Water Bills, EOW, Leaks & Irrigation

This is a simplified synopsis from guidance in the CRE regulatory documents, which are the governing resources. Outdoor irrigation requirements and leak assessments were sourced from the Centennial Water District.

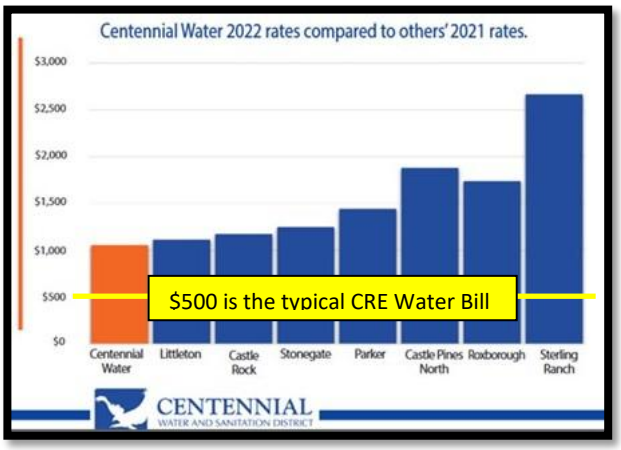
Cherokee Ridge Estates (CRE) Water Billing:

The District digitally collects the annual December 31st water usage for each CRE well. Shortly thereafter water billing invoices are sent with a payment due date of January 30th.

Water Usage Fees:

Water Use	Rate
0 up to and including 225,000 gallons • This annual flat rate works for 90% of homeowners. • Owners with large irrigation areas can remain in this tier ***if they adjust sprinkler run times*** throughout the season as discussed below.	$500
226,000 up to and including 326,000 gallons	$6 per 1,000 gallons
Exceeding the annual limit of 326,000 gallons is penalized as follows:	
327,000 up to and including 400,000 gallons	$18 per 1,000 gallons
Usage exceeding 400,000 gallons	$36 per 1,000 gallons

CRE homeowner water bills are competitive with nearby communities:



What is your annual water usage budget?

The Cherokee Ridge Estates Metropolitan District (the "District") is authorized to use a maximum of approximately 46-acre feet of Denver Aquifer water per year, which equates to a water budget of ***326,000 gallons*** (1 Acre-Foot) for each lot *(the water fee tier 2 limit)*[1]. Managed properly, this is enough water for a household of 6 persons to irrigate 12,000 square feet *(the limit per our convenances),* or a household of 12 to irrigate 6,000 square feet. Usage of more than this water budget is penalized at higher tier 3 & 4 billing rates and may also trigger a letter from the District asking the homeowner for a written plan of action to resolve their water usage issues. Chronic annual offenders of the water budget expose the District to violation of its water rights decrees, which may cause the District to be fined and ultimately could cause the District to *"receive an order to curtail or eliminate pumping from the aquifer".*

[1] Approximately 2 Acre-Free of water is reserved for common area irrigation.

Why does the District bill you for water from *'your'* well?

The District owns all the water rights within our community, and water use is governed by the Water Court decrees. These include an annual maximum water budget, usage reporting and conservation provisions. Once a homeowner has drilled their well and installed their water meter, they must transfer ownership of both to the District because ***the District owns the water rights***. The District then oversees water usage and becomes responsible for maintaining the water meter and the components inside the well's casing. Your water usage fees fund these maintenance liabilities and the District's aquifer depth monitoring program. *(The Districts water depth monitoring indicates little change the aquifer's water level over the last 20 years.)*

See the CRE Metro District Rules and Regulations for greater details on:

- **Section 3**: water usage billing, conservation, water allocation upon home sale
- **Section 4**: water meter policies and responsibilities
- **Section 5**: wells, District vs. homeowner responsibilities

What typically causes excessive water use?
Poorly managed outdoor irrigation and leaks that go unnoticed and fail to be repaired in a timely manner. Therefore, homeowners are highly encouraged to make use of the Eye On Water App and its leak detection and notifications.

Eye On Water App and Web Portal:

The Eye On Water (EOW) smart phone and web application allows you to monitor and manage your water usage by providing helpful information:

- Hourly, daily, monthly, and yearly data and charts
- Temperature and precipitation overlays
- Week-over-week consumption comparisons
- Configurable leak alerts by email or SMS text

To sign-up you will need your water billing account number *(available on your water bill, or from the community manager):*

- **Mobile device App**: download the "**EyeOnWater**" app from the App Store or Google Play.
    - ***App tutorial:*** *https://helpeyeonwater.com/2018/05/23/using-the-eyeonwater-app/*
- **Web-based portal** visit: **https://eyeonwater.com/signup**
    - The web-based portal provides improved setup of Text or Email leak notifications:
        - *Leak Alert Tutorial: https://helpeyeonwater.com/setting-leak-alerts/*
    - ***Web browser tutorial:*** *https://helpeyeonwater.com/2018/05/23/using-eyeonwater/*

Notes:

- *Water usage data is not streamed to your account in real-time, rather it is uplinkeded by a cellular antenna connected to the meter four times each weekday and twice over weekends.*
- *Do not tamper with or attempt to move the cellular antenna.*
- *Constant, or reoccurring water leaks greater than 4 gallons/hour that go unrepaired for more than 30-days are subject to fines of $150 plus $5 for each day past the initial 30 days until fixed.*

Finding a Water Leak

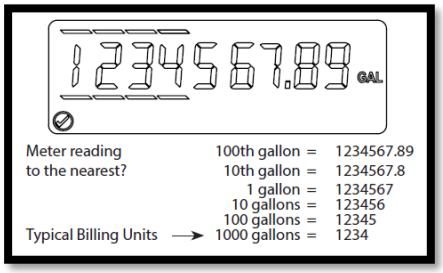
Determining if a water leak is internal to the home, or from an outside irrigation leak is the ***recommended first step*** in finding the leak:

1. **Make sure no water is currently running or being used inside or outside.**
2. Note the water meter's LCD's 3-digit flow rate:
   a. The screen cycles between the 9-digit totalizer and 3-digit flow rate.
   b. Momentarily covering the round black optical sensor will cycle the display.
   c. The flow rate is real time and is in gal/minute.
   (The EOW app reports in gal/hour and is not real time)

3. ***Close the outside irrigation system's shutoff valve*** and note the LCDs 3-digit flow rate. If the flow stopped, then the leak is confirmed to be in the irrigation system. Common causes:
   a. Freeze damage to components within the sprinkler valve boxes
   b. Sprinkler valves not fully closing due to a worn-out diagram or solenoid valve
   c. Water feature supply valve not fully turned off, or leaking
4. ***If the leak is still present with the irrigation valve closed***, investigate the homes' internal plumbing. Common causes:
   a. A dripping faucet. It only takes a small drip – drip leak to trigger a leak alert.
   b. Toilet leaks can be silent. Check each toilet for leaks using 10 drops of food coloring in the tank. If color appears in the bowl after a while, you have a leak.
   c. Hose bibs: check all your outside hose bibs/spigots for dripping.
   d. Hot water heaters can fail and leak *(e.g., water on the floor, from the pipe connected to the pressure relief valve going to a floor drain, etc.)*.
   e. The valves in water softeners, reverse osmosis systems and furnace humidifiers can fail and constantly drip water down the drain.

Reading the LCD Display:
Opening the display door wakes up the screen which alternates between consumption and flow rate. Momentarily covering the round black optical sensor will cycle the display.

- **Totalizer Consumption Reading**:
  - All 9 digits are illuminated to include leading zeros
    1,234,567.89 *(e.g., the last 3 digits are 7.89 gallons)*



- **Flow Rate:**
  - Only the last 3 LCD digits illuminated *(no leading zeros).*
  - Flow rate is updated every 2 seconds in ***gal/minute***.
  - Resolution is to 1/100 of a gallon (0.01)

    *Example: **0.15** is fifteen hundredths of a gallon per minute flow*

    This may seem small, but it's 2.5 cups per minute, which equates to 9 gal/hour on the EOW app and results in 6,600 gallons per month.

- **Alert Icons:**

Meter Operating Correctly.

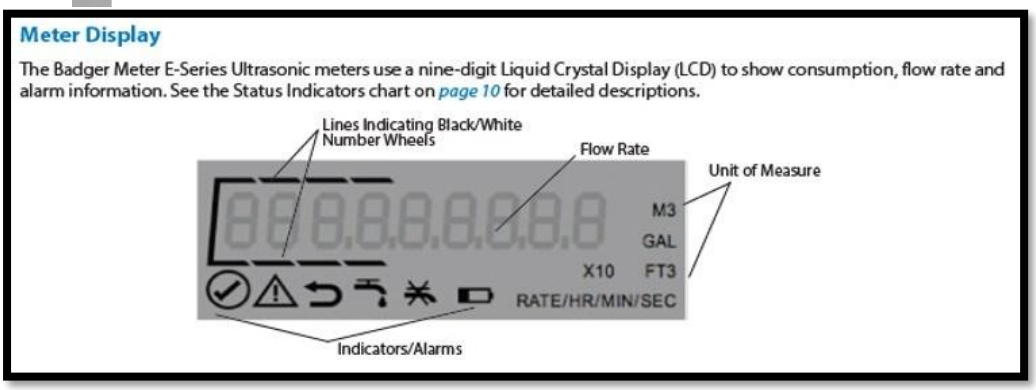
Alert: empty pipe or a sensor error – monitored by the District.

Reverse Flow detected, clears after 60 days with no recurrence.

Leak Alert Icon and App Notifications *(if set up):* occur when meter detects ***24 hours of flow <u>without</u> one 15-minute interval of no flow***. A small continuous water drip will trigger this alert.

No Flow in past 30 days.

Battery end of life indicator *(20-year battery).*

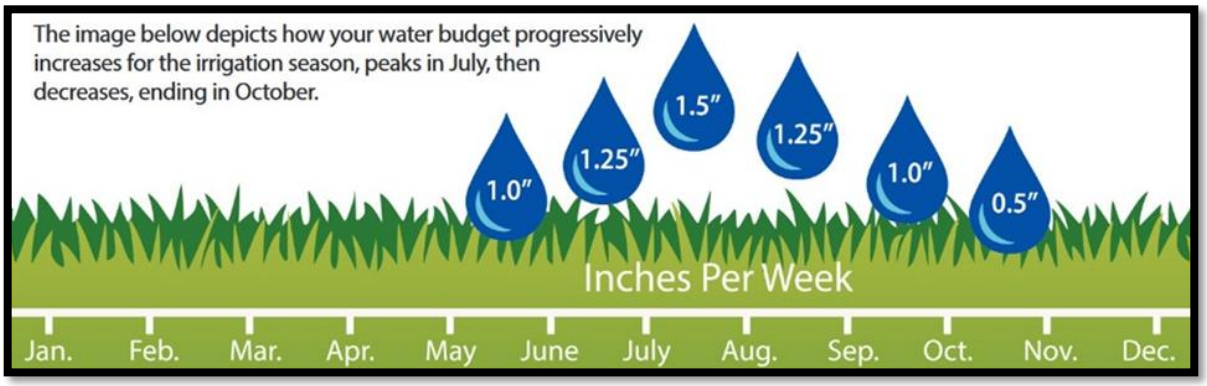


<u>Meter</u> vs the <u>EOW App</u> Data:

- *Data read directly from the Meter is in **<u>real time</u**, for example, the flow rate and leak alert flag.*
- *Data presented on the Eye On Water App such as leak alerts can be several hours to a day old. (The cellular data uplinks to EOW occur 4 times daily M-F, and only 1 time daily on weekends).*
- *EOW leak alerts are given in gallons **<u>per hour</u**, while the meter shows flow in gallons **<u>per minute</u**.*

Front Range Irrigation Water Requirements

Watering times ***need to be adjusted following the summer's temperature changes. Don't set your sprinkler system and forget it all summer.*** The easiest way to ensure properly adjusted sprinkler runtimes is to install a Wi-Fi connected Smart sprinkler controller with access current weather data that will automatically adjust your sprinklers for the various conditions.



Irrigation recommendations from the experts:

- Water no more than ***three times per week*** *(this promotes healthy roots)*
- Water ***early in the morning*** *as winds tend to be light, with no solar evaporation*
- Water ***only*** as needed in April and October
- Water in multiple, short cycles allowing water to soak in
- Turn off and blow out irrigation systems around the second week of October

Front Range recommended monthly sprinkler zone runtimes, 3 times per week:

Example:

Assume it's ***May*** *and you have* ***Rotors****:*
Run for 23 minutes, 3 times per week

To Cycle & Soak the above in 2 cycles:
Run for 12 minutes, soak for 30 minutes, then run for another 12 minutes, 3 times per week

Daily water times (minutes) - three times a week.

Watering Months	Fixed spray	Rotors	HE Rotary	Manual
May	12	23	32	18
June	14	29	40	22
July	16	31	43	24
August	12	24	33	18
September	10	21	28	15
October	7	15	20	11

The following table converts these sprinkler runtime recommendations into ***monthly gallons of water used*** that should become a part of your water meter monitoring program:

Gallons of Irrigation Water Required Monthly To Provide the Recommended Coverage				
		Irrigated Square Feet		
	Inches per Week	***per 1,000 Sq Ft***	**6,000 Sq Ft**	**12,000 Sq Ft** *maximum allowed*
May	1.0	*2740*	16,440	32,880
June	1.25	*3420*	20,550	41,100
July	1.5	*4050*	24,300	48,600
August	1.25	*3420*	20,550	41,100
September	1.0	*2740*	16,440	32,880
October	0.5	*1370*	8,220	16,440
Annual Totals	***6.5 inches***	***17,740 Gallons***	***106,500 Gallons***	***213,000 Gallons***
Indoor water usage in gallons per person: Averages about 50 gallons per day, 1,500 gallons per month = 18,000 gallons per year				