

## Valley Municipal Utility District No. 2

### Boil Water Notice Update 10/3/2018 7:30 p.m.

Dear Customers,

A Boil Water Notice remains in effect for the customers of the Valley Municipal Utility District No. 2 (VMUD).

#### Background:

VMUD receives water from three sources in similar proportions: the Resaca del Rancho Viejo, a brackish (salty) ground water well, and the Southmost Regional Water Authority Plant on FM511. The Resaca del Rancho Viejo water is treated at the District's conventional Surface Water Treatment Plant next to the District office. The brackish groundwater is treated using reverse osmosis membrane treatment filtration at the District's Reverse Osmosis Treatment Plant which is also located next to the District's office. The Southmost Regional Water Authority also treats its water using reverse osmosis membranes as well as a microfiltration process. Reverse osmosis treatment produces the best quality water in the valley.

The two District plants place their treated water in separate sides of a 300,000 gallon concrete ground storage tank. The water is then blended and sent into the water tower for distribution. The Southmost Regional Water Authority water enters the District's system directly, near Town Hall.

#### The Issue:

Turbidity is a measure of cloudiness of the water. The levels, which are measured in Nephelometric Turbidity Units (NTU) are continually measured in the water plants and after the water leaves the water tower. These NTU's are recorded every four hours of every day. On Sunday, September 30<sup>th</sup>, the water leaving the water tower had higher than normal turbidity levels. Two samples registered higher than 1.0 and a third registered at 5.0. After the 5.0 reading, the levels reduced back down to less than 1.0. The following is an excerpt taken directly from Wikipedia:

#### ***Drinking water standards***[\[edit\]](#)

*Governments have set standards on the allowable turbidity in drinking water. In the United States, systems that use conventional or direct filtration methods turbidity cannot be higher than 1.0 nephelometric turbidity units (NTU) at the plant outlet and all samples for turbidity must be less than or equal to 0.3 NTU for at least 95 percent of the samples in any month. Systems that use filtration other than the conventional or direct filtration must follow state limits, which must include turbidity at*

*no time exceeding 5 NTU. Many drinking water utilities strive to achieve levels as low as 0.1 NTU.<sup>[11]</sup> The European standards for turbidity state that it must be no more than 4 NTU.<sup>[12]</sup> The [World Health Organization](#), establishes that the turbidity of drinking water should not be more than 5 NTU, and should ideally be below 1 NTU.<sup>[13]</sup>*

The majority of the samples taken throughout the month were less than 0.3, and many of them were less than 0.1. Since we exceeded 1.0 on that day, we were required to issue the Boil Water Notice by the Texas Commission on Environmental Quality (TCEQ). The turbidity that we experienced is not visible to the human eye. Aside from that day of high turbidity, we have detected no other problems with our drinking water. We have not detected the presence of any bacteria or viruses in the water. The water system has continuously maintained its required pressure and chlorine residual prior to and throughout this event.

We have spent the last two days trying to determine what caused the water leaving the tower to have a higher than normal turbidity level while the water leaving the plant's filters maintained a level of less than 0.1. Our main suspect is the concrete ground storage tank that referenced in the third paragraph. We have ruled out the water tower, since it was completely rehabilitated in 2013. Our first theory is that on Friday, September 28<sup>th</sup>, District staff replaced the shaft of the pump which pumps water from the ground storage tank up into the water tower. Over the years, the ground storage tank has accumulated sediment on the bottom of the tank. We suspect that the newly rehabilitated pump shaft may have operated more efficiently and kicked up the sediment in the tank which could lead to cloudiness of the water. Our second theory is that the roof of the tank has always had multiple hairline cracks on it. Although they have never caused any problem, we suspect that one of them may have opened up slightly allowing rain water to enter the tank from the roof. This rain water could have carried any dust that had been accumulated on the roof, into the water below, which also could have caused some cloudiness.

We had originally suspected that the Reverse Osmosis Treatment Plant may have caused the spike in turbidity because our operator noticed that the water coming out of the District's well had been cloudier than normal for the previous few days. The Reverse Osmosis Plant was immediately stopped on Monday shortly after the problem was discovered. Upon a careful review of the plant, we are reasonably certain that the plant was not the culprit. The plant remains offline until the problem is solved.

On Monday evening, we began flushing various fire hydrants around town to try to expel the slightly turbid water.

Remediation:

As I mentioned above, the District receives one third of its water from the Southmost Regional Water Authority's water treatment plant on FM511. On Tuesday afternoon, we took the Surface Water Treatment Plant offline as well, and we increased our flow from the Southmost Regional Water Authority. At that time, we ceased flushing the system. Since Tuesday afternoon, we have been receiving one hundred percent of our water from the Southmost Regional Water Authority. In light of this, the Texas Commission on Environmental Quality has not allowed us to rescind the Boil Water Notice. We have sent a sample of water from our distribution system to an independent lab to verify that it is completely safe to drink. We are anticipating that we will be able to rescind the boil water notice some time tomorrow.

The District is now in the process of sealing the top of the concrete tank mentioned previously to prevent any water from percolating through any cracks. We will also completely remove any sediment from the bottom of that tank prior to bringing the plants back online. Once we complete these steps, we will fill the tanks using our two water treatment plants and then we will send a sample of that water to a lab for analysis. Upon confirmation that the water coming from our two plants is safe to drink, we will re-establish our normal ratio of water production.

The Boil Water Notice, although a requirement of the TCEQ, was a purely precautionary measure. The language contained in that notice recommending the boiling of water prior to the washing of hands came directly from the TCEQ's generic, boiler plate notice. That notice was designed to cover a range of scenarios such as bacteria being detected in a system's water, to the loss of pressure in its distribution system (which could cause contaminated ground water to seep back into the distribution lines), to a lack of chlorine in the system (which cleanses the water). As soon as we are able to rescind the Boil Water Notice we will send out an announcement.

We apologize for any confusion and fear that this event has caused.

Sincerely,

Scott Fry

General Manager