



Serving the Pacific Northwest

PumpTech Pipeline

Providing Knowledgeable Solutions

PumpTech's Feature Rich Multi-Pump Controller

PumpTech's intelligent, multi-pump controller features an integrated PLC and Color Touch-Screen Human Machine Interface (HMI) that makes setup simple and extremely flexible. Up to four pumps can be set up for VFD control, across the line starting or a combination of the two.

The controller is preprogrammed for pump down, level control and booster applications. At start up all you have to do is select the application and follow the setup instructions on the screen.

The PLC provides for 22 digital inputs and 12 digital outputs. Also two 4-20mA or 0-10VDC transducer inputs are provided.



When motors are started across the line or via RVSS, "smart" motor

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QCEC Introduces New Refrigerated Sampler

Quality Control Equipment Company (QCEC) has introduced a new sampler with a modular refrigeration system. The refrigerator unit slides out for easy service or replacement. All units are made right here in the US and come with a 2 year warranty.



It features the same, time proven sampling technology that has set QCEC apart from its competition for over 40 years.



All samplers use vacuum pumps

rather than peristaltic pumps for higher reliability and accuracy. Vacuum pumps never need hose replacement and increase the sampling range by providing lifts to 28 feet and horizontal runs up to 150 feet. This provides lots of flexibility when locating the sampling unit.

The QLS model is the only sampler in the world that provides repeatable, self calibration and consistent sample size. It also provides flow - paced samples from a 4 - 20 input.



For more information on the features and benefits of QCEC samplers, contact your local PumpTech branch.

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Canby Replaces Knights Bridge Road Lift Station With Hydronix 421

Canby is home to PumpTech's Oregon operations and the city has been a valued Hydronix customer for many years. Earlier this year they hired Curran McLeod Engineering (CME) to design a complete replacement for the 30 year old Knights Bridge road concrete lift station. CME worked with Butch Kline in our Canby office to design a drop in system that met the needs of the city while allowing complete ease of installation. Butch suggested PumpTech's Hydronix 421 fiberglass basin with integrated valve vault since Canby had previously installed 421's in new applications. In addition to the wet well and valve box, the system included Hydromatic submersible pumps and an integrated control system. PumpTech's design team submitted Solid Works 3D drawings for CME's review and approval.



The 421 can also be designed as an "insert" package. This allows installation in an existing concrete wet well without having to remove it. More about this option in the Winter, 2011 Pipeline.



After CME's approval work began in our Canby manufacturing facility. The photo below shows the 421 after installation of the pump base elbows,



discharge piping and valves. The photos in the right hand column show the station in various stages of installation by the contractor (Canby Excavation).

Some of the features of the 421 include gel coated fiberglass construction, an interior hopper bottom, a fiberglass wrapped steel anti flotation base, aluminum covers & hatches and multiple piping material choices. Also, all Hydronix 421 packaged systems are UL QCZJ listed. Packaged controls are listed as UL 508A or 698A intrinsically safe.



Butch Kline is in the Canby office and works with engineers and municipalities throughout Oregon and Southwestern Washington. He can be reached at: bkline@Pumptechnw.com

Newport Packaged Quintaplex Booster System

When developer Will Emory began the Wilder subdivision in the South Beach area of Newport Oregon he hired David Evans & Associates (DEA) to specify a booster system. Jim Gilmer of DEA asked Gary Carter of PumpTech to offer several alternatives. Gary suggested that they consider a Hydronix system that included the pumps, piping, controls, heating and lighting all of which are preinstalled in a transportable pump house. The PumpTech design team in Canby designed a "Quintaplex" (5 pump) system that met the flow and pressure requirements and submitted Solid Works 3D drawings to DEA. The packaged pump house system was approved, built and installed earlier this year.



After startup the system was turned over to the city of Newport and currently provides domestic water and fire flow for the subdivision and Oregon Coast Community College. Lanny Schulze, Water Distribution Supervisor, said that he is very pleased with the system and all of its components. The five Grundfos vertical pumps are all VFD controlled and provide precise pressure and flow while reducing energy consumption.



Hydronix packaged pump houses utilize a pre built building that exceeds IBC standards and can be designed to meet the architectural appearance required by the customer. During construction all piping and wiring is installed. Pumps, controls and all other interior fixtures are installed prior to delivery. Once on the slab all that is required are piping and electrical connections.



Gary Carter is Sales Manager for the Canby branch. He can be reached at:

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First Selcoperm in the US Installed in Spanaway Washington

The Grundfos Selcoperm hypochlorite generation system has been very popular in Europe for the past 18 years. Why? Because it is safe, simple and extremely cost effective. Now that Grundfos is building them in Fresno, it should gain the same level of popularity here in the US.



PumpTech's METERMAN division will install the first Selcoperm in the US in Spanaway WA in November. Spanaway selected the Selcoperm for its many features and the fact that PumpTech is a full service company that provides both installation and 24/7 service.

The use of hypochlorite generation systems is growing quickly for two reasons - the extreme danger of gas leaks in chlorine gas systems and cost and maintenance of bulk hypochlorite systems.

Hypochlorite generators remove the danger of gas leaks and reduce operating costs substantially.

The Selcoperm has a much smaller footprint than its competitors and eliminates much of the wiring and plumbing due to its integrated design. It also removes H₂ gas immediately and does not allow it to build up in the electrolysis cell. Energy consumption is 2kW / lb of prepared chlorine. Water and salt consumption are 15 gal and 3 lb per pound of prepared chlorine respectively.



For more information contact any Pumptech branch.

PumpTech Multi-Pump Controller (continued)

starters provide access to sixteen different motor operating conditions. Some of these include short circuit, thermal overload, low or high voltage, low current (dry run), ground fault, phase failure & reversal, volts / amps per phase, average volts / amps, and voltage / current unbalance. When operated via VFD pump operating speed is also monitored. Multiple pumps, in parallel, can be controlled individually or synchronously.

In addition to monitoring motor conditions, PumpTech's intelligent controller also monitors pump and system conditions. These conditions include number of starts, run time, number of pumps running, pumps called, system set points, system pressure (booster) and wet well level (pump down and level control).

Motor and pump information is available in real time via the touch screen. Additionally, all of this data is logged and months of operation can viewed as individual points or in graphical format.

But it doesn't stop there. All of this information is available via remote access. An integral Ethernet

port allows access via hard-wired LAN/WAN, WiFi LAN/WAN, 900MHz or 2.4GHz to LAN/WAN, radio to LAN/WAN, and by a cellular router to the internet or a VPN tunnel. Optionally the Ethernet port can be replaced with an RS232/RS485 serial port for connection to Modbus, Bacnet, or Lonworks SCADA networks.



Enter a password and you can remotely access real time data via your PC or smart phone with the same view you get with the touch screen. If you have access to a higher level password, you can also control the pumps and change operational set points remotely.

Contact PumpTech for a personal demonstration.

Maintenance Tips

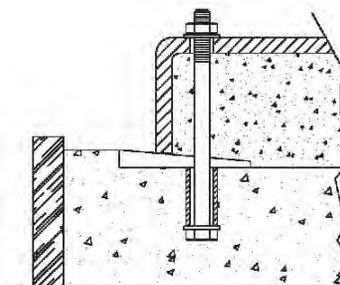
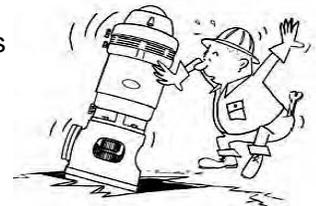
“Building a Solid Foundation” Part 3

Ed Smith, PumpTech Moses Lake

In the last issue of Pipeline, we discussed the importance of the foundation and grouting of the baseplate. This issue will address anchor bolt selection and installation.

Anchor bolts are installed in the foundation when it is poured and are used to attach the metal baseplate to the concrete foundation. The two most common are sleeve and “J” or hook designs. The newer sleeve design allows for proper bolt positioning prior to grouting and is shown in the picture to the right. The required diameter and location are shown on the installation drawings provided by the manufacturer. When using a sleeve type bolt, the sleeve diameter should be 2.5 to 3 times the bolt diameter and a washer should be placed between the bolt head and the sleeve. As a rule of thumb the anchor bolt should protrude 20 bolt diameters into the foundation and the sleeve length should be 10 times the bolt diameter.

Before the foundation is poured the exposed threads should be coated with wax and covered. The sleeves may be packed with rags or some other non-binding material to prevent entry of concrete into the sleeve area. Once the concrete foundation has cured (HI suggests 28 days), its surface should be roughed prior to installation of the baseplate.



Use metal wedges to elevate the baseplate for grouting. These wedges also allow leveling. When the baseplate is completely level, grouting can begin. After curing, the anchor bolts should be

tightened firmly and evenly. You can contact Ed Smith at: esmith@pumptechnw.com

Pump Ed 101– Calculating Pump Starts and Cycle Time

By: Joe Evans, Ph.D

Starting can have a significant effect upon the life of the winding insulation of an AC motor. For this reason motor manufacturers often limit the number of starts per hour and may also require some minimum run time and off time between starts.

When started across the line, a typical AC induction motor experiences an inrush current that can be ten to twenty times greater than its full load current. This higher current is required to establish the magnetic field in the stator core. Another starting component, known as locked rotor current, can also be very high (five to seven times full load current) and its intensity and duration depends upon the load type and the time required to attain normal slip speed. Even though both of these high current levels exist for a relatively short period of time, they can create hot spots in the stator and also contribute to an increase in overall winding temperature. Since insulation life is reduced as temperature rises, the additional heat generated during starting can be a major factor if starts exceed the recommended number per hour.

Although there are a variety of pump applications that utilize across the line starting, one of the more popular is wastewater pump down. In these applications, the pump starts when the wet well reaches some maximum level and shuts off at some minimum level. The run time and starts per hour depend upon the pump flow rate, wet well capacity, and the inflow volume. It is very important that all

three of these factors be integrated into the design of a pump down system in order to meet the motor manufacturer's requirement for maximum starts and minimum on and off times.

The screen shot shown below is my Excel based Pump Cycle Calculator. Once a system curve has been developed, it will allow you to evaluate a particular pump selection based upon the three factors mentioned above. Upon entry of the required data, the calculator computes the pump down volume, the fill time at various inflow rates, minimum run time, run time at various inflow rates, and the starts per hour. At an inflow of 250 GPM, the pump shown in the example would start about eight times per hour and remain off just 3.5 minutes between starts. If this were a higher head pump that requires 10 HP or more, these conditions would probably be unacceptable. There are several ways to fix this problem. If the entered flow rate must be maintained, the wet well diameter and / or pump down distance can be increased. If wet well changes are not practical, a pump with a reduced flow rate can be substituted. The calculator can also be used in applications that must accommodate additional surcharge volume.

The Pump Cycle Calculator is available at the "Resources" section of the PumpTech web site or the "Sizing & Selection Tools" section of PumpEd101.

www.PumpEd101.com www.PumpTechnw.com
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PUMP CYCLE CALCULATOR	Joe Evans	www.PumpEd101.com				
INPUT DATA						
Wet Well Diameter (inches)	84					
Pump Down Distance (feet)	3.0					
Average Pump Flow (gpm)	450					
Surcharge Volume (if applicable)	0					
Average InFlow (gpm)	50	100	150	200	250	300
CALCULATED RESULTS						
Pump Down Volume (gal)	863					
Wet Well Fill Time (min)	17.3	8.6	5.8	4.3	3.5	2.9
Run Time (min) No inflow	1.9					
Run Time (min) With Inflow	2.2	2.5	2.9	3.5	4.3	5.8
Starts / hr With Inflow	3.1	5.4	7.0	7.7	7.7	7.0

Waste Goes Away in Chopperitaville

Centralia Washington's Jefferson Street pump station handles the in-flow from six smaller stations. By 2007, the original dry pit submersibles were experiencing plugging due to disposable wipes mixing with rags and hair and required disassembly and cleaning twice weekly. More than forty of these plugs occurred at night and contributed to a large increase in overtime expenses.

In the fall of '07 Greg Boone, who is responsible for Centralia's 25 lift stations, consulted with Mike Hoskison of PumpTech on potential solutions. Mike suggested that Vaughan Chopper pumps could eliminate the problem and set up a demonstration at the Vaughan factory for Greg and several of his coworkers. The demonstration used a chopper to pump wastewater that consisted of nylon rope, rags, T-shirts, a box of wipes, wood chips and, believe it or not, a Thanksgiving turkey! There was no plugging and Greg was convinced that a chopper would, indeed, solve Centralia's problem.

In mid November of '07 the city ordered two Vaughan pedestal mounted choppers and they were installed in February of '08. After three years of operation, neither chopper has plugged. The photo below shows Greg Boone and Greg Fischer (Chehalis) during installation of the Jefferson Street Pumps.



The photo on the right shows one of the choppers after installation.

In addition to the Jefferson Street Station, Centralia has replaced the pumps in five other aging and troublesome lift stations with Vaughan Choppers. In late 2008 a 10 HP submersible chopper was installed at the Reynolds Street pump station. The photo below shows the pumps that were installed in the Borst Park pump station in November of 2009. These are 30 HP units rated at 1100 GPM. This year the Military Road, Scammon Creek and High Street lift stations were upgraded to Vaughan



Choppers. To date none of the six stations have plugged. Additionally, five other stations have been quoted and are in the review and budgeting process.

With six Vaughan retro's installed and five more in progress, you can see why we refer to Centralia as "Chopperitaville".

Mike Hoskison covers the municipal market for PumpTech in Lewis, Pacific, Pierce, Thurston, Grays Harbor and Mason counties. He can be reached at mhoskison@PumpTechnw.com.

PumpTech PumpChat

From the President's Desk

WHEW! or should I say WEFTEC!

For many of us October brings more than just turning leaves and shorter daylight hours. It brings the largest collection of people involved in the waste water industry together for education, camaraderie and a look at the latest innovations in collection and treatment of waste water. We all convene at WEFTEC which is the Water Environmental Federation Technical Education Conference. This year it was held in New Orleans, LA and PumpTech was privileged to send 6 employees to the convention, including myself.

There was plenty to see and do. It was interesting to see New Orleans post Katrina and sample some of the fine food of the region. The weather could not have been better - - mid 70's to low 80's and low humidity. Just right for a river cruise courtesy of the Grundfos group as well as the eclectic Bourbon street.

The convention hall was full of the latest technology ranging from blowers, such as the ABS HST Turbo compressor with magnetic bearings, to a new offering of submersible mixers using permanent magnet motors that offer the highest energy efficiency in the industry. Vaughan Company had a working model of their chopper pump which always is a show stopper. They chop up rope and polyurethane rods to

demonstrate its ability to handle all manner of items without clogging. Grundfos introduced a new line of digital dosing pumps with features that evolved from input from operators over the years. Now you can have a digital dosing pump that can be mounted in almost any orientation and have a control interface that rotates to allow convenient viewing. It even glows green when all systems are good, yellow if it detects a problem and red if it is in alarm. This gives the operator the ability for a system check with just a glance. In addition it has an automatic quick action priming cycle when it detects loss of prime or air entrainment in the suction line.

To enhance our offering of metering pump skids we found a company that makes a great molded HDPE skid for mounting the pumps and piping. It has both primary and secondary containment, is corrosion proof and can be supplied in any color for quick chemical recognition. We have a skid on its way to us so we can put together a demo unit.

It was an exciting trip and now that we have recovered from it, it is time to go to the regional PNCWA (Pacific Northwest Clean Water Association meeting in Bend, Oregon. We look forward to sharing the new ideas and products introduced at WEFTEC with the managers, operators, engineers and service technicians that will be attending this event.

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WEFTEC 2010—New Orleans



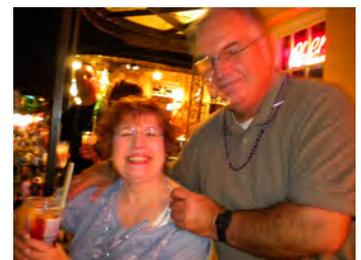
Doug, Tom, Angie, Denise & Chris



Janet & Doug



Doug & Jim



Cheryl & Gary

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PumpTech Pipeline

A Publication of



Upcoming PumpTech Participating Events

- 10/8 WETRC Training, Moses Lake
- 10/24 - 10/27 PNCWA Conference, Bend
- 11/18 - 11/20 Pacific Marine Expo, Seattle
- 12/8 WETRC Training, Spokane
- 12/16 PNCWA Training, Sequim

