



WATER IN THE WORKS

AN ELBERT CREEK WATER COMPANY QUARTERLY NEWSLETTER
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A Message from ECWC

Hello, and welcome to the eighth issue of *Water in the Works*, a quarterly newsletter published by Elbert Creek Water Company (ECWC). The purpose of this newsletter is to improve communication between ECWC customers and staff while providing customers with useful and informative articles, ideas, and updates about our distribution area.

Please welcome our newest team member, Aaron Halliburton!

Hello, my name is Aaron Halliburton. I'm new here working at Elbert Creek Water Company. I'm loving this new opportunity with ECWC- the area is beautiful and I honestly couldn't ask for a better place to work. I've been learning a ton of new things and working with and meeting amazing people. I was born in Lubbock Texas but moved to Aztec, NM 25 years ago. I went to high school in Aztec and attended Texas Tech University for 2 years where I played baseball and got my degree in Occupational Safety with a focus on oil and gas. My previous career was in the oil and gas field as a sub-surface logging and radioactive chemical tracing operator. I love being outdoors, spending time with family, and my girlfriend and I are expecting a child at the end of the year. Needless to say I'm super excited about becoming a dad. I'm thrilled to be apart of ECWC and am looking forward to what's to come.



ECWC's Wastewater Treatment Plant Rehabilitation is Complete

The rehabilitation project on the wastewater treatment plant was completed in April 2022. The repairs and new equipment have improved operations and safety. The facility now has a control system that allows for equipment to be operated remotely and send alarms. Additionally, the new equipment is more energy efficient and significantly quieter. A solar array that will supply approximately 95% of the treatment plant's power needs is scheduled to start construction later this summer.



Figure 1: New Clarifier at Wastewater Treatment Plant

Did You Know? The Basics of Membrane Filtration

Sean Young

Water is treated from a wide variety of sources and is treated to meet varying specifications such as for municipal drinking water, municipal wastewater, land development, industrial pure water, power generation, industrial wastewater, marine systems, and military systems. The quality of water required from a treatment plant varies depending on the specified use of treated water and the local regulating authority.

Generally, filtration methods can be divided into two types: surface filters and granular media filters. Some examples of surface filters are coffee filters, screens, and membrane filters. Some examples of granular medium filters are a household pitcher filter (Brita) and multimedia filters (sand and anthracite). ECWC's water treatment plant uses membrane filters in its production process. More specifically, micro filtration. Some of the benefits of membrane filtration systems versus conventional methods are membrane filters are continuously improving, they can be extremely compact, they use physical barriers which makes them more reliable, and they are fully automated with minimal chemical use.

ECWC's membrane filter is made by an industry-leading manufacturer called Suez. This Suez membrane product is called the ZeeWeed UF (ultra-filtration) membrane. A ZeeWeed fiber resembles a perforated "straw". The interior of the "straw," known as the lumen, provides a "pipe" to transport the permeate (fresh, filtered water). The pores of the membrane form a physical barrier to impurities but allow water molecules to pass through.

Eventually, these fibers will foul and fail. When they fail, they must be repaired. ECWC's operators can determine where these repairs need to be made through observing air bubbles in the water. The operators will pull the train (stack of filters) from the filter basin and then individually pull the cassettes from the train for a closer inspection. Once the failed membrane fibers are identified, the operators use a sealant to block the ends of the fiber. This prevents the fiber from taking on any water and the repair is complete. Repairs are made annually to ensure proper filtration so Elbert Creek Water Company can provide high-quality water to its customers.



Logan and Sean pressurize the cassettes and inspect them for air bubbles

Did You Know? The Basics of Membrane Filtration, contd.
Sean Young



Rinsing the cassette



Alex hosing down the settling tubes in the settling basin

7 Water Facts

-Water is called the "[universal solvent](#)" because it dissolves more substances than any other liquid. This means that wherever water goes, either through the ground or through our bodies, it takes along valuable chemicals, minerals, and nutrients.

-Pure water has a neutral [pH](#) of 7, which is neither acidic (less than 7) nor basic (greater than 7).

-The water molecule is highly [cohesive](#) — it is very sticky, meaning water molecules stick to each other. Water is the most cohesive among the non-metallic liquids.

-Pure water, which you won't ever find in the natural environment, does not [conduct electricity](#). Water becomes a conductor once it starts dissolving substances around it.

-Water has a high [heat index](#)—it absorbs a lot of heat before it begins to get hot. This is why water is valuable to industries and in your car's radiator as a coolant. The high heat index of water also helps regulate the rate at which air changes temperature, which is why the temperature change between seasons is gradual rather than sudden, especially near the oceans.

-Water has a very high [surface tension](#). In other words, water is sticky and elastic, and tends to clump together in drops rather than spread out in a thin film, like rubbing alcohol. Surface tension is responsible for [capillary action](#), which allows water (and its dissolved substances) to move through the roots of plants and through the tiny blood vessels in our bodies.

-Air pressure affects the boiling point of water, which is why it takes longer to boil an egg at Denver, Colorado than at the beach. The higher the altitude, the lower the air pressure, the lower the boiling point of water, and thus, the longer time to hard-boil an egg. At sea level water boils at 212°F (100°C), while at 5,000 feet, water boils at 202.9°F (94.9 °C).

Facts and wording came from USGS.gov article "Facts About Water" by Water Science School. More information can be found at this link: [Facts About Water | U.S. Geological Survey \(usgs.gov\)](#)

Just for Fun: Animals of ECWC!



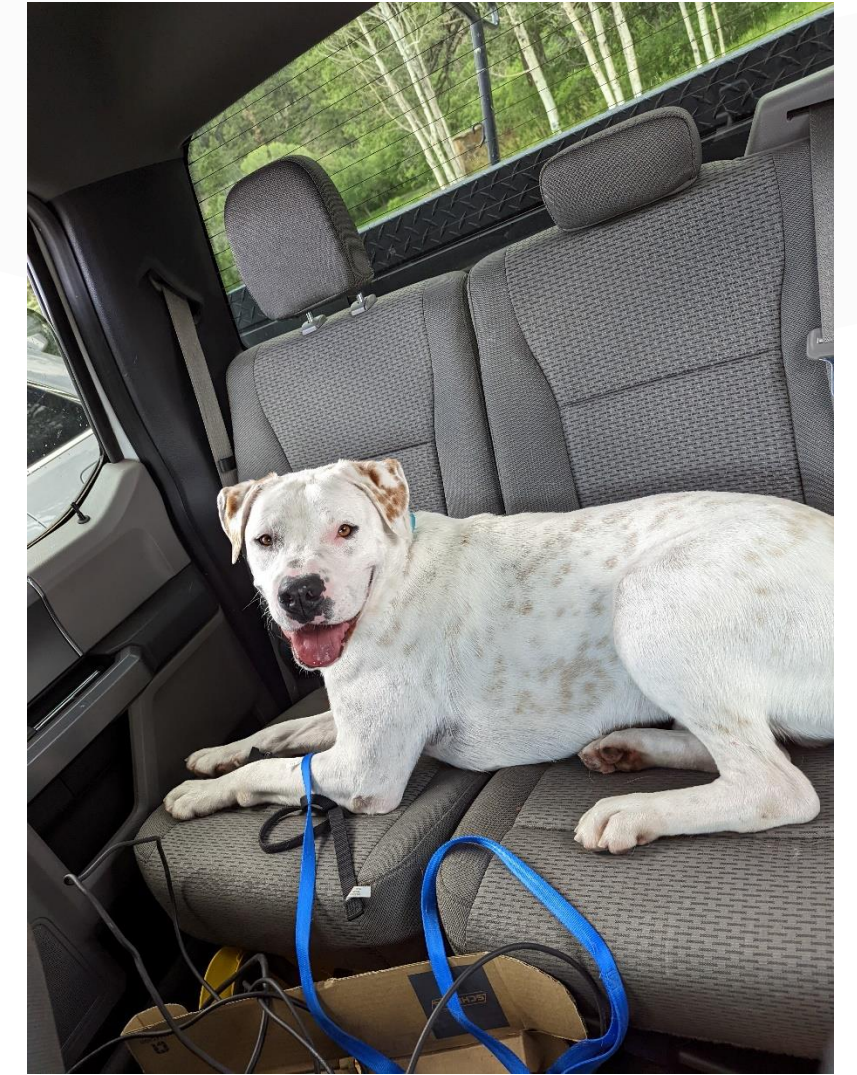
Lucy helping Sean with a meter repair



Tootie, visiting the ECWC office



Sean rescuing a baby bird from the asphalt near Timber Village



Hamilton, helping with a water meter read (Hamilton is currently available for adoption through La Plata County Humane Society!)