



Drexel, Barrell & Co.

WATER RESOURCES REPORT

For

WINDERMERE

Engineers/Surveyors

Boulder

Colorado Springs

Greene

Jefferson

Kit Carson

Colorado Springs, CO 80905

(719) 260-0887

September 21, 2020

Water Resource Report. The water resource report shall document the requirements of this Section and shall include the following data, documentation, and analysis at a level of detail necessary to make the determination of sufficiency: (a) Summary of the Proposed Subdivision. The water resource report shall include a summary of the proposed subdivision with the following information:

- A location map including roads, Township and Range, a copy of all maps required with sketch and preliminary plan and final plat submittals, and legal description; and
- A description of subdivision including acreage of each proposed land use, number of dwelling units, etc. For phased projects the description shall clearly describe the acreages, land uses and number of units of each phase. The location of each proposed land use shall be shown on appropriate maps.

(b) Information Regarding Sufficient Quantity of Water.

(i) Calculation of Water Demand.

The water resource report shall include water demand calculations in separate calculations for the type, number and annual water requirements of existing, proposed and potential maximum uses of the subject property and a general timetable when the demands are expected. Acceptable methods of determining water demand are described in this Section.

(ii) Calculation of Quantity of Water Available.

The water resource report shall identify and describe each source of water including: (1) a map showing the location of any off-site water to be used and the location of major water transmission lines, reservoirs, etc.; (2) calculations of the quantity of water available from each source (on-site and off-site sources shall be determined separately); and (3) a description of groundwater sources.

(iii) Groundwater Source Information.

The water resource report shall list each aquifer to be used. Each aquifer shall be identified as tributary, non-tributary, not non-tributary or from a designated basin, and as either renewable or non-renewable

Prepared For:

Windsor Ridge Homes

4164 Austin Bluffs Parkway, #361

Colorado Springs, CO 80918

Contact: James Todd Stephens

(719) 499-6136

Prepared by:

Drexel, Barrell & Co.

3 S. 7th Street

Colorado Springs, CO 80905

Contact: Tim McConnell, P.E.

(719) 260-0887

Project Number: 21187-01CSCV



WATER RESOURCES REPORT for WINDERMERE

I. SUMMARY OF THE PROPOSED SUBDIVISION

Windermere is a 52.07 acre subdivision within the east half of Section 29, Township 13 South, Range 65 West of the 6th Principle Meridian in El Paso County, Colorado. The site is located on the east side of Antelope Ridge Drive, just north of North Carefree Circle.

The site is within the Cherokee Metropolitan District Service area. Water and wastewater services will be provided by Cherokee Metropolitan District, see attached letter.

The proposed Windermere development includes 203 single-family residences. The project will be developed in two phases. Phase 1 will include 163 residential lots on approximately 26 acres. Phase 2 will include 40 residential lots on approximately 6 acres.

II. DETERMINATION OF SUFFICIENT QUANTITY OF WATER

A. Calculation of Water Demand

The proposed development includes 203 single-family residential lots. Anticipated water demand is approximately 0.31 AC-FT/YR/household. This results in the following quantity:

Residential: $(0.31 \text{ AC-FT/YR/household}) \times (203 \text{ households}) = \mathbf{62.6 \text{ AC-FT/YR}}$

Irrigation: $\mathbf{6.2 \text{ AC-FT/YR}}$

The projected water consumption is based upon industry standards as well as methodology used by other utility providers in the area.

B. Calculation of Water Available

1. Windermere is to be served by the Cherokee Metropolitan District water system. A Letter of Recommitment from Cherokee Metropolitan District to serve the development is attached.
2. A map of the existing and proposed water system is attached.
3. Per the Cherokee Letter of Recommitment, water available has been confirmed by Cherokee to service this and other future projects.
4. There are no groundwater sources on this site proposed to be utilized by this development.

III. DETERMINATION OF SUFFICIENT DEPENDABILITY OF WATER SUPPLY

- A. Water rights – The Cherokee Metropolitan District will provide treatment and delivery of the water to site (see attached Letter of Recommitment).
- B. Financial plan and capital improvement plan from water provider – Water delivery will be provided by the Cherokee Metropolitan District (see 9/21/20 Technical Memorandum attached)

Engineers/Surveyors

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Greeley**

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- C. Water delivery will be provided by the Cherokee Metropolitan District. The proposed water system will connect to the existing water system at 3 stub locations in Antelope Ridge Road (see site drawing, attached).
- D. There are no wells proposed on this site.
- E. Short term water supplies shall be provided by the Cherokee Metropolitan District.

IV. DETERMINATION OF SUFFICIENT QUALITY AND POTABILITY OF WATER

Water delivery will be provided by the Cherokee Metropolitan District. Drexel, Barrell & Co. understands that quality and potability of the Cherokee Metropolitan District water supply is already approved. Please also see attached the "CHEROKEE MD 2019 Drinking Water Quality Report".

PREPARED BY:

DREXEL, BARRELL & Co.

3 S. 7th Street
Colorado Springs, CO 80905
Contact: Tim McConnell, P.E.
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CHEROKEE METROPOLITAN DISTRICT

6250 Palmer Park Blvd., Colorado Springs, CO 80915-2842

Telephone: (719) 597-5080 Fax: (719) 597-5145

June 15th, 2020

Tim D. McConnell

Drexel, Barrell, & Co

3 S 7th St

Colorado Springs, CO 80905

Sent via email: tmccconnell@drexelbarrell.com

Original to follow by US Mail

Re: Water and Sewer Service to **Windermere Subdivision**
Commitment Letter No. **2020-09 (Revision of commitment 2018-06)**

Dear Tim McConnell,

As requested, this document will serve as a formal Letter of Commitment from the Cherokee Metropolitan District to provide municipal water and sewer services for Windermere Subdivision located at the northeast corner of N Carefree Circle and Antelope Ridge Drive. The proposed location for this development is located within the District's established boundaries and therefore is eligible for service connections from the District.

Cherokee Metropolitan District staff, along with the developer, have determined that the following will be the total water demand required by this occupancy:

Type of Use	Demand (AF/yr)
Single Family Homes	62.6
Irrigated Common Areas	6.2
Total	68.8

This water commitment is hereby made exclusively for this specific development project at this site within the District. To confirm this commitment you must provide the District with a copy of the final plat approval from El Paso County Development Services within 12 months of the date of this letter. Otherwise, the District may use this allocation for other developments requesting a water commitment. If the subject project is re-platted, you must submit a new commitment request prior to submitting the re-plat to El Paso County, which may result in a recalculation of the water demand for the project.

If I may be of further assistance please contact me at your convenience.

Sincerely,

A handwritten signature in cursive script, appearing to read "Amy Lathen", with a long horizontal flourish extending to the right.

Amy Lathen
General Manager

Cc: Peter Johnson; Water Counsel w/ encl: sent via email
Steve Hasbrouck; Board President w/ encl: sent via email
Kevin Brown; Jr. Engineer

PREPARED BY:



DREXEL, BARRELL & CO.
Engineers-Surveyors
3 SOUTH 7TH STREET
COLORADO SPGS, COLORADO 80918
CONTACT: TIM D. MCCONNELL, P.E.
(719)260-0887
BOULDER • COLORADO SPRINGS • GREELEY

CLIENT:

4164 AUSTIN BLUFFS PKWY. #361
COLORADO SPRINGS, CO 80918
(719) 200-9594
CONTACT: JAMES TODD STEVENS

WINDERMERE
PRELIMINARY PLAN
N. MARKSHEFFEL ROAD
EL PASO COUNTY, COLORADO

ISSUE DATE

INITIAL ISSUE 2/21/19

LATEST ISSUE 6/18/20

DESIGNED BY: GES

DRAWN BY: GES

CHECKED BY: TDM

FILE NAME: 21187-01UT1

PREPARED UNDER MY DIRECT
SUPERVISION FOR AND ON
BEHALF OF
DREXEL, BARRELL & CO.

DRAWING SCALE:

HORIZONTAL: 1" = 100'

VERTICAL: N/A

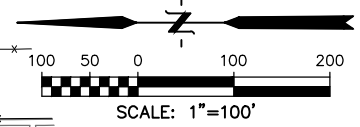
PRELIMINARY
UTILITY & PUBLIC
FACILITY PLAN

PROJECT NO. 21187-01CSCV

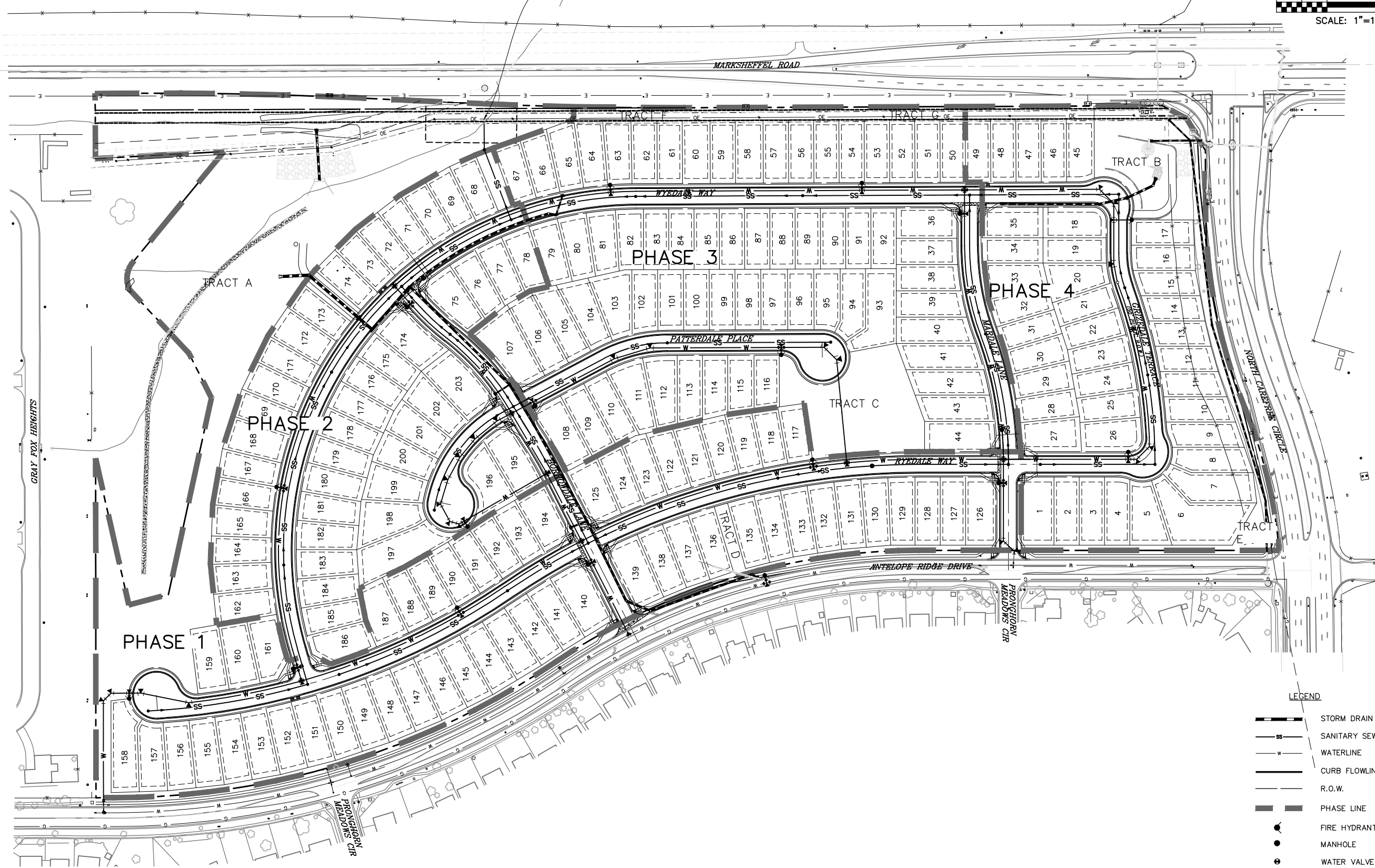
DRAWING NO.

PP06

SHEET: 6 OF 10



VERIFY LOCATION &
SIZE OF EXISTING STUB



LEGEND

- STORM DRAIN
- SANITARY SEWER
- WATERLINE
- CURB FLOWLINE
- R.O.W.
- PHASE LINE
- FIRE HYDRANT
- MANHOLE
- WATER VALVE



Know what's below.
Call before you dig.

CALL 3-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR
EXCAVATE FOR THE MARKING OF
UNDERGROUND MEMBER UTILITIES.

COUNTY FILE NO.: SP-19-003



CHEROKEE METROPOLITAN DISTRICT

6250 Palmer Park Blvd., Colorado Springs, CO 80915-2842

Telephone: (719) 597-5080 Fax: (719) 597-5145

Water Provider Supplement to Water Resource Report for Windermere Subdivision

September 21st, 2020

Commitment 2020-09

This document has been prepared to satisfy El Paso County's requirement of a Water Provider's Report in support of **Windermere Subdivision at the northeast corner of Antelope Ridge Drive and North Carefree Circle.**

Introduction

Cherokee Metropolitan District (CMD) is a Title 32 special District which provides water and wastewater to an 800-acre enclave of unincorporated El Paso county surrounded by the City of Colorado Springs. Currently CMD serves approximately 7000 residential taps and 600 commercial taps in addition to bulk users in eastern El Paso County including Schriever Air Force Base and several small developments located along State Highway 94.

CMD water is sourced entirely from groundwater in two regions. The majority is recovered from the alluvial Upper Black Squirrel (UBS) Aquifer in eastern El Paso County via 20 wells. The remainder is sourced from two wells in deep bedrock aquifers in the northern part of the county on the “Sundance Ranch” property. Water from eight of the 20 wells in the eastern part of the county can only be used to serve a fixed list of customers. Water for the main service area of CMD comes only from the remaining 12 wells in UBS along with the two wells at the Sundance Ranch.

Calculation of Anticipated water Demand

The subdivision will have 202 residential lots with 2.53 acres of irrigated common space. The District uses a presumptive use value of 0.31 Acre-Feet per Year (AFY) per Single Family Equivalent (SFE) as a conservative estimate for actual water use. Actual in-District single family use is closer to 0.25 AFY even in dry years meaning that the higher value takes into account losses in the distribution system as well as possible future increases in water use. The 202 lots at 0.31 AFY per lot yields 62.6 AFY for domestic and per lot irrigation use.

Water demand for the 2.53 acres of irrigated common space was calculated based on the El Paso County irrigated landscaping presumptive use value of 2.43 feet of water per year. This yields a common area irrigation use of 6.2 AFY resulting in a total projected subdivision demand of 68.8 AFY.

Water Supplies

Cherokee has eight wells (numbered 1-8) that are restricted to serving a maximum of 653 AFY to a fixed list of customers within the Upper Black Squirrel Creek Designated Basin (the Basin). Excess allocation for these wells is unavailable for new developments, even if those developments are located inside the Basin, so this water is tracked separately from CMD’s general exportable supply portfolio. Water from CMD’s other alluvial wells is exported for use outside the UBS basin. The total annual volume available to CMD from these exportable supplies is 3,985 Acre-Feet per Year (AFY) (Table 1). The physical yield of these wells is significantly higher than their annual appropriation, allowing for flexibility in satisfying irrigation season demand.

Table 1: Water rights and tributary status of Exportable Wells

Well Number	Water Right (AFY)	2019 Use (AFY)	Permit Number	Aquifer	Aquifer Status
Well 9	176	132	14145-FP-R	UBS Alluvium	Tributary
Well 10	176	108	14146-FP-R	UBS Alluvium	Tributary
Well 11	244	161	6821-FP-R	UBS Alluvium	Tributary
Well 12	244	149	11198-FP	UBS Alluvium	Tributary
Well 13	1268	975	49988-F	UBS Alluvium	Tributary
Well 14	0	0	52429-F	UBS Alluvium	Tributary
Well 15*	281	145	54070-F	UBS Alluvium	Tributary
Well 16*	219	123	54069-F	UBS Alluvium	Tributary
Well 17*	175	151	63094-F	UBS Alluvium	Tributary
Well 18	225	138	16253-RFP-R	UBS Alluvium	Tributary
Well 19	95	79	20567-RFP-R	UBS Alluvium	Tributary
Well 20	400	38	4332-RFP	UBS Alluvium	Tributary
Well 21	290	0	81782-F	UBS Alluvium	Tributary
DN-4**	110	110	78315-F	Denver Aquifer	Non-Tributary
AR-1***	147.7	155	75881-F	Arapahoe Aquifer	Non-Tributary
Total	3984.7	2464			

*Wells 15, 16, and 17 can produce a combined 609 AFY despite their total individual allocations equaling 675 AFY. This reduction is reflected in the total.

**CMD holds additional water rights in the Denver Aquifer associated with the Sundance Ranch property but this particular well has a maximum annual recorded yield of 110 AFY

***As of December 2019 AR-1 has 2040 AF of banked water which allows actual pumping to exceed allocation on a limited basis

CMD is developing owned water supplies to increase available water and improve flexibility in provision of summer flows. By the end of 2021, these new wells will contribute 458 AFY of capacity to the CMD system (Table 2) for a total of 4,443.0 AFY. Since 2011, actual demand from CMD customers has fallen 30-35% below commitments, partially due to some committed developments being incomplete but largely due to water saving measures undertaken by CMD customers.

Table 2: New water supplies slated for completion in 2021

Well Number	Water Right (AFY)	Permit Number	Aquifer	Aquifer Status
Albrecht Well	153.5	27571-FP	UBS Alluvium	Tributary
DA-1	40.3	83604-F	Dawson	Not Non-Tributary
DA-4	64.5	83603-F	Dawson	Not Non-Tributary
AR-1 Expansion	200	75881-F	Arapahoe	Non-Tributary
Total	458.3			

By the end of 2021, CMD will have a total of 4,443 AFY of exportable water supplies sourced from alluvial and deep bedrock aquifers. Further development in the Denver Basin is not planned at this time and instead CMD is focusing on acquiring new renewable supplies proximate to existing infrastructure.

Water Commitments

CMD's water commitments stand at 4,042.9 AFY before the addition of the proposed development. These commitments are broken down below in Table 3. The Tipton and Kane commitments are related to an arrangement from the mid-2000's where developers reserved commitments on two new wells. The water from these wells is considered fully committed to these developers even if they have not yet begun the projects associated with the reserved commitments. Due to a complex legal history, the "Kane" water right was not tied to a specific physical water well but instead operates as a commitment served from CMD's general supply portfolio. The "Tipton" water right corresponds to CMD's Well 18.

Table 3: CMD Commitments before addition of new development

Commitments	AFY
In-District (2015)	2693
Committed Since 2015	337.9
Schriever Air Force Base	537
Kane	200
Tipton	225
Construction	25
Parks	25
Total	4042.9

Water Balance

With 4,443.0 AFY of exportable supply and 4,042.9 AFY of commitments, CMD has a water balance of 400.1 AFY before the subject development. After commitment of 68.8 AFY to this development, the District will have 331.3 AFY remaining for additional commitments.

Table 4: Water balance with new development

Water Balance Before New Commitment	400.1 AFY
New Commitment: Windermere Subdivision	68.8
Water Balance Remaining	331.3 AFY

Other Relevant District Information

Recent Water Acquisitions/Losses

CMD has not acquired any new water rights since 2015 but has been developing owned water rights into productive wells. CMD has not engaged in any water trades nor lost any water rights in the last year. The District is not currently under contract to purchase new water rights although CMD is investigating purchases of renewable water rights proximate to its existing infrastructure on an ongoing basis.

New Augmentation Plans

CMD is currently pursuing a replacement plan in partnership with Meridian Service Metropolitan District (MSMD) in order to claim credits for its treated water return flows and maximize the efficiency of its water supplies.

Major System Capital Improvements

CMD has been actualizing owned water by drilling wells and beginning production on several well sites. In February of 2020 CMD brought the Sweetwater 5 well (81782-F) online after a year of planning and construction. In the next 6 months it is expected that the “Albrecht Well” (27554-FP) will be brought online providing an additional 153.5 AFY of water.

CMD is currently preparing to increase pump capacity in well AR-1 (75881-F), its only well in the Arapahoe aquifer, and to install pumps in two existing wells in the Dawson Aquifer (83603-F & 83604-F). Beyond these projects, additional well construction in the Denver Basin is not anticipated at this time, although CMD has a substantial amount of undeveloped water rights in the Denver Basin Aquifers.

Existing CMD wells have had a series of upgrades to improve quality and efficiency within in the last year. The screen and pump on Well 11 (6821-FP-R) were replaced to improve

water flow and several in-district potable water tanks have been cleaned and rehabilitated. More incremental improvements in the distribution system to improve reliability and resiliency include deeper computer integration, upgrades to treatment systems, and emergency generator refurbishment.

CHEROKEE MD 2019 Drinking Water Quality Report For Calendar Year 2018

Public Water System ID: CO0121125

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 JONATHON SMITH at 719-597-5080 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 <http://water.epa.gov/drink/contaminants>.

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 naturally-occurring 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 <http://www.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 www.colorado.gov/cdphe/ccr. The report is located under "Guidance: Source Water Assessment Reports". Search the table using 121125, CHEROKEE MD, or by contacting JONATHON SMITH at 719-597-5080. 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

<u>Sources (Water Type - Source Type)</u>	<u>Potential Source(s) of Contamination</u>
WELL 20 GOSS WELL (Groundwater-Well) WELL NO 2 (Groundwater-Well) WELL NO 17 (Groundwater-Well) WELL 19 DUNCAN WELL (Groundwater-Well) WELL 21 AR-1 (Groundwater-Well) PURCHASED FROM CO0121150 (Surface Water-Consecutive Connection) WELL 22 DN-4 (Groundwater-Well) WELL NO 18 TIPTON (Groundwater-Well) WELL NO 9 (Groundwater-Well) WELL NO 10 (Groundwater-Well) WELL NO 11 (Groundwater-Well) WELL NO 12 (Groundwater-Well) WELL NO 13 (Groundwater-Well) WELL NO 15 (Groundwater-Well) WELL NO 1 (Groundwater-Well) WELL NO 16 (Groundwater-Well) WELL NO 3 (Groundwater-Well) WELL NO 4 (Groundwater-Well) WELL NO 5 (Groundwater-Well) WELL NO 6 (Groundwater-Well) WELL NO 7 (Groundwater-Well) WELL NO 8 (Groundwater-Well)	Row Crops, Fallow, Small Grains, Pasture / Hay, Septic Systems, Road Miles

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

CHEROKEE 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, 2018 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 <u>OR</u>						
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, 2018	<u>Lowest period</u> percentage of samples meeting TT requirement: 100%	0	25	No	4.0 ppm

Lead and Copper Sampled in the Distribution System								
Contaminant Name	Time Period	90 th Percentile	Sample Size	Unit of Measure	90 th Percentile AL	Sample Sites Above AL	90 th Percentile AL Exceedance	Typical Sources
Copper	08/07/2018 to 08/12/2018	0.52	30	ppm	1.3	0	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead	08/07/2018 to 08/12/2018	3	30	ppb	15	0	No	Corrosion of household plumbing 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)	2018	8.29	3.1 to 13.6	16	ppb	60	N/A	No	Byproduct of drinking water disinfection
Total Trihalomethanes (TTHM)	2018	26.8	12.9 to 39.7	16	ppb	80	N/A	No	Byproduct of drinking water disinfection

Radionuclides 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
Gross Alpha	2017	1.1	1.1 to 1.1	1	pCi/L	15	0	No	Erosion of natural deposits
Combined Radium	2017	3.4	3.4 to 3.4	1	pCi/L	5	0	No	Erosion of natural deposits

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
Arsenic	2018	0.0005	0 to 0.002	4	ppb	10	0	No	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium	2018	0.06175	0.049 to 0.076	4	ppm	2	2	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Chromium	2018	0.0005	0 to 0.002	4	ppb	100	100	No	Discharge from steel and pulp mills; erosion of natural deposits
Fluoride	2017	0.74	0.31 to 1.6	3	ppm	4	4	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum

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
									factories
Nitrate	2018	5.61	0 to 7.2	9	ppm	10	10	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Selenium	2018	0.004	0.003 to 0.005	4	ppb	50	50	No	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines

Nitrate: *Nitrate in drinking water at levels above 10 ppm* is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.

Secondary Contaminants**

**Secondary standards are non-enforceable 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	2018	57.3	46.5 to 65	4	ppm	N/A
Total Dissolved Solids	2016	131.2	62 to 180	5	ppm	500

Unregulated Contaminants***

EPA has implemented the Unregulated Contaminant Monitoring Rule (UCMR) to collect data for contaminants that are suspected to be present in drinking water and do not have health-based standards set under the Safe Drinking Water Act. EPA uses the results of UCMR monitoring to learn about the occurrence of unregulated contaminants in drinking water and to decide whether or not these contaminants will be regulated in the future. We performed monitoring and reported the analytical results of the monitoring to EPA in accordance with its Unregulated Contaminant Monitoring Rule (UCMR). Once EPA reviews the submitted results, the results are made available in the EPA's National Contaminant Occurrence Database (NCOD) (<http://www.epa.gov/dwucmr/national-contaminant-occurrence-database-ncod>) Consumers can review UCMR results by accessing the NCOD. Contaminants that were detected during our UCMR sampling and the corresponding analytical results are provided below.

Contaminant Name	Year	Average	Range Low – High	Sample Size	Unit of Measure
Manganese	2018	11.73	<0.4 – 35.1	6	ppb
Bromide	2018	145.5	<20 – 202	6	ppb
Total Organic Carbon	2018	1090	<1000 – 1310	6	ppb

Unregulated Contaminants***

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Contaminant Name	Year	Average	Range Low – High	Sample Size	Unit of Measure
Quinoline	2018	0.0237	<0.02 – 0.0423	6	ppb
Germanium	2018	0.3287	<0.3 – 0.472	6	ppb
Bromochloroacetic Acid	2018	2.548	0.847 – 3.89	8	ppb
Bromodichloroacetic Acid	2018	1.0348	<0.5 – 1.53	8	ppb
Chlorodibromoacetic Acid	2018	1.8965	0.332 – 3.0	8	ppb
Dibromoacetic Acid	2018	4.252	0.517 – 6.48	8	ppb
Dichloroacetic Acid	2018	1.092	0.636 – 2.11	8	ppb
Monobromoacetic Acid	2018	0.7165	<0.3 – 1.11	8	ppb
Tribromoacetic Acid	2018	3.077	<2.0 – 4.39	8	ppb
Trichloroacetic Acid	2018	0.516	<0.5 – 0.631	8	ppb

***More information about the contaminants that were included in UCMR monitoring can be found at: <https://drinktapp.org/Water-Info/Whats-in-My-Water/Unregulated-Contaminant-Monitoring-Rule-UCMR>. Learn more about the EPA UCMR at: <http://www.epa.gov/dwucmr/learn-about-unregulated-contaminant-monitoring-rule> or contact the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/contact.cfm>.

Violations, Significant Deficiencies, Backflow/Cross-Connection, and Formal Enforcement Actions

No Violations or Formal Enforcement Actions