



Drexel, Barrell & Co.

WATER RESOURCES REPORT

For

WINDERMERE

Engineers/Surveyors

**Boulder
Colorado Springs
Greeley**

3 S 7th Street
Colorado Springs, CO 80905

719 260-0887
719 260-8352 Fax

February 4, 2019

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
(H:\21187-
01CSCV\Plans\Submittals\201806xx
Preliminary plan Amendment)*



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 202 single-family residences. The project will be developed in two phases. Phase 1 will include 53 residential lots on approximately 19 acres. Phase 2 will include 45 residential lots on approximately 10 acres. Phase 3 will include 40 residential lots on approximately 9 acres. Phase 4 will include 64 residential lots on approximately 14 acres.

II. DETERMINATION OF SUFFICIENT QUANTITY OF WATER

A. Calculation of Water Demand

The proposed development includes 202 single-family residential lots. Anticipated water demand is approximately 0.31 AC-FT/YR/household. This results in the following quantity:

Residential: $(0.31 \text{ AC-FT/YR/household}) \times (202 \text{ households}) = \mathbf{62.62 \text{ AC-FT/YR}}$

Irrigation: $\mathbf{7.25 \text{ AC-FT/YR}}$

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 Commitment 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 Commitment, 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 Commitment).

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Colorado Springs
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- B. Financial plan and capital improvement plan from water provider – Water delivery will be provided by the Cherokee Metropolitan District (see 5/18/16 Technical Memorandum attached)
- 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 “2018 Drinking Water Consumer Confidence Report” for the Cherokee Metropolitan District.

PREPARED BY:

DREXEL, BARRELL & Co.

3 S. 7th Street
Colorado Springs, CO 80905
Contact: Tim McConnell, P.E.
(719) 260-0887



CHEROKEE METROPOLITAN DISTRICT

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

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

July 6, 2018

Tim McConnell
c/o Drexel, Barrell & Co.
3 S. 7th Street
Colorado Springs, CO 80905

Re: Residential Development – Windermere Subdivision (Windsor Ridge Homes)
Commitment Letter #2018-06

Dear Mr. McConnell,

As requested, this letter is being provided as a formal Letter of Commitment by the Cherokee Metropolitan District (District) to provide municipal water and sewer service for the above-mentioned development. The parcel of land is located within the District's service boundary and, therefore, the District stands ready and willing to provide water and sewer service for the specific property and uses detailed herein.

As of May 18, 2016, through a technical memorandum prepared by Forsgren Associates, the State Engineer has confirmed that the District has a water surplus of 453 acre feet per year available for new residential subdivisions and commercial developments. Since May 18, 2016, the District has issued 49.279 acre feet per year of water commitments leaving a balance of 403.721 acre feet per year of water for future developments. Based on the data provided to the District in the "Windermere Water Supply Information Summary" that was received on July 5, 2018, the Windermere subdivision development, consisting of 205 platted lots, will require a total of 70.80 acre feet per year of water which includes 63.550 acre feet per year of water for domestic use and 7.250 acre feet per year of water for irrigation use. After this commitment letter, the District will have a remaining water balance of 332.921 acre feet per year of water for future developments.

Regarding wastewater capacity, the District's Water Reclamation Facility (WRF) has the required capacity to meet the sewer demand for this development. The WRF is rated for 4.8 million gallons per day (MGD), of which 2.6 MGD is owned by the District and reserved for the District's customers. The District's current contribution to the WRF is 1.56 MGD, therefore, there is an excess of 1.04 MGD of capacity available. Based on the following data included in the "Windermere Wastewater Disposal and Treatment Report" dated July 5, 2018: 2.5 persons per home and 65 gallons per day (gpd) per person

equates to 33,280 gpd (205 units x 2.5 persons/unit x 65 gpd/person) which is 3.2% of the available capacity of the WRF.

This commitment letter is hereby made exclusively for this specific development project at this site, within the District, and the development must achieve appropriate zoning and a final plat land use entitlement from El Paso County Development Services within 12 months from the date of this letter; otherwise, the District may use this allocation for other developments requesting a water commitment for growth that stands ready to develop.

The District and I trust that you find this letter adequate for your needs and land use applications. If I may be of further assistance please contact me at your convenience.

Best Regards,

A handwritten signature in blue ink that reads "Jonathon Smith". The signature is written in a cursive style with a large initial "J".

Jonathon Smith
Water & Wastewater Collections Manager

Encl: Water Balance and Water Commitments (Cherokee Metropolitan District)
Windermere Water Supply Information Summary
Windermere Wastewater Disposal and Treatment Report
Windermere Preliminary Plan

Ec: Brian Beaudette, Interim General Manager, Cherokee Metropolitan District
Steven Hasbrouck, Board President, Cherokee Metropolitan District



TECHNICAL MEMORANDUM

PREPARED FOR: Kevin Rein/Deputy State Engineer
Keith Vander Horst/Team Leader, Designated Basins

PREPARED BY: Will Koger/Forsgren Associates
Jason Broome/Forsgren Associates

COPIES: Kurt Schlegel/Cherokee Metropolitan District Interim General Manager
Art Sintas/ Cherokee Metropolitan District Operations Manager

DATE: May 18, 2016

PROJECT NO.: 04-13-0122

SUBJECT: Cherokee Metropolitan District Update of Commitments and Supplies for
Colorado Division of Water Resources

1.1 INTRODUCTION

This memorandum provides an update regarding water commitments and supplies for the Cherokee Metropolitan District (CMD) to address the Colorado Division of Water Resources (DWR, also known as the Office of the State Engineer) concerns. The most recent DWR summary document was issued on 4/12/2006; see Table 1 for a summary of the accounting and *Document 1* for a full copy of the DWR table. The 2006 accounting showed a deficit in the supplies needed to service the commitments. This memo shows that the supplies now exceed the commitments.

Water supplies for CMD are divided into two categories to allow for separate accounting of use of water within and out of the Upper Black Squirrel Creek Designated Groundwater Basin (UBSC). Therefore, this memorandum is divided into two distinct sections to show this separate accounting. Each section presents the current supplies and commitments for the service area.

Table 1
Summary of 2006 SEO Data

		Out of UBSC Basin	In UBSC Basin
Commitments	AF/YR	4,944	1,970
UBS Alluvial Non-Export. Wells	AF/YR		2,136
UBS Alluvial Export. Wells	AF/YR	3,673	
Black Forest Wells	AF/YR		
Sand Creek Wells	AF/YR	428	
Denver Basin Water under District	AF/YR		
Total Supplies	AF/YR	4,101	2,136
Surplus/Deficit	AF/YR	-843	166

1.1.1. Updated Calculation of Unit Water Demand

The unit water demand used by CMD for planning has historically been assumed at 0.42 AFY/SFE (SFE represents Single Family Equivalent). Since 2006, CMD has aggressively implemented conservation tools, including a progressively tiered rate structure for all customers and outdoor turf irrigation use restrictions. These tools, in combination with public education and passive savings from water efficient appliances and fixtures, have significantly reduced the per SFE demands to 0.26-0.31 AFY/SFE (the range of annual average values for the 2009-2014 period). Therefore, a conservative value of **0.31 AFY/SFE** will be used by CMD for water supply planning. As a comparison, El Paso County Land Development Code advises the following values be used for planning annual water demands when data is not available: 0.26 AF per connection for inside residential use and 0.0566 AF per 1,000 square feet of landscaping. See *Document 27* for a detailed review of the calculations of the unit water demand.

1.2 IN-BASIN WATER

In-basin water refers to the water produced by Wells 1-8, which Cherokee has agreed to provide only to consumers within the UBSC Basin. Usage out of the Basin is allowed in emergency situations.

1.2.1 Supplies

Table 3 lists the supplies that are currently only available for use in-basin (except under emergency conditions). The bulleted list below the table provides an explanation for key items.

Table 3
In-Basin Supplies (UBSC Alluvial Wells)

Cherokee Well Name	Alternate Name	Well Permit Number	Case/Decree Number	Decreed (AF)	Planned Production (AF)
No. 1	Ross No. 2	4857-F	94CW23/95CW19/95CW150	700	141
No. 2	Hill No. 2	4855-F	94CW23/95CW19/95CW150	700	70
No. 3	Hill No. 1	4854-RFP	94CW23/95CW19/95CW150	700	182
No. 4	Saladay No. 5	24680-F	94CW23/95CW19/95CW150	700	412
No. 5	Saladay No. 3	24976-F	94CW23/95CW19/95CW150	591	265
No. 6	Harding No. 1	29089-F	94CW23/95CW19/95CW150	700	227
No. 7	Harding No. 2	29088-F	94CW23/95CW19/95CW150	469	228
No. 8	Guyer No. 7	31060-F	94CW23/95CW19/95CW150	700	558
Total				5,260	2,083
Production Currently Available Based on pre-1999 Commitments					580

- **Decreed:** This is the maximum annual volume available per the decree.
- **Planned Production:** This represents the maximum production for each well for the period of 2000-2013 (see *Document 2* for more information). Note that the wells were pumped at higher production rates prior to the limitation on export. CMD plans to perform pump testing for each well in the near future to better determine the production capacities.
- **Production Currently Available:** Per discussion in the May 12, 2015 memo from DWR, water production from Wells 1-8 is limited to the amount that was committed to prior to the January 25, 1999 stipulation (580 AFY). CMD is currently pursuing a declaratory judgement to remove the 580 AF limit, and allow an additional 1,502 AF of production from Wells 1-8 to be used for any current and future needs that are located in-basin.

1.2.2 Commitments

Table 4 shows the service commitments by CMD that are within the UBSC Basin. The bulleted list below the table provides an explanation of the source of the data.

Table 4
In-Basin Commitments

Item	Commitment (AFY)
WHOLESALE CUSTOMERS	
Antelope Acres/Viewpoint Estates	50.0
Woodmen Hills-1998 Agreement	350.0
RETAIL CUSTOMERS	
Harding Nursery	180.0
Sunset Village (Temporarily allocated to out-of-basin supplies)	
Ellicott School (Temporarily allocated to out-of-basin supplies)	
Total	580

- Commitments are divided into “wholesale” and “retail” customers. Wholesale customers are those that receive their water supply from CMD, but have responsibility for a consecutive drinking water system that delivers the water to their customers. Retail customers are those served directly by CMD.
- Antelope Acres: Value is based on the agreement dated 6/9/1998 (*Document 3*).
- Woodmen Hills-1998 Perpetual Water Agreement: This value is based on the agreement dated 11/10/1998 (*Document 5*).
- Harding Nursery: This value is based on an agreement originally finalized in 1954, with supplements agreed to in 1962 and 1985 (*Document 6*).
- Sunset Village (Ellicott Springs): Service to Sunset Village filing nos. 1-4 has historically been provided and accounted in Cherokee reporting from CMD wells 1-8 via interconnected unified well field collection system trades, previously discussed with DWR staff following the Supreme Court Order in Case No. 06SA95. Cherokee’s northern and southern well fields were interconnected via pipelines constructed in 1988, and since the Supreme Court Order in Case No. 06SA95, Cherokee has been reporting diversions associated with demands for Sunset Village/Ellicott Springs Development with Wells 1-8 in-basin water rights via an intra-system exchange. The Ellicott Springs/Sunset Village commitment is temporarily allocated as an out-of-basin commitment (based on 2015 feedback from DWR staff) pending the outcome of the declaratory judgement that CMD is seeking in case number 15GW15 related to the legal place, type, and amount of use allowable for Wells 1-8.

- Ellicott School: Identified in the “Summary of Water Supply Commitments” document produced by CMD dated 1/20/2006. Service began in 2002. School District growth has long been predicated on the growth of Schriever AFB, which is projected to double in size by 2050; note that Schriever AFB has been provided a dedicated seat on the Ellicott School District Board of Directors. Cherokee’s northern and southern well fields were interconnected via pipelines constructed in 1988, and since the Supreme Court Order in Case No. 06SA95, Cherokee has been reporting diversions associated with demands for Ellicott School District with Wells 1-8 in-basin water rights via an intra-system exchange. This commitment is temporarily allocated as an out-of-basin commitment (based on 2015 feedback from DWR staff) pending the outcome of the declaratory judgement that CMD is seeking in case number 15GW15 related to the legal place, type, and amount of use allowable for Wells 1-8.

Note that per the May 12, 2015 memo from DWR, Wells 1-8 can only be used to supply those commitments that were being supplied (or were committed to be supplied) within the UBSC Basin by January 25, 1999. Therefore later commitments, even if the service is located within the UBSC Basin, are not included in this list. Use of Wells 1-8 water for these locations is pending the resolution of the declaratory judgement (case 15GW15). Additional service locations within the UBSC basin which are currently served with exportable water that CMD is seeking to serve with water from Wells 1-8 include:

- Woodmen Hills-Guthrie Exchange: This is based on the series of agreements in which Cherokee agrees to provide 133.5 AF of Cherokee water from Wells 1-8 to Woodmen Hills, and in exchange Woodmen Hills agrees to provide 89 AF of exportable water from the alluvial Guthrie exportable water rights (*Document 6*). This is not considered a commitment since it is a short term agreement and is interruptible. The agreement is typically renewed annually. The agreement is single-year, single-use, and all return flows return to the UBS Basin as required by the 1999 Stipulation and Release in Case No. 98CW80.
- GTL (Meridian)-Guthrie Exchange: This is based on the series of agreements in which Cherokee agrees to exchange up to 200 AF of exportable water from the Guthrie right for up to 300 AF of Cherokee water from Wells 1-8 (*Document 19*). This is not considered a long-term or perpetual commitment since it is a series of short term agreements (2009-2015) and is interruptible. The agreement is typically renewed annually. The agreement is single year, single use, and all return flows return to the UBS Basin as required by the 1999 Stipulation and Release in 98CW80.
- Short-Term Goss Lease: Cherokee has an agreement to lease a minimum of 400 AFY of water from Wells 1-8 to Bracket Creek Farms (owned by Dean Goss) in the north central area of the Basin for use in his irrigated agribusiness (noted as the David Goss and Wiebe properties in the agreement). The short-term lease agreement period is for five years (1/1/2014-12/31/2018), see *Document 20*.

1.2.3 Summary

The commitments and supplies for in-basin usage are summarized below.

- Available Supplies: 580.0 AFY (2,082 AFY is actual current production capacity of these wells)
- Commitments: 580.0 AFY
- **Surplus: 0.0 AFY**

Intra-System Exchanges:

- Exchanges: 333.5 AFY
- Leases: 400.0 AFY

Again, those intra-system exchanges that continue would primarily be served from in-basin supplies following a favorable declaratory judgment.

1.3 OUT-OF-BASIN WATER

Out-of-basin water refers to the water produced by the remaining UBSC alluvial wells (excluding wells 1-8), which can be used for any consumers CMD is committed to serve and can be transferred out of the UBSC Basin, and other sources such as the Black Forest Denver Basin water wells.

1.3.1 Supplies

1.3.1.1 Existing UBSC Wells

The tables below list the information on water supplies that can be used both in and out of the UBSC basin. The bulleted list below each table describes any notable facts about the supplies.

Table 5
UBSC Alluvial Exportable Wells

Cherokee Well Name	Alternate Name	Well Permit Number	Case/Decree Number	Decreed (AF)	Planned Production (AF)
No. 9	Pikes Peak	14145-FP	90GW05	176	176
No. 10	Pikes Peak	14146-FP	90GW05	176	176
No. 11	Pikes Peak	6821-FP	90GW05	244	244
No. 12	Pikes Peak	11198-FP	90GW05	244	244
No. 13	Sweetwater No. 1	49988-F	05CW06/05CW20	1,268	1,268
No. 14	Sweetwater No. 9	52429-F			
No. 15	Sweetwater No. 8	54070-F	05CW06/05CW20	281	259
No. 16	Sweetwater No. 3	54069-F	05CW06/05CW20	219	197
No. 17	Sweetwater No. 11	54071-F	05CW06/05CW20	175	153
No. 19	Duncan	20567-RFP-R		95	95
No. 20	Goss	4332-FP, 2076-FP, 15389-FP		400	400
	Sweetwater No. 5		05CW06/05CW20	290	
Total				3,568	3,212

- The decreed amounts represent the exportable portion of the water right.
- The total Sweetwater decree was reduced from 6,258 AF to 2,167 AF per the 05CW06/05CW20 decree, which was finalized on 2/26/2015 (*Document 7*).
- The following rights are abandoned per the final 05CW06/05CW20 decree: SW No. 2, SW No. 9 (Cherokee well no. 14), SW No. 13, SW No. 15, and SW No. 16 (*Document 7*).
- The decreed and planned amounts for wells 15, 16, and 17 are different because the final 05CW06/05CW20 decree allows each individual well to withdraw the amounts of 281 AF, 219 AF, and 175 AF (which totals 675 AF) but also limits the total volume that can be pumped from Wells 15-17 to 609 AF. Therefore the planned production of each well is decreased by 22 AF to account for the overall limit of 609 AF (see *Document 7*).
- For the Duncan Well, see the purchase agreement dated 7/14/2011 (*Document 9*). The decree number is the well permit number. Per conversations with CMD's water attorney, these rights may have been adjudicated after the designation of the USBC Basin, therefore the final permit issued by the Ground Water Commission serves as the "decree" for these water rights.
- For the Goss Wells, see the purchase agreement dated 7/22/2013 (*Document 10*). The

decree number is the well permit number. Per conversations with CMD’s water attorney, these rights may have been adjudicated after the designation of the USBC basin, therefore the final permit issued by the Ground Water Commission serves as the “decree” for these water rights.

- Sweetwater No. 5 conditional point of decree from the Sweetwater well field remains a conditional decree which will be developed in the 2016 – 2021 timeframe. CMD is currently working to obtain appropriate easement(s) to connect the well to existing raw water conveyance infrastructure (see Document 7 and Table 7 below).

1.3.1.2 Cherokee Water LLC Rights

CMD has additional UBSC water rights that are held by Cherokee Water LLC, which are listed in Table 6.

Table 6
CMD Water Supply from Cherokee Water LLC

Cherokee Well Name	Alternate Name	Well Permit Number	Case/Decree Number	Decreed (AF)	Planned Production (AF)
No. 18	Tipton	16253-FP	91GW01	225	225
	Kane Water Right			200	0
Total				425	225

- For the Tipton Well, see the purchase agreement dated 12/4/2006 (*Document 8*). Note that 4 AF of water was reserved for use by the seller, which is being included as a commitment since CMD will serve this need.
- The Kane water right is a first priority contractual water right reserving the first 200 AFY from the collective Sweetwater absolute and conditional rights. DWR’s opinion is that the right does not allow an increase in the production from the Sweetwater points of diversion (05CW06/05CW20 and 88CW49) or drilling a new point of diversion. Therefore, the planned production for this right is listed as 0 since it is currently supplied via the Sweetwater rights. See DWR findings of sufficiency for Kane first priority contractual water right and *Document 12* for the purchase agreement.

1.3.1.3 Future UBSC Wells

CMD is currently in the purchasing or development phase for the wells listed in Table 7.

Table 7
Future UBSC Alluvial Wells

Cherokee Well Name	Alternate Name	Well Permit Number	Case/Decree Number	Decreed (AF)	Planned Production (AF)
	Albrecht Wells	27571-FP, 27572-FP	B-42135	350	TBD
	Sweetwater No. 5		05CW06/05CW20	290	TBD
Total				840	TBD

- For the Albrecht purchase agreement, see *Document 11*. Planned production will be determined after resolution of the change case application, which is currently pending. The application included an estimated production of 245 AFY.
- Sweetwater No. 5 has a conditional water right of 290 AFY per the final 05CW06/05CW20 decree. Planned production is based on preliminary modeling, which indicates a potential production capacity of 92 AFY, see email from Principia Mathematica (*Document 21*). The production is listed as TBD for now until actual tested pumping rates are available.
- CMD's proposed Replacement Plan in 08GW81 and related cases remains pending before the Groundwater Commission Hearing Officer. The Replacement Plan was filed by Cherokee to maximize the beneficial use of its water rights and their return flows. The procedural hearing before the Commission's Hearing Officer was stayed in 2010 to ensure the resolution of use and reuse regarding the District's return flows that were litigated in the 98CW80 declaratory judgement action (concerning the meaning of "Recharge" within the 1999 Stipulation and Release and Decree in 98CW80). An Order was issued by the Colorado Supreme Court in 13SA330 (*Document 25*) on June 22, 2015 affirming the Water Court's opinion that return flows from CMD or its IGA partners are not abandoned for return flow purposes as a result of the language at issue from the 1999 Stipulation and Release. CMD's Water Counsel and Board of Directors will need to evaluate the ruling and their options more comprehensively, and with the 08GW71 and related cases stayed before the Commission's Hearing Officer, further steps must be taken to account for any additional reuse rights or points of diversion that will come of the pending replacement plan application(s).

1.3.1.4 Sweetwater Absolute Rights

CMD purchased a contractual right to 30% undivided interest in the Sweetwater (88CW49) absolute decreed rights (Dec. 2009 Morealle purchase) listed below, while the Farmer family/estate owns the remaining 70% of water rights and 100% of the land upon which the well structure is located (see *Document 22*). Access, point of diversion, partition, and use agreements will need to be litigated and formalized with all owners in order to proceed with usage of these rights. Therefore the water quantity will not be used in supply calculations in this memo (will be listed as To Be Determined/TBD). Table 8 summarizes these rights.

Table 8
CMD Ownership of Portion of Sweetwater Absolute Rights

Name	Well Permit Number	Case/Decree Number	Original Right per 88CW49 (CFS)	Decree per Oct 1984 Ruling (AFY)	CMD Share at 30% (AFY)
Farmer Sump	27362-FP	88CW49	2.00		TBD
Farmer No. 1	2451-FP	88CW49	2.00	150	45
Farmer No. 2	R-6494-FP	88CW49	0.90	100	30
Farmer No. 3	R-6493-FP	88CW49	2.64	150	45
Farmer No. 4	R-27563-FP	88CW49	1.00	0	0
Farmer No. 5	R-20586-FP	88CW49	1.80	200	60
Sweetwater No. 2	11355-FP	88CW49	4.40	2,482	745
Kane No. 1	6032-FP	88CW49	4.22	240	72
			18.96	3,322	997

- The decreed amounts are based the October 1984 final permits. See *Document 23* for more information.
- The Kane No. 1 Well, like other Sweetwater absolute rights may be developed as additional points of access for the Kane Water right. However, well structure ownership, well permitting, private property ownership and access easement issues will all need to be resolved prior to development.

1.3.1.5 Black Forest Denver Basin Water

Tables 9-10 list the Denver Basin water rights owned by CMD as part of their Black Forest system.

Table 9
Black Forest Phase 1 Wells (Denver Basin Water)

Cherokee Well Name	Alternate Name	Permit Number	Case/Decree Number	Decreed (AFY)	Augmentation Status	Planned Production (AF)
SD-AR-1	Sundance Arapahoe	75881-F	99CW126	147.7	NT	142.6
SD-DN-1	Sundance Denver 1	75882-F	99CW126	328.5	NT	109.5
SD-DN-2	Sundance Denver 2	78315-F				
SD-DN-3	Sundance Denver 3					
SD-DA-1	Sundance Dawson		99CW126	361.3	NNT	TBD
	Sundance LFH		99CW126	108.5	NT	36.2
	Shamrock East Arapahoe		94CW023	280.0	NT	0.0
SE-DN-1	Shamrock East Denver 1		94CW023	600.0	NT	200.0
SE-DN-2	Shamrock East Denver 2					
SE-DN-3	Shamrock East Denver 3					
SE-DN-4	Shamrock East Denver 4					
SE-DN-5	Shamrock East Denver 5					
SE-DA-1	Shamrock East Dawson		94CW023	591.0	NNT	TBD
	Shamrock East LFH		94CW023	210.0	NT	2.0
Total				2,627		490

- For more detailed information, see *Document 14*. For the Sundance purchase agreement, see *Document 15*. For the Shamrock purchase agreement, see *Document 16*.
- The Sundance Arapahoe well will pump the combined Sundance and Shamrock East Arapahoe volumes.
- Planned production is based multiplying the purchased water right (which may or may not equal the decree depending on what CMD purchased) by 1/3 to account for the El Paso County 300-year supply rule for Denver Basin aquifers. Relinquishments (2% for NT and TBD for NNT) are not accounted for in these values as this will be addressed in the augmentation plan.
- Dawson aquifer water is not included as planned production at this time since the augmentation plan has not been finalized (Case No. 14CW3061 consolidated with Case No. 14CW3171, Division 2 Water Court).

Table 10
Black Forest Phase 2 Wells (Denver Basin Water)

Cherokee Well Name	Alternate Name	Permit Number	Case/Decree Number	Decreed (AF)	Augment-ation Status	Planned Production (AF)
SL-AR-1	Shiloh Arapahoe		96CW125	220.3	NT	73.4
SL-DN-1	Shiloh Denver 1		96CW125	350.9	NT	117.0
SL-DN-2	Shiloh Denver 2					
SL-DN-3	Shiloh Denver 3					
SL-DN-4	Shiloh Denver 4					
SL-DA-1	Shiloh Dawson		96CW125	423.6	NNT	TBD
	Shiloh LFH		96CW125	136.8	NT	28.3
CLE-AR-1	County Line Arapahoe		96CW169, 96CW110	143.0	NT	42.5
CLE-DN-1	County Line Denver 1		96CW169, 96CW110	209.0	NT	69.7
CLE-DN-2	County Line Denver 2					
CLE-DA-1	County Line Dawson		96CW169, 96CW110	261.0	NNT	TBD
	County Line LFH		96CW169, 96CW110	90.0	NT	0.0
Total				1,835		331

- For more detailed information, see *Document 14*. For the Shiloh purchase agreement, see *Document 17*. For the County Line purchase agreement, see *Document 18*.
- Planned production is based multiplying the purchased water right (which may or may not equal the decree depending on what CMD purchased) by 1/3 to account for the El Paso County 300-year supply rule for Denver Basin aquifers. Relinquishments (2% for NT and TBD for NNT) are not accounted for in these values as this will be addressed in the augmentation plan.
- Dawson aquifer water is not included as planned production at this time since the augmentation plan has not been finalized (Case No. 14CW3061 consolidated with Case No. 14CW3171, Division 2 Water Court).

1.3.1.6 Cimarron Hills Denver Basin Water

Table 11 presents the rights CMD has secured for Denver Basin water under the boundaries of the district per decree 05CW45. However, CMD has not developed any of these supplies to date. Augmentation plans will be required prior to development. Therefore, these rights are not included in the supplies accounting yet.

Table 11
Cimarron Hills Denver Basin Water under District

Cherokee Well Name	Alternate Name	Permit Number	Case/Decree Number	Decreed (AF)	El Paso County Planning (AFY)	Planned Production (AF)	Aquifer Status/Augment.
	Arapahoe		05CW45	29	10		NNT-4%
	Arapahoe		05CW45	375	125		NNT-Actual
	Laramie-Fox Hills		05CW45	15	5		Not Req'd
	Laramie-Fox Hills		05CW45	504	168		NNT-4%
	Laramie-Fox Hills		05CW45	179	60		NNT-Actual
Total				1,102	367	TBD	

1.3.1.7 UBSC Denver Basin Water

CMD has leased Denver Basin water rights in the Upper Black Squirrel Creek area. In a pre-hearing statement from 2009, the total volume applied for was 3,171 AFY divided between three property sets (western, eastern, and northern). However, CMD has not finalized leases for the total volume of water. Table 12 lists the information on those leases that CMD has completed; note that Stoen and Burnside constitute a portion of the Eastern Property, and Shaw a portion of the Northern Property. Expected volumes of water available are based on calculations performed by Scott Mefford of Hydrokinetics for CMD on 6/16/2015, and include deductions for rights reserved by the property owners. See *Document 24* for more information on these rights. CMD has not developed any of these supplies to date. The planned production is listed as TBD at this time since a final ruling of the water rights volumes has not been obtained.

Table 12
Leased Denver Basin Water in UBSC Area

Cherokee Well Name	Alternate Name	Case/Decree Number	Proposed Decree (AFY)	Reserved Rights (AFY)	CMD Available Rights (AFY)	El Paso County Planning (AFY)	Planned Product. (AF)	Aquifer Status/Augment.
	Stoen-Denver	05GW15/16/17	37.00		37.00	12.33		NNT
	Stoen-Arapahoe	05GW15/16/17	195.70	21.00	174.70	58.23		NNT
	Stoen-LFH	05GW15/16/17	287.50		287.50	95.83		NT
	Burnside-Denver	05GW15/16/17	162.17		162.17	54.06		NNT
	Burnside-Arapahoe	05GW15/16/17	396.57	41.00	355.57	118.52		NNT
	Burnside-LFH	05GW15/16/17	490.69		490.69	163.56		NT
	Shaw-Denver	05GW15/16/17	75.86		75.86	25.29		NNT
	Shaw-Arapahoe	05GW15/16/17	49.82		49.82	16.61		NNT
	Shaw-Arapahoe	05GW15/16/17	92.40		92.40	30.80		NT
	Shaw-LFH	05GW15/16/17	159.75		159.75	53.25		NT
Total			1,947		1,885	628	TBD	

1.3.2 Commitments

CMD performed an analysis in 2011 of the usage and remaining commitments at the time. CMD feels this is still an accurate accounting of commitments (with a few adjustments as noted in the bullets below the table), as very little development growth has occurred since 2011. Table 13 is based on this analysis; the bulleted list below the table presents detailed information on each commitment. Note that the developments specifically committed to with the Cherokee Water LLC water rights are included in this accounting.

**Table 13
Out-of-Basin Commitments**

Item	District General Commitment (excluding Kane/Tipton) (AFY)	Kane Commitment (AFY)	Tipton Commitment (AFY)	Total (AFY)
Total Water Demand in 2010	3,587			3,587
Minus In-Basin Use in 2010	-592			-592
Out of Basin Use in 2010	2,957	15	23	2,995
Cimarron Hills to be Built as of 4/2011	150	185	202	537
SAFB to be Built as of 4/2011	173			173
Sunset Village (currently not served with in-basin supplies)	44			44
Ellicott School (currently not served with in-basin supplies)	10			10
New Commitments 10/2015-2/2016	46			46
Total	3,380	200	225	3,805

- Demand in 2010: This is the total water production for 2010. See *Document 2* for more information.
- Minus In-Basin Use in 2010: This is the amount of the total water produced used in-basin.
- Out-of-Basin Use in 2010: This is calculated by subtracting in-basin use from the total use. Kane and Tipton commitments within this out-of-basin category are listed separately.
- Cimarron Hills to be Built as of 4/2011: This represents the water needed to service the remaining connections committed to by CMD, which is presented in Table 14. See *Document 13* for more information on the calculation of these numbers.

**Table 14
Cimarron Hills to be Built (Platted or Waiting BOCC Approval)**

Item	SFEs	Unit Demand (AFY/SFE)	Total Demand (AFY)
SFEs Platted but Not Built, or Waiting BOCC Approval	1,405		
Portion of Not Built SFEs Allocated to Kane/Tipton Rights	921	0.42	387
SFEs to be Served with General Portfolio	484	0.31	150

- SAFB to be Built as of 4/2011: CMD has a commitment of 537 AF to Schriever AFB, and they were using 364 AF annually as of 2011.
- Sunset Village: See section 1.2.2 for more information. The demand has been recalculated for 143 lots (build out) at the new demand criteria of 0.31 AFY/connection. Note that the actual usage for this development ranges from 0.12-0.18 AFY/connection for 2010-2014. This demand has historically been allocated to Wells 1-8 water via an intra-system exchange. At the direction of DWR, the demand is now allocated to exportable supplies, but CMD will change this allocation to non-exportable in-basin supplies if the declaratory judgement is favorable to CMD.
- Kane Commitments: Table 15 presents the current commitments that utilize the Kane water right. The residential commitments are based on the original service agreements, which were calculated based on the proposed number of lots for the commitment and the previous historical unit demand of 0.42 AFY/connection. These commitment volumes can actually be used to serve more connections (100 SFEs for the Kane water right), using the new unit demand value of 0.31 AFY/connection. CMD does not propose to reduce the volume commitment to each user to match the lots proposed in the service agreements (due to the language in the agreements regarding excess water, see *Document 28* for the operating agreement for Cherokee Water LLC). However, CMD will work with these users to utilize the excess water for additional connections within their planned developments, or CMD will seek an arrangement to utilize the excess water for other developments that can or will be served by CMD. See *Document 26* for more details on the Kane water right.

Table 15
Kane Water Right Commitments

Item	Development	Agreement Date	Lots	Commitment (AFY)
Claremont Business Park Filing 2/3	Commercial	10/11/2006		58.00
Sand Creek Investments (Hanna Ridge Filing 1)	Residential	10/11/2006	139	60.50
Care and Share	Commercial	1/24/2008		1.14
Laca-Loca (Hillcrest Acres Lot 3)	Commercial	6/20/2008		1.40
Jasper Co. (Eight Line Lot 3)	Commercial	6/25/2008		2.00
Harbor Lights Church (Living Water Lot 2)	Commercial	7/8/2008		10.50
Schuck (Ranch at Whispering Springs)	Residential	5/3/2012	123	51.86
Claremont Comm. Subdivision No 1	Commercial	12/17/2014		1.50
SEC Marksheffel/Const. (King Scoopers)	Commercial	8/28/2015		7.75
NEC Akers and Constitution	Commercial	10/21/2015		3.40
Circle K Convenience Store	Commercial	10/21/2015		1.68
Total			262	199.73
Original Water Right Value				200.00
Remaining Right Held by Cherokee Water LLC				0.27
Additional SFEs That Can Be Served at 0.31 AFY/SFE			100	

- Tipton Commitments: Table 16 presents the current commitments that utilize the Tipton water right. The residential commitments are based on the original service agreements, which were calculated based on the proposed number of lots for the commitment and the previous historical unit demand of 0.42 AFY/connection. These commitment volumes can actually be used to serve more connections (122 SFEs for the Tipton water right), using the new unit demand value of 0.31 AFY/connection. CMD does not propose to reduce the volume commitment to each user to match the lots proposed in the service agreements (due to the language in the agreements regarding excess water, see *Document 28* for the operating agreement for Cherokee Water LLC). However, CMD will work with these users to utilize the excess water for additional connections within their planned developments, or CMD will seek an arrangement to utilize the excess water for other developments that can or will be served by CMD. See *Document 26* for more details on the Tipton water right.

Table 16
Tipton Water Right Commitments

Item	Development	Agreement Date	Lots	Original Commitment (AFY)
Marksheffel Business Center (Wilshire Filing 2/3)	Residential	12/4/2006	163	68.29
Morley Companies (Claremont Ranch Filing 8A, all lots have been built)	Residential	12/4/2006	54	22.68
Powers and Galley Plaza Filing 1 (for Home Depot, which has been cancelled)	Commercial	12/4/2006		54.03
Sand Creek Investments (Hanna Ridge at Feathergrass Filing 1/2, includes Shops at Feathergrass)	Residential	12/4/2006	181	76.00
Randy Case		12/4/2006		4.00
Total			398	225.00
Original Water Right Value				225.00
Remaining Right Held by Cherokee Water LLC				0.00
Additional SFEs That Can Be Served at 0.31 AFY/SFE			122	

- Ellicott School: See section 1.2.2 for more information. This demand has historically been allocated to Wells 1-8 water via an intra-system exchange. At the direction of DWR, the demand is now allocated to exportable supplies, but CMD will change this allocation to non-exportable in-basin supplies if the declaratory judgement is favorable to CMD.

- New Commitments 10/2015-2/2016: CMD has approved several new developments for water service since preliminary approval of this memo (listed in Table 17). Note that the total service for Constitution Apartments is 21 AFY, and that 2 AFY of Kane Water (using an existing commitment to Jasper Co, and is therefore not listed in Table 17) is used to meet this service.

**Table 17
Developments Approved 10/2015-2/2016**

Item	District General Commitment (excluding Kane/Tipton) (AFY)	Kane Commitment (AFY)	Tipton Commitment (AFY)	Total (AFY)
SEC Marksheffel and Constitution	4.46			4.46
Windermere Filing #1	22.21			22.21
Constitution Apartments	19.00			19.00
Total	45.67	0.00	0.00	45.67

1.3.3 Undeveloped Area in Cimarron Hills

Table 18 presents a summary of areas within the Cimarron Hills service area that have not been developed (or platted), and for which CMD has not committed water. These are not included in the commitments tabulation.

**Table 18
Cimarron Hills Undeveloped Areas**

Item	Area (AC)	Lots	Connections	Unit Demand (AC-FT/CONN)	Total Demand (AC-FT)
Residential Zoned Single-Family Area Land	116.5	466	466	0.31	144
Residential Zoned Multi-Family Area Land	89	1424	1424	0.29	413
Commercial/Industrial Zoned Land	825.19			1.12	924
Total					1,482

- Residential zoned single-family area land: This is land (as of April 2011) that was zoned residential for single-family units but had not been platted. The density of development is assumed at 4 units per acre.
- Residential zoned multi-family area land: This is land (as of April 2011) that was zoned residential for multi-family units but had not been platted. The density of development is assumed at 16 units per acre. The lower unit demand value (0.29 AF/CONN) is based on an historical ratio for single-family to multi-family usage determined by CMD.
- Commercial/industrial zoned land: This is land (as of April 2011) that was zoned for

commercial or industrial but has not been developed. Commercial demand per acre (1.12 AF/AC) is based on a unit demand value historically used by CMD.

1.3.4 Summary

The commitments and supplies for out-of-basin usage are summarized below.

- Supplies: 4,258 AFY (See Table 21 for details)
- Commitments: 3,805 AFY
- **Surplus: 453 AFY**

- Additional Demand: 1,482 AFY (Potential demand for projected buildout of Cimarron Hills, see Table 17 for details)

1.4 IRRIGATION

CMD has a separate non-potable irrigation system consisting of the Sand Creek wells. These wells were originally listed on the 2006 water supply accounting as included in the potable system, however these wells are now restricted to non-potable irrigation use only. Water from these wells is used in two separate systems exclusively to irrigate two golf courses, Cherokee Ridge (owned by CMD) and World of Golf (privately owned). Table 19 summarizes these wells.

Table 19
Sand Creek Alluvial Wells

Cherokee Well Name	Alternate Name	Permit Number	Case/Decree Number	Decreed (AF)	Planned Production (AF)
Sand Creek 1	World of Golf	31777-F	09CW115	125	125
Sand Creek 2	World of Golf	30957-F	09CW115	125	125
Sand Creek 3	World of Golf	30956-F	09CW115	125	125
Sand Creek 4		30955-F	09CW115	125	
Sand Creek 5	Cherokee Golf Course	67221-F	09CW115	322	242
Sand Creek 6	Cherokee Golf Course	76859-F	09CW115	322	161
Sand Creek 7				322	
Total				1,466	778

Well 4 is currently not in operation (due to augmentation needs), and is therefore not included in the planned production. Well 7 is a future well that has not been developed yet.

1.4.1 Sand Creek Wells 1-4 System

Sand Creek Wells 1-4 provide supplemental water to the World Golf course. This course has its own primary water source, so the Sand Creek well water is used as needed. Water production from Wells 1-3 was 36 AF (2012) and 16 AF (2013). No potable water from CMD's system is

used for irrigation of this course.

1.4.2 Sand Creek Wells 5-6 System

Sand Creek Wells 5-6 provide water to the Cherokee Ridge Golf Course. These wells were constructed in order to significantly reduce or eliminate the potable water demand for irrigation of CMD's municipal public golf course, and began operation with Well No. 6 in 2008. Full production from both Well No. 5 and No. 6 began in 2014. Table 20 shows the annual water demand of the golf course for 2002-2014.

Table 20
Cherokee Ridge GC Water Usage

Year	Potable Water Usage (AFY)	Sand Creek Wells Water Usage (AFY)	Annual Total Usage (AFY)	Water from Sand Creek Wells
2002	193.56		193.56	0%
2003	144.27		144.27	0%
2004	167.94		167.94	0%
2005	189.70		189.70	0%
2006	142.39		142.39	0%
2007	160.64		160.64	0%
2008	113.40	55.90	169.30	33%
2009	29.84	107.36	137.20	78%
2010	47.40	125.37	172.77	73%
2011	55.07	128.45	183.52	70%
2012	61.95	138.12	200.07	69%
2013	26.50	110.70	137.20	81%
2014	0.00	156.07	156.07	100%
Average (2009-2014)	36.79	127.68	164.47	78%

CMD plans to optimize use of the Sand Creek water to eliminate potable water usage at the Cherokee Ridge course.

1.5 CONCLUSIONS

This memorandum shows that CMD's supplies now exceed the commitments. Table 21 summarizes the data.

Table 21
Summary of Findings

		In UBS Basin	Out of UBS Basin	Kane Right	Tipton Right	Total
Commitments						
Antelope Acres/Viewpoint Estates	AFY	50				50
Harding Nursery	AFY	180				180
Woodmen Hills-1998 Agreement	AFY	350				350
Sunset Village	AFY		44			44
Ellicott School	AFY		10			10
Out of Basin Use in 2010	AFY		2,957	15	23	2,995
Cimmaron Hills to be Built as of 4/2011	AFY		150	185	202	537
SAFB to be Built as of 4/2011	AFY		173			173
New Commitments 10/2015-2/2016	AFY		46			46
Total Commitments	AFY	580	3,380	200	225	4,385
Supplies						
UBS Alluvial Non-Export. Wells (1-8)	AFY	580				580
UBS Alluvial Export. Wells (9-20)	AFY		3,012	200	225	3,437
UBS Alluvial Export. Wells (Future)	AFY		TBD			
UBS Sweetwater Absolute Rights	AFY		TBD			
Black Forest Phase 1 Wells	AFY		490			490
Black Forest Phase 2 Wells	AFY		331			331
Denver Basin Water under District	AFY		TBD			
Denver Basin Water in UBSC	AFY		TBD			
Total Supplies	AFY	580	3,833	200	225	4,838
Surplus	AFY	0	453	0	0	453

The list below summarizes the major changes in water supply and commitments since 2006.

- Additional UBSC exportable water has been purchased (1,301 AFY).
- Denver Basin water in the Black Forest area has been purchased (821 AFY), and is currently being developed. Note that up to 384 AFY of additional water will be available from the Dawson aquifer when an approved augmentation plan is obtained. Note that these volumes are based on multiplying the purchased water right (which may or may not equal the decree depending on what CMD purchased) by 1/3 to account for the El Paso County 300-year supply rule for Denver Basin aquifers.

Reference Documents:

1. 2006 SEO Table
2. Cherokee Well Production
3. Antelope Acres Commitment
4. Harding Nursery Commitments
5. Woodmen Hills IGA
6. Woodmen Hills Guthrie Exchange
7. Sweetwater Decree
8. Tipton Well Agreement
9. Duncan Well Agreement
10. Goss Well Agreement
11. Albrecht Purchase Agreement
12. Kane Water Right Agreement
13. Remaining Commitments Spreadsheet
14. Black Forest Rights Summary
15. Sundance Purchase Agreement
16. Shamrock Purchase Agreement
17. Shiloh Purchase Agreement
18. County Line Purchase Agreement
19. GTL Guthrie Exchange Agreement
20. Goss Water Lease
21. Sweetwater 5 Well Production Estimate
22. Morealle Purchase of 30% of Sweetwater Absolute Rights
23. Sweetwater Absolute Wells Information
24. UBSC Denver Basin Water Information
25. Supreme Court Ruling 13SA330 Regarding Reuse
26. Kane and Tipton Rights Details
27. Detailed Calculations for Unit Demand
28. Cherokee Water LLC Documents

CHEROKEE MD 2018 Drinking Water Quality Report For Calendar Year 2017

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 has 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>Source</u>	<u>Source Type</u>	<u>Water Type</u>	<u>Potential Source(s) of Contamination</u>
WELLS 1 THROUGH 13	Well	Groundwater	Row crops, fallow, small grains, pasture/hay, septic systems, road miles
WELLS 15 THROUGH 20	Well	Groundwater	
WELL 21 AR-1	Well	Groundwater	
WELL 22 DN-4	Well	Groundwater	

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, 2017 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 <i>OR</i> 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	01/01/2017 to 12/31/2017	<u>Lowest period</u> percentage of samples meeting TT requirement: 96%	0	255	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	06/13/2017 to 06/15/2017	0.42	30	ppm	1.3	0	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead	06/13/2017 to 06/15/2017	4	30	ppb	15	2	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	Highest Compliance Value	MCL Violation	Typical Sources
Total Haloacetic Acids (HAA5)	2017	4.46	0 to 8.5	16	ppb	60	N/A	8.5	No	Byproduct of drinking water disinfection
Total Trihalomethanes (TTHM)	2017	19.03	5.6 to 34.5	16	ppb	80	N/A	34.5	No	Byproduct of drinking water disinfection
Radionuclides Sampled at the Entry Point to the Distribution System										
Typical Sources	Year	Average	Range Low – High	Sample Size	Unit of Measure	MCL	MCLG	MCL Violation		
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	
Gross Beta Particle Activity	2016	0.1	0.1 to 0.1	1	pCi/L*	50	0	No	Decay of natural and man-made deposits	
*The MCL for Gross Beta Particle Activity is 4 mrem/year. Since there is no simple conversion between mrem/year and pCi/L EPA considers 50 pCi/L to be the level of concern for Gross Beta Particle Activity.										

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	2017	0.33	0 to 2	6	ppb	10	0	No	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium	2017	0.06	0.04 to 0.07	6	ppm	2	2	No	Discharge of drilling wastes; discharge from metal refineries; 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 factories
Nitrate	2017	6.94	0 to 9.3	9	ppm	10	10	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Selenium	2017	4.33	0 to 8	6	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**

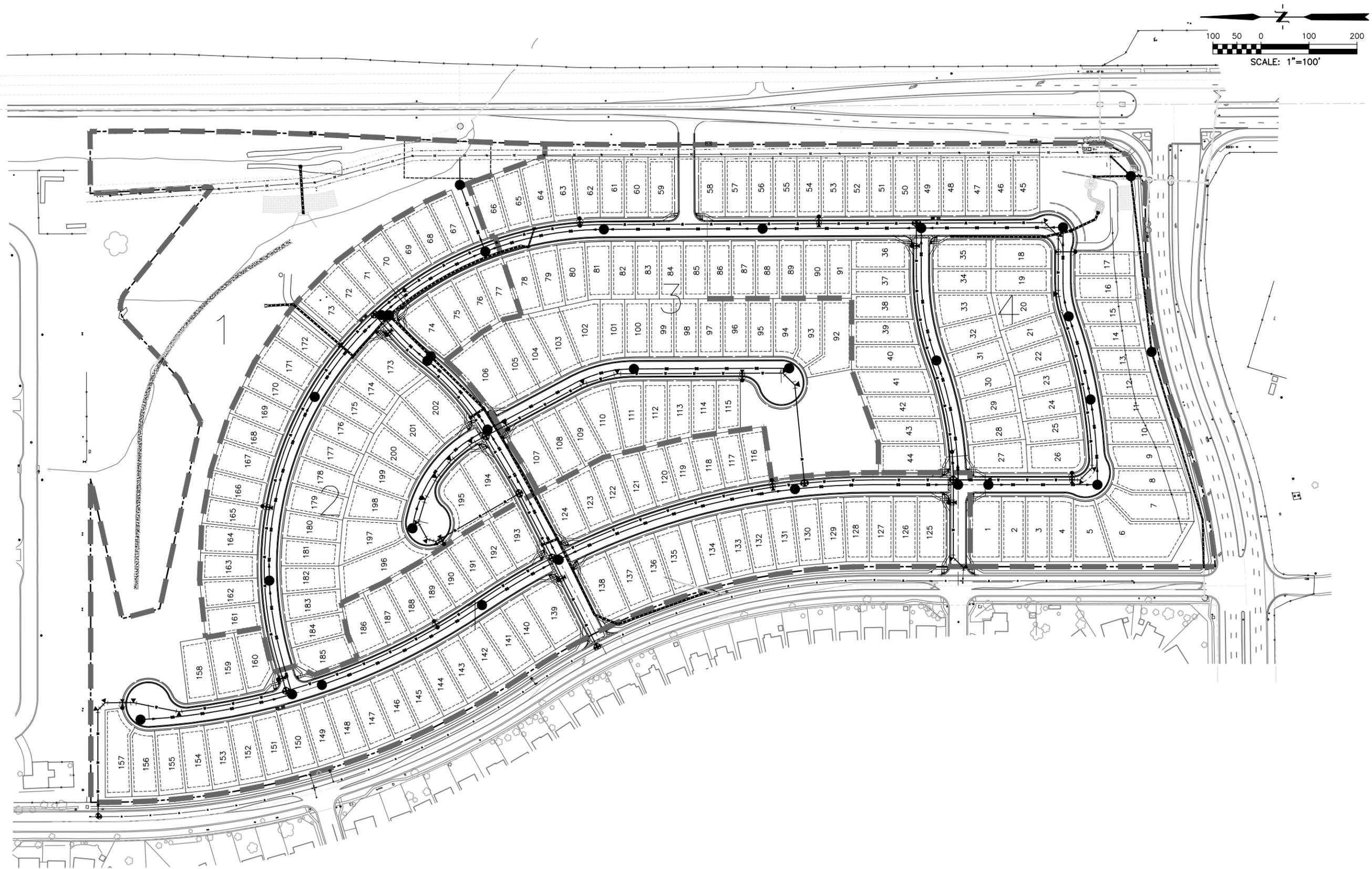
**Secondary standards are non-enforceable guidelines for contaminants that may cause cosmetic effects (such as skin, or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water.

Contaminant Name	Year	Average	Range Low – High	Sample Size	Unit of Measure	Secondary Standard
Sodium	2017	49.82	21.1 to 73.2	6	ppm	N/A
Total Dissolved Solids	2017	337.7	248 - 472	16	ppm	500

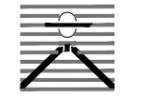
Violations, Significant Deficiencies, Backflow/Cross-Connection, and Formal Enforcement Actions

Violations					
Name	Category	Time Period	Health Effects	Compliance Value	TT Level or MCL
CROSS CONNECTION RULE	FAILURE TO MEET CROSS CONNECTION/BACKFLOW REQUIREMENTS - HEALTH-BASED	01/01/2017 - 06/12/2017	May pose a risk to public health.	N/A	N/A
Additional Violation Information					
<p>*Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.*</p> <p>Explanation of the violation(s), the steps taken to resolve them, and the anticipated resolved date:</p>					

Backflow and Cross-Connection
<p>Cherokee Metropolitan District had an inadequate backflow prevention and cross-connection control program in 2016 and failed to meet the specified percentage of backflow device testing required by the Colorado Department of Public Health and Environment. The District is currently in compliance with the Cross Connection Rule. Uncontrolled cross connections can lead to inadvertent contamination of the drinking water.</p>



PREPARED BY:


DREXEL, BARRELL & CO.
 Engineers • Surveyors
 3 SOUTH 7TH STREET
 COLORADO SPGS, COLORADO 80905
 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
 SITE DEVELOPMENT PLAN**
 N. MARKSHEFFEL ROAD
 COLORADO SPRINGS, COLORADO

ISSUE	DATE
INITIAL ISSUE	7/15/18

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.

UT01

SHEET ### OF 12



C.S. FILE NO: AR PUD 18-