



# Dare County Water Department

## Understanding Your Meter Report

When the Dare County Water Department pulls a meter report, it is reviewed by staff who have been trained to look for patterns and trends. We use these patterns and trends to help the customer identify what could be going on with their water usage.

In this document, we will help you understand the information you are looking at. We will also identify the most common problems that occur within the home that can affect your water bill.

### The Right-Hand Column

This column is made up of hourly reads. The top reading is the most current date and time, and as you scan down the page it transitions to an earlier time in the day and continues in descending order until the end of the hourly report.

### The Left-Hand Column

This column is made up of daily reads and totals. This will show you how much water is being used each day and the total water usage overall. The top reading is the most current date, and as you scan down the page, it transitions to yesterday's reading, and continues in descending order until the end of the daily report.

### Readings

The meters can store hourly readings for 100 days and daily readings for 460 days. We use these readings to look for anything out of the normal.

Date	Daily Consumption	Daily Meter Reading	Reading Time	Hourly Consumption
7/12/2022	date kg taken	226246	7/12/2022 12:00 PM	2
7/11/2022	122	226124	7/12/2022 11:00 AM	2
7/10/2022	129	225995	7/12/2022 10:00 AM	0
7/9/2022	174	225821	7/12/2022 9:00 AM	2
7/8/2022	2529	225592	7/12/2022 8:00 AM	4
7/7/2022	2819	222473	7/12/2022 7:00 AM	5
7/6/2022	2096	219777	7/12/2022 6:00 AM	15
7/5/2022	2650	217127	7/12/2022 5:00 AM	29
7/4/2022	2621	214506	7/12/2022 4:00 AM	3
7/3/2022	2673	211833	7/12/2022 3:00 AM	0
7/2/2022	2660	209173	7/12/2022 2:00 AM	0
7/1/2022	2551	206622	7/12/2022 1:00 AM	0
6/30/2022	2294	204028	7/12/2022 12:00 PM	1
6/29/2022	2512	201516	7/11/2022 11:00 PM	0
6/28/2022	2380	199136	7/11/2022 10:00 PM	29
6/27/2022	2326	196810	7/11/2022 9:00 PM	1
6/26/2022	2321	194469	7/11/2022 8:00 PM	11
6/25/2022	2250	192239	7/11/2022 7:00 PM	6
6/24/2022	2296	189941	7/11/2022 6:00 PM	16
6/23/2022	2178	187763	7/11/2022 5:00 PM	36
6/22/2022	2112	185651	7/11/2022 4:00 PM	9
6/21/2022	2031	183620	7/11/2022 3:00 PM	0
6/20/2022	2019	181601	7/11/2022 2:00 PM	0
6/19/2022	2003	179596	7/11/2022 1:00 PM	0
6/18/2022	1953	177645	7/11/2022 12:00 PM	0
6/17/2022	1968	175677	7/11/2022 11:00 AM	0
6/16/2022	1966	173711	7/11/2022 10:00 AM	0
6/15/2022	1875	171836	7/11/2022 9:00 AM	7
6/14/2022	1878	169960	7/11/2022 8:00 AM	6
6/13/2022	1799	168191	7/11/2022 7:00 AM	0
6/12/2022	1885	166376	7/11/2022 6:00 AM	0
6/11/2022	1837	164439	7/11/2022 5:00 AM	0
6/10/2022	1797	162642	7/11/2022 4:00 AM	7
6/9/2022	1668	160974	7/11/2022 3:00 AM	0
6/8/2022	1546	159426	7/11/2022 2:00 AM	1
6/7/2022	1512	157816	7/11/2022 1:00 AM	0
6/6/2022	1303	156613	7/11/2022 12:00 AM	0
6/5/2022	1200	155413	7/10/2022 11:00 PM	0
6/4/2022	1107	154296	7/10/2022 10:00 PM	6
6/3/2022	1177	153129	7/10/2022 9:00 PM	3
6/2/2022	1049	152080	7/10/2022 8:00 PM	5
6/1/2022	993	151087	7/10/2022 7:00 PM	6
5/31/2022	951	150136	7/10/2022 6:00 PM	6
5/30/2022	969	149167	7/10/2022 5:00 PM	0
5/29/2022	989	148178	7/10/2022 4:00 PM	24
5/28/2022	1030	147148	7/10/2022 3:00 PM	26
5/27/2022	961	146187	7/10/2022 2:00 PM	2
5/26/2022	882	145205	7/10/2022 1:00 PM	2
5/25/2022	890	144415	7/10/2022 12:00 PM	6
5/24/2022	794	143621	7/10/2022 11:00 AM	2
5/23/2022	840	142781	7/10/2022 10:00 AM	0
5/22/2022	803	141978	7/10/2022 9:00 AM	7
5/21/2022	825	141158	7/10/2022 8:00 AM	7
5/20/2022	658	140495	7/10/2022 7:00 AM	7



## Signs to Look For:

- **Water usage during normal sleeping hours, typically 11 p.m. to 5 a.m.**
  - Water during this time period is typically zero unless someone goes to the restroom during the night, or if lawn irrigation is programmed to run during these hours. One or two gallons showing during these periods may indicate an issue.
- **“Steady Water Usage” is defined as consistent gallons for multiple hours.**
  - This may mean that for more than one hour you have the exact same usage per hour, every hour.
  - This type of usage typically points to a flapper or float stuck in a toilet, a hose left on, a leaking service line or an irrigation valve leaking.
- **Usage over 100 gallons in a hour time period is not typical and likely indicates one of the following scenarios:**
  - Toilets can leak anywhere from .02 gallons to 4 gallons per minute when stuck or leaking. This works out to be anywhere from 12 gallons per hour for a slight leak to 240-plus gallons per hour when stuck wide open.
  - A hose running or landscaping irrigation.
- **One to two gallons usage in an hour period.**
  - **Example:** A typical toilet flush is four gallons, and hand washing adds approximately another half a gallon. Therefore, if you see one to two gallons at 2 a.m. it may signify a leak. However, you should check to see if this occurs multiple times a night or on multiple nights. If it is a one time occurrence, it could simply be someone getting a glass of water or washing their hands.

## The Best Way to Look For Issues on Your Report:

**When you look at your report, try to pick a time when you know there should be no water usage. For example:**

- Hours when everyone in the household is asleep.
- Hours of the day when no one is home, possibly during working hours.
- Times when all members of the household are on vacation or out of town and the home is vacant.

**Patterns and problems are harder to determine during the day when people are home using the water. Things to look for during these hours are:**

- Zeros: If you don't see zeros, this means that the water does not quit running.
- Large usage: 100 gallons or more in an hour can indicate a problem.
- Same gallons usage every day at the same hour can indicate a timer on an appliance or irrigation.



## Most Common Problems:

### Toilets

Toilets are the number one cause of high water bills and can be difficult for plumbers to diagnose. Toilets can leak anywhere from .02 gallons to four gallons per minute when the flapper is not settled properly or stuck wide open. This works out to be anywhere from 1 gallon per hour for a slight leak, to up to 300 gallons per hour when stuck wide open.

.02 gallons per minute cannot be seen or heard when leaking by a flapper or flowing over the overflow tube. A plumber would have to stay onsite, watching a single toilet for 50 minutes in order to see one gallon of water difference. This usage can add up to 2,160 additional gallons over the water bill 90-day cycle.

**Please be aware that new toilets may not be properly set by the factory, so new does not mean no leaks. There are several things we can do to help you determine this issue, depending upon the home and rental or winterization status.**

### Dye Test:

If you suspect that constant flow is occurring, you could try a dye test. The Dare County Water Department has tablets to assist you, or you can simply use food coloring. To perform a dye test, place dye in the back of each toilet tank and wait 30 minutes to an hour. The toilets can not be flushed during this period. If the bowl water changes color, it is a flapper issue. Flappers typically only last up to five years before they can start to show signs of leaking.

### Visual Inspection:

While you are waiting on the dye test, remove the cover from the back of the toilet to look at the following.

- **Your water level:** If the water level is not at least half below the top of the tube, you may have an improper set float or float failure. The water should never be at the top of the tube.
- **Handle:** While the lid is off, inspect the area around your handle on the inside of the tank. Calcium and deposits can build up around the handle, preventing it from settling properly.
- **Look for black deposits or specks in the bottom of your tank.** If your flappers are the old-style black flappers they can leave black specs in the bottom of the tank or a black residue on your fingers if you rub the float. This is a sure sign of failure.
- **Flapper:** Cut off all toilets or cut the water off to the home, then let them sit for a day. Do not turn the water on, and remove the lids on the back of the toilets. If the toilet water is low, you have a bad flapper. This will not tell you about the float or the handle, but it does eliminate the flapper from being the issue.
- **Rental Home Testing:** When your property manager visits the home, request that they shut off all toilets that are not being used in the home, record the times you turn the toilets on and off. After doing this for several days, a Dare County Water Department representative can pull another report to see if usage has improved. Based on the constant flow, a Dare County Water Department representative could meet the property manager onsite and have you cut the toilets off one at a time while the representative watches the meter to see if or when it stops spinning.



## Most Common Problems:

### Toilets (continued)

#### Water Meter Replacement:

If all else fails, a representative from the Dare County Water Department will replace the meter with a test meter. If the test meter shows the same data as the homeowner's meter, it is clear that the problem is still occurring. The Dare County Water Department reserves this option as the last option because it is not the best one for the customer.

- Due to the time it takes for a representative to change the meter, pull a report and replace the meter, the homeowner would not be eligible for a leak adjustment if the test meter shows the same data as the original meter. Some customers choose this option due to the amount of time and effort it takes to diagnose an issue.
- To date, there have been no cases in which the Dare County Water Department's new ultrasonic meters have failed a test, and approximately 20,000 are in the system.

#### Example of a toilet flapper leak:

The flow is erratic and occurring during the hours when people are asleep. Toilets can leak very slowly, and the leak can increase without anyone using or touching them. The seals and hinge points become worn out, causing the flapper to constantly move or shift. Please see the report example.

11/1/2022 7:00 AM	13
11/1/2022 6:00 AM	4
11/1/2022 5:00 AM	19
11/1/2022 4:00 AM	18
11/1/2022 3:00 AM	2
11/1/2022 2:00 AM	58
11/1/2022 1:00 AM	6
11/1/2022 12:00 AM	1
10/31/2022 11:00 PM	3
10/31/2022 10:00 PM	14
10/31/2022 9:00 PM	7
10/31/2022 8:00 PM	3
10/31/2022 7:00 PM	2
10/31/2022 6:00 PM	5
10/31/2022 5:00 PM	0
10/31/2022 4:00 PM	5
10/31/2022 3:00 PM	61
10/31/2022 2:00 PM	53
10/31/2022 1:00 PM	0
10/31/2022 12:00 PM	2
10/31/2022 11:00 AM	2
10/31/2022 10:00 AM	0
10/31/2022 9:00 AM	2
10/31/2022 8:00 AM	5
10/31/2022 7:00 AM	22
10/31/2022 6:00 AM	8
10/31/2022 5:00 AM	3
10/31/2022 4:00 AM	2

#### Example of a toilet float or stuck handle:

The flow is constant, even when no one is home or when everyone is asleep. You will see long periods of steady flows with very few or no zeros. In the report below, the homeowner left for work after 10 a.m., and when they returned home at 5 p.m. they flushed the toilet and the float stuck, allowing water to continue to run until 6 a.m. the next morning. When they woke up and flushed again, it began to function properly.

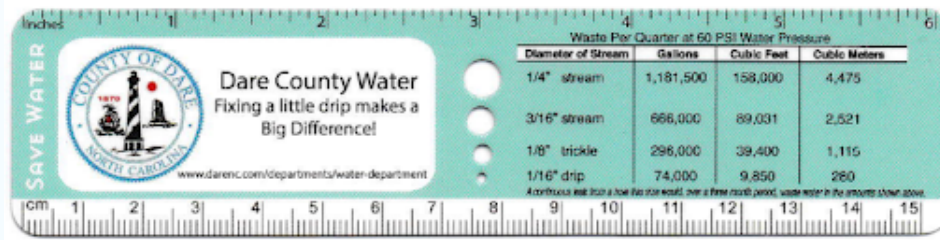
8/15/2022 7:00 AM	0
8/15/2022 6:00 AM	0
8/15/2022 5:00 AM	3
8/15/2022 4:00 AM	3
8/15/2022 3:00 AM	3
8/15/2022 2:00 AM	3
8/15/2022 1:00 AM	3
8/15/2022 12:00 AM	3
8/14/2022 11:00 PM	3
8/14/2022 10:00 PM	7
8/14/2022 9:00 PM	3
8/14/2022 8:00 PM	3
8/14/2022 7:00 PM	3
8/14/2022 6:00 PM	30
8/14/2022 5:00 PM	3



## Most Common Problems:

### Service Line Leak

A service line leak can be a hole in the pipe from the meter to home, or it can be a broken pipe somewhere in the plumbing. A broken or damaged pipe can be a drip or small hole—it does not have to be completely broken. A 1/16 inch pinhole can add up to 74,000 gallons in a 90-day period.



Service line leaks will be consistent and occur every hour regardless of whether someone is home. When you view your report, look at the hours you are not home or asleep and see if the usage is constant. No zeros on the report is an indicator of a service line leak or a leaking plumbing fitting.

### Example of service line leak:

This customer had a shutoff valve on their home, so we were able to shut off the water to the home, allowing us to see that there was a problem between the meter and the house.

In this case, a tree root had cracked the water line. The water usage was stable during the hours while the habitants were asleep and when no one was home. You will notice that the flow fluctuates when other devices are being used in the home such as the dishwasher, washing machine, toilets, etc. Notice the hours during work and at night it remains the same.

This particular line was leaking at 1.68 gallons per minute. That adds up to 2,423 gallons per day.

8/10/2022 7:00 PM	108
8/10/2022 6:00 PM	116
8/10/2022 5:00 PM	122
8/10/2022 4:00 PM	101
8/10/2022 3:00 PM	101
8/10/2022 2:00 PM	101
8/10/2022 1:00 PM	101
8/10/2022 12:00 PM	101
8/10/2022 11:00 AM	101
8/10/2022 10:00 AM	101
8/10/2022 9:00 AM	101
8/10/2022 8:00 AM	114
8/10/2022 7:00 AM	121
8/10/2022 6:00 AM	143
8/10/2022 5:00 AM	101
8/10/2022 4:00 AM	101
8/10/2022 3:00 AM	101
8/10/2022 2:00 AM	101
8/10/2022 1:00 AM	101
8/10/2022 12:00 AM	101
8/9/2022 11:00 PM	101
8/9/2022 10:00 PM	109



## Most Common Problems:

### Water Heaters

Water heaters can cause usage due to excess pressure buildup in the tank. The pressure has to be released and it will cause water usage in one of two ways:

- 1.If the pressure relief valve works, water will be pushed out of the overflow. Check your pan to see if water is standing in the bottom. If you don't have a pan look around the base of the water heater to see if the area is wet. Once the pressure has been relieved, the tank will refill with water resulting in water usage.
- 2.If the pressure relief valve has failed or is failing, pressure will relieve itself to the cold water side of your home. The only place in your home for pressure to relieve itself is in the toilet tank. The water level in the toilet tank will rise until it goes out of the overflow tube. Once enough pressure is relieved, the water will stop flowing out of the overflow tube. Water usage results when the water tank refills any water loss to get rid of the excess pressure.

### The Pool Company

Pool cleaners will often throw a hose in to top a pool off and leave while the pool fills. However, they may forget to come back and shut the water hose off, causing it to run all night with consistent gallons of water per hour. So each hour on the report will show the exact same number until the hose is shut off.

#### Example of a pool company leaving the hose on:

In this example, the pool guy threw the hose in the pool, walked away, got distracted and left. The neighbor called the Water Department two days later to notify us of a major leak on the property. When we arrived we found the pool overflowing and the hose still running. The home was vacant at the time.

6/29/2021 2:00 PM	363
6/29/2021 1:00 PM	363
6/29/2021 12:00 PM	363
6/29/2021 11:00 AM	363
6/29/2021 10:00 AM	363
6/29/2021 9:00 AM	363
6/29/2021 8:00 AM	363
6/29/2021 7:00 AM	363
6/29/2021 6:00 AM	363
6/29/2021 5:00 AM	363
6/29/2021 4:00 AM	363
6/29/2021 3:00 AM	363
6/29/2021 2:00 AM	363
6/29/2021 1:00 AM	363
6/29/2021 12:00 AM	363
6/28/2021 11:00 PM	363
6/28/2021 10:00 PM	363
6/28/2021 9:00 PM	363
6/28/2021 8:00 PM	363
6/28/2021 7:00 PM	363
6/28/2021 6:00 PM	363
6/28/2021 5:00 PM	363
6/28/2021 4:00 PM	363
6/28/2021 3:00 PM	363
6/28/2021 2:00 PM	363
6/28/2021 1:00 PM	363
6/28/2021 12:00 PM	363
6/28/2021 11:00 AM	363

### Surfers

Surfers who visit a spot regularly will often use a vacant home's outdoor shower or garden hose. This usage will usually occur around the same time daily (sometimes twice a day if there's good surf). The usage is typically between the hours of 6 a.m. and 8 a.m. or between 4 p.m. and 7 p.m. Most of this usage is minimal but there could be a chance that hoses and showers are left running. If your home is uninhabited and your water report shows activity, we recommend shutting your homeowners water valve off or installing locking valves on the spigots when the house is uninhabited.