

## Recipe for a Leak!

*“A while back I went to a customer’s house to check out why the remote reader wasn’t working. After determining that the reader was ok, I went to the basement to check the water meter and wire.*

*When I got to the meter, I could not believe my eyes. The meter coupling had developed a pinhole and was spraying a fine stream of water.*

*Instead of contacting the water department to come and fix the problem, the homeowner had taken a plastic recipe box and notched out each end so it would close around the leaking coupling.*

*Then they drilled a hole in the bottom of the box and wired a funnel under the hole and attached a hose to the funnel and ran it to the basement drain.*

*Needless to say, I removed all the hardware and replaced the meter and couplings.”*

—submitted by  
Gary Lightle



## News from the Field

### A Brief (But Exciting) History of Closed Circuit Televising

By Scott S. Renslow,  
Senior Technical Advisor

Today a Closed Circuit Televising (CCTV) camera is a necessary and commonly used tool in managing underground utilities. However, its usefulness in the wastewater industry was not always as obvious as you might think. Here is a brief explanation of how the CCTV camera became the indispensable utility tool it is today.

In 1963, the Federal Government asked a contractor and a major chemical manufacturer to develop a method that could quickly and economically seal sewer joints where ground water infiltration was occurring. Their solution was the development of two-part pipeline chemical grouting.

The first part of this process required the operator to test and seal the joint using a modified pipe plug called a chemical sealing packer. Resembling a pneumatic pipe plug, the chemical sealing packer also included sealing chambers at each end and a void area in the center where the two chemicals were injected under pressure.

To correctly place the packer, the operator had to see the joint from inside the pipe. To do this, the contractor began purchasing cameras from a boilermaker manufacturer and using them in the pipeline to locate the joint.

***Closed circuit televising of pipelines has been invaluable, saving millions of dollars in costly repairs.***



An operator using a Rigid SeeSnake® micro™ CCTV camera

#### The beginning of the wastewater CCTV industry

Seeing how useful the pipeline CCTV cameras were to the contractor’s operators, municipal crews became interested in obtaining their own

systems. However, the boiler manufacturer that had sold the contractor the CCTV was not interested in getting into the camera market.

The contractor saw an opportunity and began marketing CCTV wastewater inspection systems to wastewater utilities. A year later the CCTV equipment business spun off as a separate company and has continued to serve wastewater and other markets to this day.

#### The development of the modern CCTV camera

CCTV cameras have come a long way since their original development. In the early 1950s, The RCA Corporation was the first to commercially introduce the Vidicon imaging tube. This let them develop smaller cameras (5" diameter) that could fit into

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pipelines with 8" diameters or larger. These cameras were built into a waterproof housing that the power generation industry could use to inspect water intake and discharge lines.

At this point, the cameras had become smaller and had better resolution. They were still fragile, but were very noisy (electronic) when moved over debris and joints. Today CCTV cameras use solid state imaging arrays that are very rugged, require less light and are highly reliable. This led to the universal acceptance of pipeline CCTV inspection as a necessary tool in managing underground utilities.

### Infrastructure inspection programs and the CCTV camera today

As the demand on infrastructure continues to grow, infiltration and inflow (I/I) have become more predominant, and it has become common practice to close-circuit televise them at least once a year. Most municipalities have adopted infrastructure inspection programs designed to target and rehabilitate cracked, broken and/or missing pipe throughout water/wastewater systems.

Closed circuit televising of pipelines has been invaluable, saving millions of dollars on costly repairs (not to mention countless hours of operators' valuable time)! Anyone who has used a CCTV camera knows how effective a tool it is when tackling the mysteries of the pipeline, and can thank the contractor who saw the obvious solution to a difficult problem.



## Great People

### "Find Splash" Contest Winners!

Seven lucky winners found Splash throughout our #119 Master Catalog and won an iPod for their efforts!

Greg Kidwell of Lynn Haven, FL and Jenny Steckel of White Hall, IL each won an iPod.

Curt Hester of North Little Rock, AR, JL Pike of Falkville, AL, Azril Kalik of South Lake Tahoe, CA, William Mastin of Laredo, TX, and Tony Klimko of Turtle Creek, PA each won an iPod Shuffle.

Congratulations, and enjoy!



USABlueBook Technical Training Manager



## How Old are My Water Meters, Really?

This article covers meter age—not just in years, but mileage. By mileage, we refer to the harmful effects that water places on them. So ask yourself, "How old are my meters, really?"

Meter age in years is easy to determine. Older meters typically have a ten-year warranty, and most meter replacement cycles are based on the warranty. Newer meters tend to last longer.

Mileage is a better way to determine age. As with anything that has moving parts, the more they move, the more wear takes place. You can determine the amount of wear by monitoring the number of gallons (or cubic feet) that has passed through the meter.

This information appears on most billing programs and can be used to determine when replacement may be necessary. For example, a typical  $\frac{5}{8}$ " meter is good for roughly one million gallons of normal usage. Of course, larger meters will handle larger flows.

The last factor, the type of water passing through the meter, is tougher to determine. You can find the effects the water type will have on the meter by determining the Langelier Index of the water. Or, to say in simpler terms: is the water prone to either scale or corrosion?

With low flows, scaling is the major concern; with high flows, corrosion will have a greater effect. To avoid scaling or corroding, you should get your water tested. A Langelier Index score between -0.5 and 0.5 is considered acceptable. A score less than zero means the water will have a tendency to cause corrosion, and a score greater than zero means the water is prone to cause scaling. A pH adjustment may be required to get the Langelier index between -0.5 and 0.5.

For more information or instruction about water meters, please contact Don at 503-544-0456 or [dvanveldhuizen@usabluebook.com](mailto:dvanveldhuizen@usabluebook.com), or call LoAnn Mayer at 847-377-5162.





## Tech Talk

### What is eutrophication?

Eutrophication is a process whereby water bodies (such as lakes, estuaries, or slow-moving streams) receive excess nutrients that stimulate excessive plant growth (such as algae, periphyton-attached algae, and weeds). This enhanced plant growth, often called an algal bloom, reduces dissolved oxygen in the water when the dead plant material decomposes causing other organisms to die. Water without enough dissolved oxygen is hypoxic.

Source: U.S. Geological Survey at [toxics.usgs.gov/definitions/eutrophication.html](http://toxics.usgs.gov/definitions/eutrophication.html).

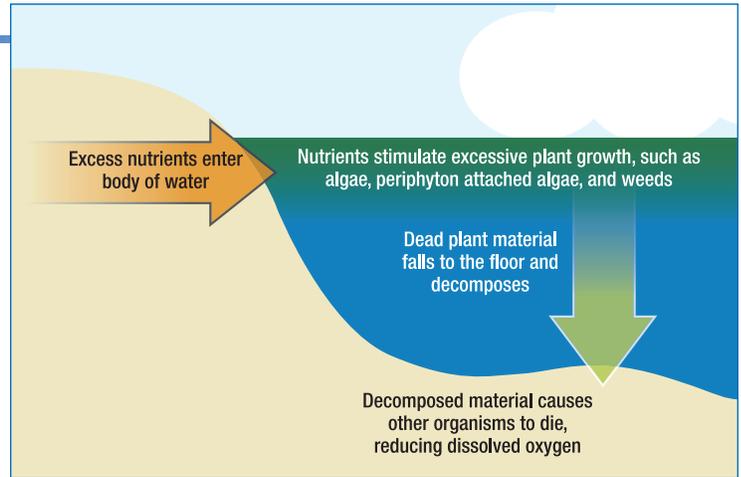


Image source: USABlueBook



### A historical example

After Hurricane Katrina, the foul-smelling and bacteria-laden floodwater in New Orleans needed to be aerated to promote the growth of beneficial microorganisms and to increase dissolved oxygen levels before the water entered Lake Pontchartrain. This was done to prevent harmful algae blooms (or an anoxic “dead-zone.”)

If the water had remained full of excess nutrients and algae blooms had formed in the lake, eutrophication would have occurred and the lake would have become hypoxic—which is a bad thing!

More detailed information on this example can be found on our website.



## Break Time!

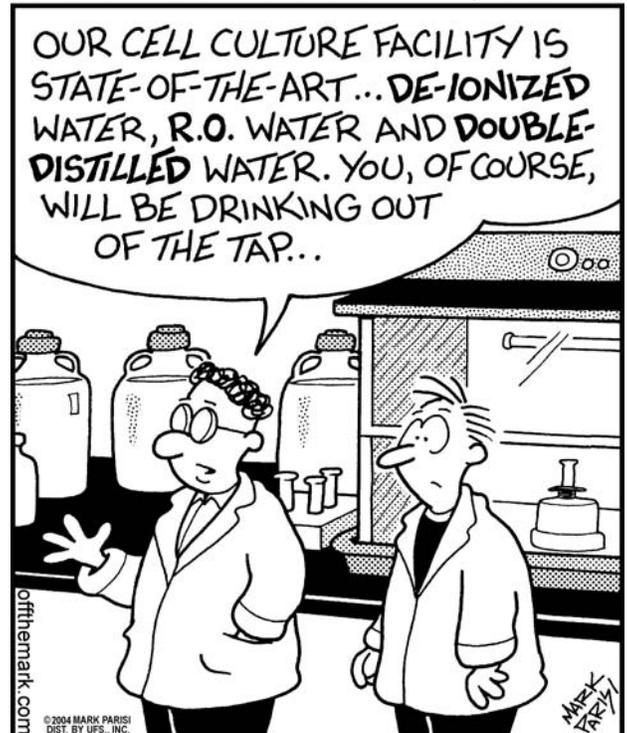
### BlueBits “Mad Libs”

Find a buddy who hasn’t seen this newsletter yet, and ask him to fill in the blanks for a fun story about grounds maintenance.



Maintaining facility grounds can be a(n) \_\_\_\_\_ ADJECTIVE  
 task. You’re constantly up against \_\_\_\_\_, harsh  
 NOUN (PLURAL)  
 \_\_\_\_\_ and out of control \_\_\_\_\_.  
 NOUN (PLURAL) NOUN (PLURAL)  
 In order to fight these \_\_\_\_\_ ADJECTIVE conditions, you  
 need the right \_\_\_\_\_ NOUN for the job. USABlueBook  
 offers a variety of \_\_\_\_\_ ADJECTIVE \_\_\_\_\_ NOUN (PLURAL)  
 for grounds maintenance, ensuring that you will have the  
 \_\_\_\_\_ NOUN (PLURAL) you need, when you need them.

## off the mark.com by Mark Parisi



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# BlueBits

News and Bits from **USA**BlueBook

Look inside for:

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## Who wants 50 bucks?!

If you do, we'll give it to you! Just send us your funny or interesting work story (or your photos) to [stories@usabluebook.com](mailto:stories@usabluebook.com). If we print it, you'll receive a \$50 gift card from [giftcertificates.com](http://giftcertificates.com) or a \$50 **USA**BlueBook credit—just like Gary Lightle, whose story is on the cover.



## USA

BlueBook New Products Catalog

We didn't want to wait until next spring to show you the latest products we've been adding to our inventory. So, we decided to release a special New Products catalog to let you in on the best new equipment available.

If you haven't received your free 64-page catalog yet, please call **1-800-548-1234** to request your copy today!



## Upcoming Trade Shows—stop by and say hi!

Come visit us at the following tradeshow. Many of our shows also offer field training opportunities:

NRWA	Reno, NV	Oct 5 to 8
WEFTEC	Chicago, IL	Oct 18 to 22
California-Nevada AWWA	Reno, NV	Oct 20 to 23
Wyoming Water Quality & Pollution Control	Casper, WY	Oct 28 to 31
NH Drinking Water Expo	Manhattan, NH	Oct 29
AWT Annual Convention & Exposition	Austin, TX	Nov 5 to 8
Alaska Rural Water Association	Anchorage, AK	Nov 3 to 6
New York Section AWWA	Syracuse, NY	Nov 19 to 20
NOWRA 4th Annual Installer Academy	Las Vegas, NV	Dec 8 to 10