



Tonka Talk

Tonka Equipment Company Newsletter

Fall 2010

President's Corner

By Tom Davis

How Good is Your Pilot Study?

A good design starts with a careful and complete water analysis – because all waters are different and respond differently to treatment. Frequently, a water analysis alone may not be sufficient information to conclusively move toward a final design, and in these cases, a pilot study is required.

A dependable, high quality pilot study, like many services encountered in the water industry, is reflective of the ultimate relationship an engineer or City may have with a chosen responsible manufacturer.

Some non-technical factors all consultants should consider when selecting pilot resources include:

- Can the pilot study and protocol be customized to my client's needs?
- Is there sufficient engineering value that will hold up to scrutiny by regulators and by an outside consultant?
- Is the pilot resource experienced, dependable and known for providing sound advice?

If a pilot study has the characteristics of being "generic", "quick and dirty" or "cheap", it's likely that moving quickly to a quality design will be difficult – many times these "quickie" pilots create more uncertainties and less clarity than they answer. On the other hand, thoughtful, customized protocols and meaningful input from experienced system manufacturers, who know piloting, can aid the design team in moving toward a systematic approach with a quality result.

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Nitrate Removal at Hastings, Minnesota

by Todd Butz, Vice President

Set along the rugged and colorful scenery of the Mississippi, St. Croix and Vermillion Rivers, Hastings is a river town steeped in tradition. With a rich heritage of progress, Hastings has grown to meet the needs of its population without forgetting its past. This certainly rings true for how the community has handled its water treatment system.

Nitrates in the groundwater supply

Hastings is fortunate to have a plentiful groundwater source capable of supplying the community of over 22,000 residents with adequate water capacity. The groundwater quality is pristine with very little iron and manganese – below secondary standard levels. However, Hastings is located in a highly agricultural area, and over time, the nitrate concentration in several of its wells has increased to levels near the EPA mandated MCL of 8 mg/l. To remain in compliance, the town made the decision to construct a new water treatment plant for nitrate removal, the first of its kind in Minnesota.

Anion exchange treatment

Working closely with the consulting engineer throughout the design phase of the project, Tonka supplied the entire anion exchange treatment system including: anion exchange vessels, valves, facepiping, instrumentation, brinemaker, brine delivery components, control system methodology, and a softening system for brine make-up water to prevent calcium sulfate precipitation.

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Tonka is proud to supply the first nitrate removal drinking water system in the state of Minnesota

WHAT'S INSIDE...

- Membrane Treatment System
- Maintenance Tip – Backwashing your filter
- Wells Ranch Project

Tonka Pilots New Membrane Treatment System in West Virginia

In the scenic area of Hardy County located just 100 miles from Washington, DC, Tonka piloted its new UF packaged treatment system. This customized system incorporates flocculation, sedimentation and ultrafiltration – a water treatment package along with full manufacturer system responsibility.

The Tonka UF pilot trailer is a self-contained unit suitable for either existing applications or “greenfield” sites. We pull it up, drop it, connect power, drainlines and water source, and it’s ready to go. The pilot unit can tackle surface water with organics as well as groundwater sources with iron and manganese and other contaminants. The Dow UF membranes also provide removal credits for cryptosporidium, giardia and viruses under the limits as determined by State regulators.

Pilot components included:

- Full PLC controls with automated operation
- Remote data acquisition and control capabilities
- Chemical addition and rapid mixing
- Flocculation
- Sedimentation (with tubes or plates)
- Ultra Filtration membranes and associated cleaning equipment



During the Hardy County study, the influent water quality varied dramatically, with turbidity levels bouncing from 3 to 35 NTU during rainfall, snow melt and seasonal changes. Iron was typically above the EPA secondary standard during winter, while manganese was as much as five times the EPA secondary standard throughout the study.

Tonka provided onsite personnel for set up, operator training and clean-in-place operations as well as teardown. Through our unique cellular internet SCADA controls, we were able to remotely adjust the operating parameters to optimize the water treatment performance. Due to the remote monitoring by Tonka, the pilot study was able to run 24 hours a day with only a daily check in required by local operators—saving the Owner thousands of dollars throughout the study period.

The Hardy County pilot study lasted 120 days and was approved by the West Virginia Department of Health without comments. At the end of the pilot Tonka had gathered 2000 hours of ultrafiltration operational data and 2700 hours of pretreatment operational data to support the final design.



A full-scale Tonka pretreatment and UF system is on track for delivery in mid 2011 – a system chosen by the owner for treatment of the high organics in the raw water source and because they need a system that will not require continuous operator attention. The Tonka system, with its remote monitoring feature, fully meets the needs of the owner and will provide the first water treatment system in the area.

A growing population in this beautiful part of West Virginia will benefit from an efficient, reliable water system with excellent quality water. ♦

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Hastings finished water meets EPA standard now and in the future

The plant utilizes four anion exchange vessels, each rated to treat up to 400 gpm. A portion of the 2400 gpm total plant flow is treated through the units while the balance is bypassed around the anion exchange vessels and blended with the treated water to produce a consistent finished water with nitrate concentration below the EPA’s MCL of 8 mg/l.

The bypass/blend allows the town to remain in compliance today, as well as having the flexibility to adjust the treated/bypassed proportion for future compliance, should the raw water nitrate level continue to increase. ♦

Canyon Regional Water Authority starts up the Wells Ranch Project

By Rick Mann

Canyon Regional Water Authority (CRWA) is a major provider of high quality potable water for thousands of consumers North East of San Antonio onward to the city of San Marcos, TX. Over the past few years this corridor has seen significant growth, and this growth pattern continues. CRWA operates two surface water treatment plants with a total capacity of greater than 22 MGD.

First groundwater plant for CRWA

CRWA worked with its member entities to develop for the first time, a groundwater well field and treatment plant tapping the Carrizo/Wilcox Aquifer in Gonzales and Guadalupe counties. This aquifer offers high capacity flows but does contain moderate iron with low manganese content. The project, known as the Wells Ranch Project, consisted of seven new wells, twelve miles of transmission lines, storage and booster stations, as well as a new 6 MGD state of the art treatment facility.

Easy to operate Tonka gravity filters

After an in-depth evaluation, the Authority together with River City Engineering selected Tonka Equipment Company to supply the

new plant's filtration system. Tonka furnished four 10' wide by 40' long, 4 cell GVS gravity filters, loaded at 3gpm/sf. Tonka also included all the valves for process operation and PLC controls, for a complete treatment system. Tonka's gravity filters were selected for this project due to their ease of operation, which provided an easy transition for plant personnel familiar with traditional surface water plant filter operation.

Water conservation starts at the water plant

The new filters incorporate Tonka's Simul-Wash™ backwash process, which, in addition to keeping the media in top condition, will reduce the amount of backwash waste the facility generates by more than 50% over conventional backwash processes on the market. At design capacity this process will save over 9 million gallons annually, guaranteeing additional revenue: water that would have been wasted can now be sent into distribution.

Using gravity to save on costs

In addition to the water savings, the Wells Ranch Project also utilized the natural slope of the land, along with some engineered site grading, resulting in a totally gravity driven facility. All of the wells pump into a raw water receiving tank, where chlorine and lime are fed. Water then



flows through Tonka's gravity filters and into a ground storage tank, for final pumping into the transmission lines.

Tonka is proud to have CRWA as another satisfied customer. ♦

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In the last twelve months, Tonka has worked together with consultants to conduct more than 40 customized pilot studies. These have ranged from cold Canadian surface waters targeting turbidity and organics to Southern US well waters with iron, manganese, H₂S and radionuclides. Our repertoire of available equipment and processes, and our track record of robust engineering support and timely report completion is the best in the business.

Let us help you by drawing on our experience with over 1900 installations and our particular knowledge regarding specialized contaminants and processes. We have state-of-the-art piloting expertise in many areas, including: radium, TOC, arsenic, UF/NF membranes, high rate media and many others.

Tap into Tonka's piloting expertise—call us for reliable, dependable pilot information for your design project. We guarantee that we'll listen and work hard with you to meet the challenges that lie ahead. ♦

Maintenance Tip - Sometimes Air and Water Don't Mix

By Steve Kari

Moisture in compressed air systems can cause problems with pneumatically controlled devices, such as valve actuators and control solenoids.

Compressed air supply systems in this industry traditionally have been specified and supplied with refrigerated air dryer systems to remove excess moisture from the air. These systems rely on a refrigeration system to cool and condense moisture from the air stream.

We have learned through extensive investigation that these systems work most effectively if the application has a constant and steady air flow, such that the entire refrigeration system stays cold. We have therefore concluded that refrigerated air dryer systems are most appropriate for applications where air is consumed, such as systems where modulation valves or pressure aerators are used.

Tonka has recently developed a desiccant dryer system for other applications that remove moisture regardless of air consumption. The Tonka Desiccant Air Dryer application:

- Is a significant improvement for more typical control applications.
- Incorporates a clear desiccant bead cartridge that allows operator observation and maintenance.
- Has a cartridge that can be easily and quickly replaced.
- Can be installed in existing systems right after the existing air dryers, with the required bypass valves and filter.


Using a Tonka Desiccant Air Dryer in front of sensitive pneumatic equipment adds a level of security to protect the air controller from unwanted moisture.

Call our Service Department for more information about a Desiccant Air Dryer System - 1-800-530-1887. ♦



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The logo for Tonka Water Treatment Systems is a blue teardrop shape. Inside the teardrop, the word "TONKA" is written in large, bold, white letters. Below "TONKA", the words "WATER TREATMENT SYSTEMS" are written in smaller, white, all-caps letters, arranged in a circular pattern around the bottom and sides of the teardrop.