

That's One Tough Blower!

By Rick Laney,
Environmental Compliance
Coordinator, SC

"I operate a small wastewater treatment package plant serving approximately 105 residents. During spring cleaning at the plant, I always weed-eat the yard and use my blower to blow the debris away from the aeration unit.

Last spring, as I was using the blower, I stepped onto an older part of the grating covering the aeration basin. The grating gave way, and, sploosh, there I went, blower and all into the tank. I was waste-deep and crawled out of the bubbly tank hurriedly.

Then I realized that my blower was missing. I looked and saw an unusual amount of "aeration" going on where I fell. I got a dip net and fetched my blower.

To my astonishment, it was still running! I would rather not say what it was blowing into the air, but an umbrella wouldn't keep the smell away!"



News from the Field

Camp Maintenance



By Rick Stryker,
Civil Engineer

As an engineer working with children's camps, I encounter a large

number of professionals who never dreamed that they'd be dealing with the operational and regulatory issues that public utility folks handle every day.

Imagine working for a small town where operating water supply and distribution, and sewage collection and treatment systems were only a fraction of the duties.

Other work on these camps includes maintenance on aging buildings that spread over 300 acres or more, overseeing new building construction, plowing snow, fixing potholes, and property management of numerous recreational and educational areas.

Maintaining facilities on a seasonal basis

Many of these camps need to provide and treat 30,000 to 60,000 gallons of water a day. Each spring they start everything up, and each autumn, they turn off the lights for the winter. It's an extraordinary undertaking, and often the work associated with the buried utilities is overlooked by owners who are much more focused on a fresh coat of paint.

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Like your job, operating a camp has its ups and downs. Beyond the annual water main geyser

and the weekly backed up toilet ("weekly" if we're lucky), there is deteriorating buried infrastructure to contend with. Normally, I'm the facility manager's first call after the Department of Health or Environment has stopped to chat or left a love note.

USABlueBook helps make campers happy

Once we have an idea of what the situation is, the next call is almost always to the folks at USA Bluebook. As an engineer, sometimes I think up answers which are more complicated or expensive than they have to be, and BlueBook's insight and suggestions are always helpful. Also, that same level of professionalism, knowledge and patience has helped my clients put solutions in place the best way, the first time—saving time and money in the long run.

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USABlueBook provided hats and other materials for the Camp Maintenance Conference.

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USABluebook generously supported the annual Camp Maintenance Conference, held at YMCA Camp Chingachgook on Lake George, New York in March this year. At least half of the people I spoke with received the catalog already, and the other half heard about USABluebook from the first half!

So, on behalf of the camp maintenance community, and the our conference attendees in particular, thanks USABluebook, for sharing what you know and making camps safer.

Rick Stryker is a Professional Civil Engineer providing planning, design and regulatory consultations for land developers, municipalities and camps. You can reach him at rstryker@ptd.net or 570-828-4004.



USABlueBook Technical Training Manager



Mainline Flushing (or, Remember to Flush)

By now, things are getting busy with construction, but let's not neglect the pipes we already have in the ground. We must flush to remove impurities, control corrosion, and maintain chlorine residuals.

There are six parts of a flushing program:

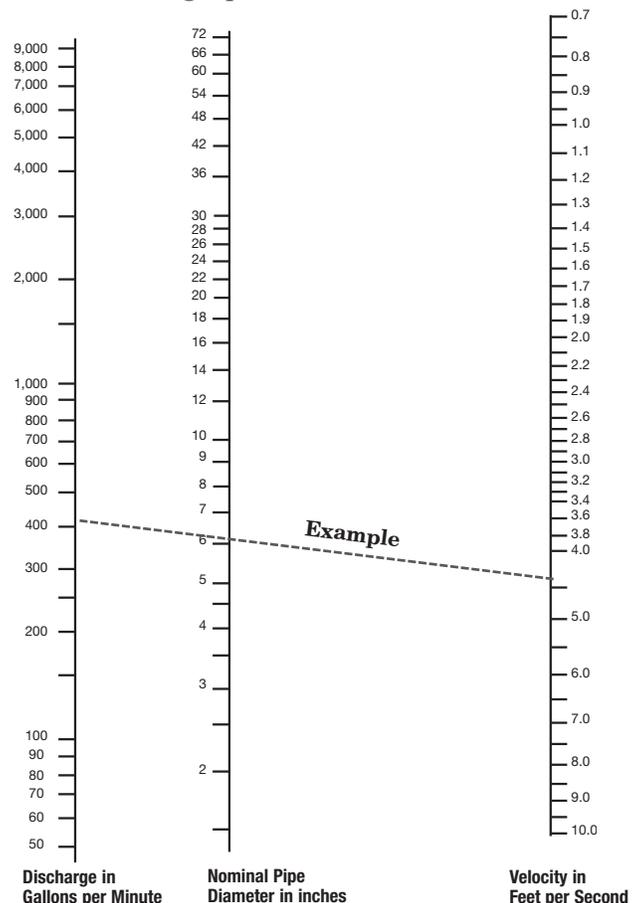
- 1. Public Notification.** This communication will not eliminate, but will greatly reduce complaints of colored water.
- 2. Flushing from the Source Outward.** Done in segments, this saves time by decreasing overlap in areas flushed and improving flushing efficiency.
- 3. Flow Velocities.** To achieve the desired 5 feet per second, flow must be unidirectional, which means flow comes from only one direction. To do this, you will need to shut valves. The easiest way of calculating velocity is using the graph shown at right.
- 4. Safety.** Address personnel and public health by properly controlling traffic to prevent injury, and by maintaining a system pressure above 20 psi to prevent pathogen entry into your system. Remember to open and close valves slowly to prevent system damage.
- 5. Establish Objectives.** Apply measurable goals such as turbidity reduction or chlorine residual standards in the flushing process.
- 6. Document Results.** Developing a plan always works best when you can look back and learn from the past.

For more information or instruction, please contact Don at 503-544-0456 or dvanveldhuizen@usabluebook.com, or call LoAnn Mayer at 847-377-5162.



Calculating Approximate Velocity of Flow in Pipe

This diagram is based on flow in new pipe with diameters being equal to the nominal size.



Example: A 6" pipe is flowing full at 400 gpm. Draw a line through 400 and 6 to intersect the Velocity line at about 4.5.



Gas Got You Down? *by Dave Kerr, Senior Technical Advisor*

Disinfection is a crucial process in virtually all water and wastewater treatment facilities. Liquid Sodium Hypochlorite is commonly used because it is a safe and effective means of disinfecting water and wastewater, but its off-gassing can cause pumps to lose their prime if they are not properly vented.

One of the biggest problems operators face is maintaining chemical feed pumps that lose prime or become “air-bound” by the off-gas the sodium hypochlorite continuously releases. If the off-gassing is extensive enough, the gas formed in the liquid can make its way into the suction tubing and eventually move into the pump head.

When a diaphragm-type chemical feed pump becomes filled with gas, the displacement of the pump head merely compresses and expands the gas, and the pump loses its prime. This condition usually requires manual intervention, and you have to manually re-prime the pump as soon as possible to maintain proper function.

Luckily, there are several ways to minimize or eliminate off-gassing problems:

Flooded-suction tank



Pump is placed below the liquid level of the tank

Proper System Design

Proper system design will help reduce off-gassing problems. You need to minimize suction lift conditions—most manufacturers recommend a 5 to 6 feet maximum for suction lift applications.

Using a flooded-suction setup (placing the pump below the liquid level of the storage tank or day tank) ensures a flooded suction at all times from the tank, and will help alleviate gassing problems from the upstream supply of the pump. Try to keep the suction line length as short as possible.

Degassing Valves

You can also set up the pump head with a gas relief system to prevent it from losing its prime. The older and more common method is using a degassing (bleed) valve that continuously returns a small liquid stream back to the storage tank.



Pump with degassing valve

Degassing valves prevent off-gas from forming in the pump head. Off-gas is released and routed into the bleed line along with a small amount of liquid back to the storage tank.

A drawback to using a degassing valve is that the valve will not bleed off gas if the pump is not running. Therefore, the head can gas up and lose prime while the pump is off, and the return line can easily become clogged from the hypochlorite crystallizing in the line. In this case, the system fails to release gas as intended.



Degassing Heads

A more recent innovation for preventing the loss of prime is the use of a degassing head. A degassing head is designed to continuously release off-gas to the discharge piping, whether the pump is running or not.

The degassing head uses a gas port on the pump head, which lets the pump be totally self-priming and eliminates the need for a degassing valve. A degassing head is great for applications where the pump is run intermittently with long periods of time in between cycles.



Pump with degassing head

Peristaltic Pumps

Using peristaltic pumps eliminates the potential for loss of prime because the fluid you are pumping never actually touches the pump, but rather is “squeezed” through a flexible tube.



This squeezing action of the flexible tubing generates a powerful vacuum that moves both gases and liquids simultaneously, without the pump losing its prime. The pumps are completely self-priming up to 25 feet, can operate dry and will not clog from dirt and minor debris.

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- Tech Talk
- Great People
- Break Time!

Fish stories!

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Upcoming Trade Shows—stop by and say hi!

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

| | | |
|-------------------------------------|----------------------|---------------|
| Louisiana Rural Water Assn. | Alexandria, LA | July 13-18 |
| APWA | New Orleans, LA | Aug 17-20 |
| Oregon Assn. of Water Utilities | Seaside, OR | Aug 18-20 |
| Utah RWA | Park City, UT | Aug 27-28 |
| WV RWA Conference | Snowshoe Resort, WV | Sept 7-10 |
| Evergreen Rural Water Assn. | Ocean Shores, WA | Sept 9-11 |
| RMSAWWA/RMWEA | Colorado Springs, CO | Sept 14-17 |
| South Carolina Rural Water | Myrtle Beach, SC | Sept 15-18 |
| NY Watershed Conference | West Point, NY | Sept 16-17 |
| Pacific Northwest Clean Water Assn. | Kennewick, WA | Sept 21-24 |
| NYRWA 1st Annual Equipment Expo. | Frankfort, NY | Sept 25 |
| Tri-State Conference | Primm, NV | Sept 25-27 |
| WWOA | Stevens Point, WI | Sept 30-Oct 3 |
| NRWA | Reno, NV | Oct 5-8 |
| WEFTEC | Chicago, IL | Oct 18-22 |



Great People

Congratulations to Tom Hale, Water/Sewer Operator from Atco, NJ, and Wayne Morphis, Public Works Superintendent from Eudora, AR. They won our 119 Master Catalog Trivia contest. Each received a Best Buy gift card. Enjoy!

