

## Moermond, Marcia (CI-StPaul)

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**From:** Ludden, Jerry (CI-StPaul)  
**Sent:** Wednesday, June 19, 2019 8:17 AM  
**To:** Moermond, Marcia (CI-StPaul)  
**Cc:** Ludden, Dolly (CI-StPaul)  
**Subject:** Water meter internal workings

Good morning Marcia,

The Neptune T-10 positive displacement meters have an internal measuring chamber, if the bottom of the meter is cracked and the water leaks out then the measuring chamber does not turn. The only way the measuring chamber turns is if a fixture inside the property is turned on. I have attached a video that shows a 2" meter taken apart the internal workings on that meter are the same as all T-10 meters from a 5/8" up to a 2". You will see an IN side on the video that is the side with a screen, the water passes around the chamber and enters on the bottom then it rotates the diaphragm inside the chamber and it rolls the plate and exits through the top of the chamber in what is called a nutating action that turns the magnet on the top of the chamber. In the video you will see where the guy removes the O ring from the chamber, the entrance and the exit are The magnet makes a magnetic connection with a magnet in the register, through the brass of the meter body and the plastic of the register. The spinning action of the magnets transfers the rotation through induction to a set of 4 coils inside the register. The internal workings of the register transfers the induction signal to a reading. The readings are transmitted every 14 seconds via a radio signal and that is how to we pick up the signal when we drive by with a receiver.

When you watch the video you will see the gentleman pull out the screen on the inlet side of the meter, notice the size of the holes on the screen all T-10 meters from 5/8" up to 2" have the same screen. Whenever I hear that a customer found what they think are large rocks in the plumbing system I know they are probably getting pipe scale breaking loose because large rocks cannot pass through that screen, sand and small fines can pass through and cause problems with the plumbing system, typically larger rocks are pipe scale that has broken loose after the meter .

I will send you a video of the meter at Mr. Xiong's property at 416 Hope, we brought the meter in and put it on the bench to pressurize the meter, you will notice the RATE meter on the display is zero while the water was dripping out of the bottom of the meter. If you would like a better demonstration we could put a meter on the bench and drill a good size hole in the bottom of the plate to give you something you could show in the future.

<https://www.youtube.com/watch?v=xyWtcE3LiIA>



**Jerry Ludden**  
*Meter Operations*  
*Supervisor*

1900 Rice Street  
Saint Paul, MN 55113  
Ph: 651-266-6853  
Fax: 651-266-6857

[Jerry.Ludden@ci.stpaul.mn.us](mailto:Jerry.Ludden@ci.stpaul.mn.us)