimate demands. With an additional 100 AF, the total available legal supply would be roughly 313 acre-feet $_{300}$ and could serve a service area of roughly 1,044 SFEs, which would ultimately exceed the total expected development, even with the proposed PUD/Preliminary Plan.

4.0 LONG-TERM AND MASTER PLANNING ELEMENTS

4.1 El Paso County Water Planning Area

FHMD is within the El Paso County Water Planning Area 3. The County Water Master Plan does not show a recent exclusion from the District. The actual District size has been pared down to roughly 500 acres.

4.2 Adequacy of Water Rights for 2040 and 2060 Needs

Current water rights holdings (with 2022 facility expansions) are adequate for current demands and an SFE capacity of 710. With 380 SFEs proposed in this PUD/Preliminary Plan, in addition to the 450 SFEs currently served and 50 SFEs committed to future commercial development, this gives a total demand of 880 SFEs – a possible shortfall of approximately 170 SFEs, or 51 acre-feet 300.

No expansions of the District are likely, and buildout is expected to fall within the 2040 timeframe.

Current Use (2020/2021)
Current Legal Supply
Current Physical Supply
2022/2023 Physical Supply
Buildout Need (total)

133 acre-feet 300 213.16 acre-feet 300 150 acre-feet 300 213.16 acre-feet 300 264 acre-feet 300 Subscript 300 throughout this document - is this a formatting error?

Future Plans

FHMD is currently seeking additional water rights to develop either in their own right or in conjunction with a neighboring District. The District is seeking as much as 50 to 150 acre-feet $_{300}$ of new water in order to satisfy ultimate demands. With an additional 100 AF, the total available legal supply would be roughly 313 acre-feet $_{300}$ and could serve a service area of roughly 1,043 SFEs which would ultimately exceed the total expected development even with the proposed PUD/Preliminary Plan.

Options for future supply include:

- Off-site purchase near the existing District
- Off-site purchase with participation from other adjacent entities
- Colorado Springs Utilities
- Regional water project

4.3 Municipal Interconnects

As of 2019, FHMD is now interconnected with WHMD. WHMD, in turn, has interconnects with Cherokee Metropolitan District and Meridian Service Metropolitan District.

4.4 Recent and Upcoming System Expansions

4.4.1 Recent Expansions 2019/2020

The District is now operated and maintained by WHMD, who has initiated numerous minor improvements to the system, including:

- Upgraded raw water metering
- Replacement of media in main filters
- Replacement of booster pumps
- Rehabilitation of the Laramie-Fox Hills #2 well

These improvements have dramatically enhanced the physical supply capacity.

4.4.2 Upcoming Improvements

FHMD is preparing to be able to initiate bond funding to add a new Arapahoe Well (A-2), which will expand available physical supply from roughly 150 acrefeet $_{300}$ to 213.16 acre-feet $_{300}$.

There are several other upcoming improvements, such as combining treatment into a single, more efficient system and rehabilitation of tank coatings.

Additionally, funds are being budgeted for additional water acquisitions.

5.0 WATER SYSTEM FACILITIES AND PHYSICAL SUPPLY

5.1 Source of Supply

The District has three (3) wells in the Falcon area in the Arapahoe and Laramie-Fox Hills formations. These wells are all within the District's service area boundary.

The District has adequate legal water supply for the existing customers and substantial addition. However, the District has had certain limitations in physical supply, which should be addressed in 2022/2023. An additional well will further develop the on-site legal supply and is being funded for 2022 construction.

5.2 Water Treatment

The District owns and operates two water treatment plants and provides water treatment to its entire supply. The plants are all within the service area and treat the following:

Filter Plant #1 1.300 MGD Maximum Treatment Capacity
 Filter Plant #2 0.216 MGD Maximum Treatment Capacity

5.3 Water Storage

The District currently owns and operates one water storage tank with a capacity of 1.0 million gallons.

5.4 Distribution, Pumping, and Transmission Lines

The District has a single pressure zone which is a "direct-feed system" from the pump station located near the existing water storage tank.

5.5 Existing Infrastructure

Most of the existing infrastructure was installed in 2005 and/or later, meaning these elements are well within their typical design lives of 50 years and longer. In order to support the additional development proposed in this PUD/Preliminary Plan, the existing lift station will need to be upgraded/replaced to handle the additional flow. Please refer to the *Wastewater Disposal Report* for existing and future capacities of the lift station.

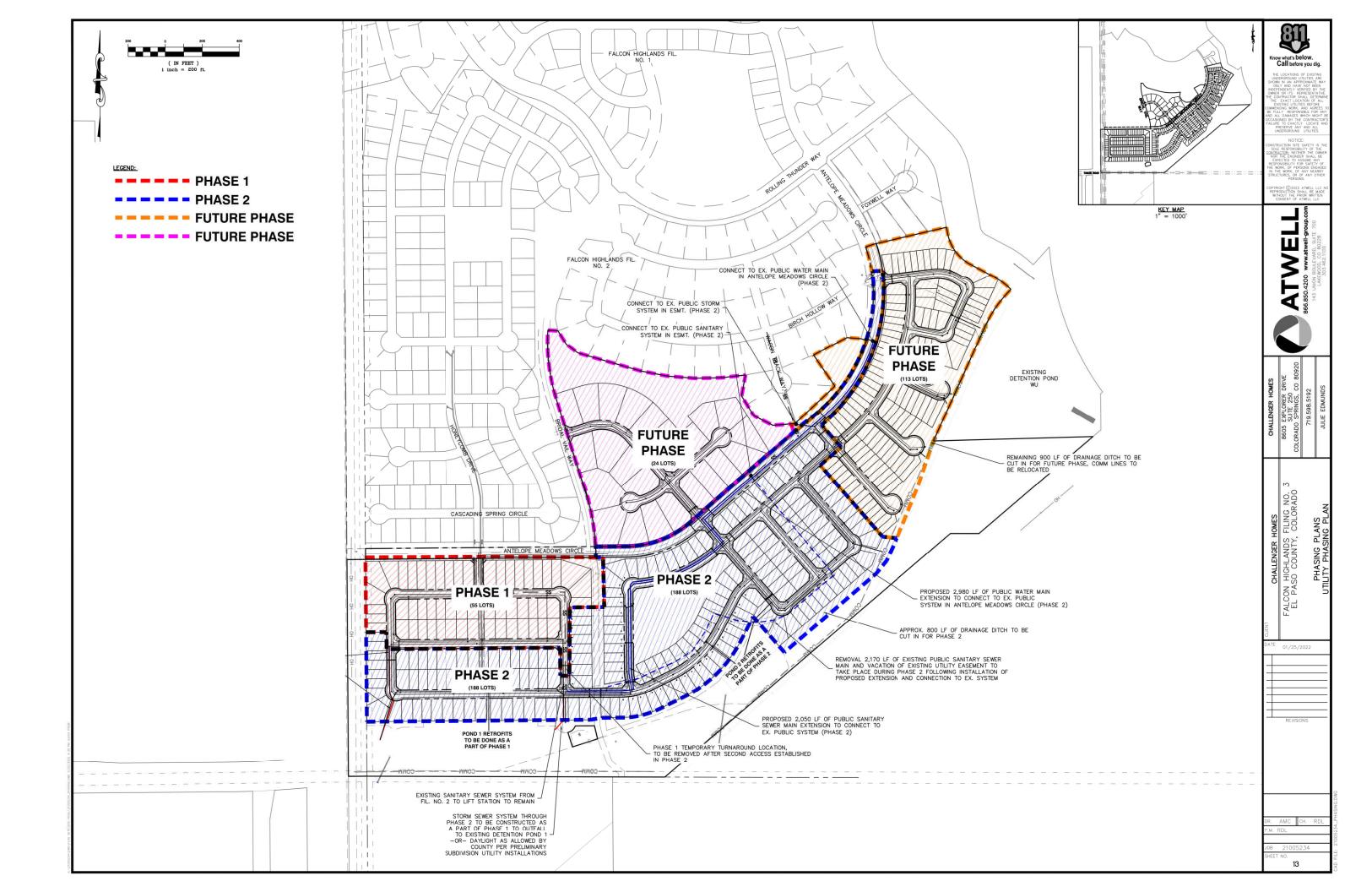
5.6 Water Quality

The District treats and filters 100% of its water supply. Filtration is generally utilized for iron and manganese removal. All source water is disinfected to meet and/or exceed all CDPHE drinking water standards. *Appendix C* contains a copy of the 2021 WHMD Consumer Confidence Report, which outlines water quality as delivered to District customers.

5.7 Future Facilities

The District is going to add an additional well in 2022/2023 which will add additional physical supply capabilities.

Appendix A Land Use Exhibits



Appendix B Projected Points of Tie-In



Appendix C 2021 FHMD Consumer Confidence Report

FALCON HIGHLANDS MD 2021 Drinking Water Quality Report Covering Data For Calendar Year 2020

Public Water System ID: CO0121247

Esta es información importante. Si no la pueden leer, necesitan que alguien se la traduzca.

We are pleased to present to you this year's water quality report. Our constant goal is to provide you with a safe and dependable supply of drinking water. Please contact JOSH MILLER at 719-635-0330 with any questions or for public participation opportunities that may affect water quality.

General Information

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (1-800-426-4791) or by visiting epa.gov/ground-water-and-drinking-water.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV-AIDS or other immune system disorders, some elderly, and infants can be particularly at risk of infections. These people should seek advice about drinking water from their health care providers. For more information about contaminants and potential health effects, or to receive a copy of the U.S. Environmental Protection Agency (EPA) and the U.S. Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and microbiological contaminants call the EPA Safe Drinking Water Hotline at (1-800-426-4791).

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

- •Microbial contaminants: viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- •Inorganic contaminants: salts and metals, which can be naturallyoccurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- •Pesticides and herbicides: may come from a variety of sources, such as agriculture, urban storm water runoff, and residential uses.
- •Radioactive contaminants: can be naturally occurring or be the result of oil and gas production and mining activities.
- •Organic chemical contaminants: including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and also may come from gas stations, urban storm water runoff, and septic systems.

In order to ensure that tap water is safe to drink, the Colorado Department of Public Health and Environment prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

Lead in Drinking Water

If present, elevated levels of lead can cause serious health problems (especially for pregnant women and young children). It is possible that lead levels at your home may be higher than other homes in the community as a result of materials used in your home's plumbing. If you are concerned about lead in your water, you may wish to have your water tested. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. Additional information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (1-800-426-4791) or at epa.gov/safewater/lead.

Source Water Assessment and Protection (SWAP)

The Colorado Department of Public Health and Environment may have provided us with a Source Water Assessment Report for our water supply. For general information or to obtain a copy of the report please visit wqcdcompliance.com/ccr. The report is located under "Guidance: Source Water Assessment Reports". Search the table using 121247, FALCON HIGHLANDS MD, or by contacting JOSH MILLER at 719-635-0330. The Source Water Assessment Report provides a screening-level evaluation of potential contamination that *could* occur. It *does not* mean that the contamination has or will occur. We can use this information to evaluate the need to improve our current water treatment capabilities and prepare for future contamination threats. This can help us ensure that quality finished water is delivered to your homes. In addition, the source water assessment results provide a starting point for developing a source water protection plan. Potential sources of contamination in our source water area are listed on the next page.

Please contact us to learn more about what you can do to help protect your drinking water sources, any questions about the Drinking Water Quality Report, to learn more about our system, or to attend scheduled public meetings. We want you, our valued customers, to be informed about the services we provide and the quality water we deliver to you every day.

Our Water Sources

Sources (Water Type - Source Type)	Potential Source(s) of Contamination
WELL LFH2 (Groundwater-Well) WELL A1 (Groundwater-Well) WELL LFH1 (Groundwater-Well)	There is no SWAP report, please contact JOSH MILLER at 719-635-0330 with questions regarding potential sources of contamination.

Terms and Abbreviations

- Maximum Contaminant Level (MCL) The highest level of a contaminant allowed in drinking water.
- Treatment Technique (TT) A required process intended to reduce the level of a contaminant in drinking water.
- **Health-Based** A violation of either a MCL or TT.
- **Non-Health-Based** A violation that is not a MCL or TT.
- Action Level (AL) The concentration of a contaminant which, if exceeded, triggers treatment and other regulatory
 requirements.
- Maximum Residual Disinfectant Level (MRDL) The highest level of a disinfectant allowed in drinking water. There
 is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- Maximum Contaminant Level Goal (MCLG) The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- Maximum Residual Disinfectant Level Goal (MRDLG) The level of a drinking water disinfectant, below which there
 is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial
 contaminants.
- Violation (No Abbreviation) Failure to meet a Colorado Primary Drinking Water Regulation.
- **Formal Enforcement Action (No Abbreviation)** Escalated action taken by the State (due to the risk to public health, or number or severity of violations) to bring a non-compliant water system back into compliance.
- Variance and Exemptions (V/E) Department permission not to meet a MCL or treatment technique under certain conditions.
- Gross Alpha (No Abbreviation) Gross alpha particle activity compliance value. It includes radium-226, but excludes radon 222, and uranium.
- **Picocuries per liter (pCi/L)** Measure of the radioactivity in water.
- **Nephelometric Turbidity Unit (NTU)** Measure of the clarity or cloudiness of water. Turbidity in excess of 5 NTU is just noticeable to the typical person.
- Compliance Value (No Abbreviation) Single or calculated value used to determine if regulatory contaminant level (e.g. MCL) is met. Examples of calculated values are the 90th Percentile, Running Annual Average (RAA) and Locational Running Annual Average (LRAA).
- Average (x-bar) Typical value.
- Range (R) Lowest value to the highest value.
- Sample Size (n) Number or count of values (i.e. number of water samples collected).
- Parts per million = Milligrams per liter (ppm = mg/L) One part per million corresponds to one minute in two years or a single penny in \$10,000.
- Parts per billion = Micrograms per liter (ppb = ug/L) One part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.
- Not Applicable (N/A) Does not apply or not available.
- Level 1 Assessment A study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.
- Level 2 Assessment A very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

Detected Contaminants

FALCON HIGHLANDS MD routinely monitors for contaminants in your drinking water according to Federal and State laws. The following table(s) show all detections found in the period of January 1 to December 31, 2020 unless otherwise noted. The State of

Colorado requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. Therefore, some of our data, though representative, may be more than one year old. Violations and Formal Enforcement Actions, if any, are reported in the next section of this report.

Note: Only detected contaminants sampled within the last 5 years appear in this report. If no tables appear in this section then no contaminants were detected in the last round of monitoring.

Disinfectants Sampled in the Distribution System TT Requirement: At least 95% of samples per period (month or quarter) must be at least 0.2 ppm OR If sample size is less than 40 no more than 1 sample is below 0.2 ppm Typical Sources: Water additive used to control microbes								
Disinfectant Name	Time Period	Results	Number of Samples Below Level	Sample Size	TT Violation	MRDL		
Chlorine	December, 2020	Lowest period percentage of samples meeting TT requirement: 100%	0	2	No	4.0 ppm		

Lead and Copper Sampled in the Distribution System										
Contaminant	Time	90 th	Sample	Unit of	90 th	Sample	90 th	Typical Sources		
Name	Period	Percentile	Size	Measure	Percentile	Sites	Percentile			
					AL	Above	AL			
						AL	Exceedance			
Copper	08/03/2020	0.05	10	ppm	1.3	0	No	Corrosion of		
	to							household plumbing		
	08/05/2020							systems; Erosion of		
								natural deposits		
								•		

	Disinfection Byproducts Sampled in the Distribution System											
Name	Year	Average	Range Low – High	Sample Size	Unit of Measure	MCL	MCLG	MCL Violation	Typical Sources			
Total Haloacetic Acids (HAA5)	2020	1.7	1.7 to 1.7	1	ppb	60	N/A	No	Byproduct of drinking water disinfection			
Total Trihalome thanes (TTHM)	2020	23.6	23.6 to 23.6	1	ppb	80	N/A	No	Byproduct of drinking water disinfection			

	Inorganic Contaminants Sampled at the Entry Point to the Distribution System										
Contaminant Name	Year	Average	Range Low – High	Sample Size	Unit of Measure	MCL	MCLG	MCL Violation	Typical Sources		
Barium	2017	0.01	0.01 to 0.01	1	ppm	2	2	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits		
Fluoride	2017	0.95	0.95 to 0.95	1	ppm	4	4	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories		
Nitrate-Nitrite	2017	0.03	0.03 to 0.03	1	ppm	10	10	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits		

Secondary Contaminants**

^{**}Secondary standards are <u>non-enforceable</u> guidelines for contaminants that may cause cosmetic effects (such as skin, or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water.

Contaminant Name	Year	Average	Range Low – High	Sample Size	Unit of Measure	Secondary Standard
Sodium	2017	110	110 to 110	1	ppm	N/A

Violations, Significant Deficiencies, and Formal Enforcement Actions

No Violations or Formal Enforcement Actions