

MARTINDALE WSC'S  
WATER TREATMENT PLANT

Service Population | 2,982

Connections | 994

Raw Water Type | Surface-influenced groundwater

Treatment Type | Membrane (since 2001)

Treatment System | Koch Hollow Fiber Ultrafiltration

Production Capacity | 500,000 gallons per day

Average Production | 182,000 gallons per day

Total System Storage | 376,000 gallons



San Marcos River

Natural  
**OUTLOOK**

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# TCEQ'S 'BOOTS ON THE GROUND'

## ENVIRONMENTAL INVESTIGATORS CRITICAL TO PROTECTING STATE'S DRINKING WATER

**E**nvironmental investigators are the eyes and ears for the Texas Commission on Environmental Quality. Linda Brookins, the recently retired director of the Water Supply Division at the agency's headquarters in Austin, often referred to environmental investigators as "the agency's boots on the ground."

They are among 500 field staff situated at regional offices throughout Texas and are responsible for helping to keep up with all sorts of regulated entities that have an impact on the state's environment: water, air, and land.

Many investigators, including Larry King and Lauren Parrish from TCEQ Region 11–Austin, have the primary job of ensuring public water systems are doing everything they need to do to keep each area's water supply safe for public consumption. Texas has more than 7,200 public water systems, which can range in size from just a couple dozen customers to more than a million.

"We have the oversight," King says. "The water systems are following the regulations. Most of them do a pretty good job. We have to go out periodically and review the records and look at the water



TCEQ photos

During a routine investigation of the Martindale Water Supply Corporation's drinking-water treatment facility, TCEQ environmental investigators Lauren Parrish (left) and Larry King (middle) review the plant's equipment with its operator, Steven Fonville.

plant just to make sure everything is as it is supposed to be.”

Typically, environmental investigators do routine inspections on community water systems—which supply water to at least 25 residents for at least six months out of the year—every three years and non-community water systems—which provide water primarily to transient populations—every five years. However, investigators may visit a water-treatment facility more frequently as issues come up, such as an issue with its compliance monitoring reports that the TCEQ receives, reviews, or a complaint from a customer.

And public water systems keep environmental investigators quite busy. In fiscal year 2015 alone, the TCEQ conducted more than 4,500 on-site investigations of drinking water.

## What an Investigator Does

The TCEQ’s inspections of drinking water treatment plants not only ensure operators are following all of the regulations they need to be following, but they also provide another pair of eyes to make sure everything is running as efficiently as possible.

King, who has been with the agency for more than 20 years, says, “I like to feel we are being helpful. I like for there to be trust. I like for [water treatment operators] to be able to call us and ask questions without worrying that we would go after them.”

At the same time, he cautions, “We are not their friends,” meaning that the first priority for drinking-water investigators is protecting the public. However, being available to water utilities to help them sort through issues they may be having does help the public at large.

He says the most important trait for an investigator to have is “to be fair.”

His colleague, Parrish, who King has mentored since she became an investigator about a year ago, says, “You need to know the regulations. You need to know what you are looking for.”

She says investigators use checklists, so they remember to look at everything that needs to be checked.

“There are two whole books of regulations that we have to enforce,” she says. “The checklists come in handy for that.”

The time it takes to physically investigate a public water system can

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vary from a couple hours for the smallest (such as one that services a subdivision of 40 or 50 homes) to a day or longer for larger systems, King says. An investigation of the city of Austin’s water system takes at least a week to complete.

## Every Site is Different

Each water-treatment facility is site specific, meaning local conditions dictate their design. This variability adds to the complexity for what the investigators have to do.

In Martindale, which is just east of San Marcos, they are able to use the relatively newer technology, membrane filters—which has microscopic-sized holes that water is squeezed through—only because the turbidity (suspended particles) is low.

In other places, local utilities may use flocculation, sand filters, granular activated carbon, ozone, ultraviolet light, and numerous other techniques to cleanse the water of unwanted contaminants.

Sometimes, specialized treatment systems may be necessary to remove difficult contaminants—such as green sand for arsenic, hydrous manganese oxide for radionuclides, or reverse osmosis for salt—that would otherwise pass through more conventional designs.

Water treatment plants in the state also use chlorine to disinfect and protect the water in its journey throughout the distribution system to customers’ taps. Operators have to constantly monitor conditions and make adjustments for



**TCEQ environmental investigator Lauren Parrish tests water leaving the Martindale Water Supply Corporation treatment facility to ensure it has an adequate level of chlorine, which helps to protect the water from harmful pathogens while on its journey to customers’ taps.**

changing water conditions, such as for pH or turbidity, which can affect equipment, distribution systems, or the treatment process.

## Investigators as Advisers

Investigators are important to the successful operation of a water-treatment plant, says Steven Fonville, general manager and operator of the Martindale Water Supply Corp.

“They are critical because there are so many details involved in water treatment,” he says. “Without [the TCEQ] helping us out, there are a multitude of things that might slip by. I always look to the inspectors as giving me a hand. They tip me off when something is not up to code that I need to fix, so the public has confidence in us.”

Sometimes, water systems do not have control over their budgets, so they rely on investigation reports to help convince governing bodies, such as city councils, that certain items are necessary to spend money on.

## Training Never Ends

Water-treatment plants can be enormously complex to operate but also to inspect,

which is why training and scientific backgrounds are critical to the success of environmental investigators. Much of the training that water-treatment operators have to get, environmental investigators also go through.

“We never really stop training,” King says, especially considering that new technologies are always coming out.

The TCEQ also has some specialized classes for investigators, but much of what they learn is on the job. That is why mentoring is so important to the agency.

“That is how you learn to do your job,” King says.

Parrish, who is still fairly new to her position, says the on-the-job education has been good for her.

“I started out by shadowing Larry, watching what he does,” she says. “After four or five investigations in which I helped out, reviewing the paperwork, looking at the tanks, the smaller things that we have to do, I got my own assignments and went out on my own investigations, and Larry shadowed me to make sure I did everything correctly. After about six months’ time, I was doing investigations on my own.”

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Even though she is a fully trained and capable investigator, Parrish says she still turns to King for advice and sometimes even to accompany her on larger-scale investigations to make sure she is doing everything she is supposed to be doing.

For King and Parrish, not only does that spirit of cooperation and teamwork extend between investigators, but they also rely on help from enforcement coordinators and other TCEQ personnel to ensure a safe water supply for Texans. 🌱



View a video of TCEQ environmental investigators visiting the Martindale WSC at [youtube.com/user/TCEQNews/videos](https://www.youtube.com/user/TCEQNews/videos).



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