

Ketchikan, Alaska Wastewater SCADA System

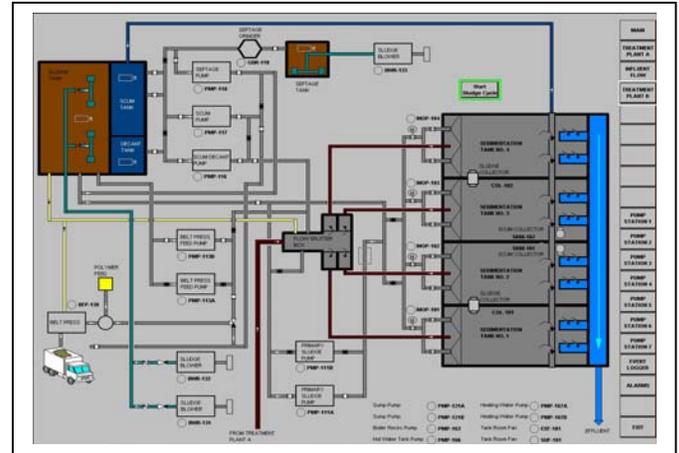
Ketchikan Sewer System on Track

Sewer operations are running smoothly after installation of a SCADA system for the Ketchikan, Alaska, sewer lift stations and sewage treatment plant.

Boreal Controls Inc. started the project by replacing aging variable frequency drives at two large pump stations with new Allen-Bradley (A-B) Variable Frequency Drives (VFDs) and A-B SLC 5/05 PLCs. Each pump station had three 60hp pumps which were retrofitted with Boreal Control's custom VFD pumping system.

BCI President Greg Smith, P.E., said one interesting aspect of the project was the city's requirement that the system keep running while the existing equipment was torn out and replaced with new controllers. That wasn't a problem, though; with a temporary VFD hookup, the system continued working. The complete construction time was only about four days for each pump station. This minimal transition time from old to new meant that the city didn't have to worry about the reliability of an interim system for more than a few days.

Ketchikan wastewater system operator Hugh Fleury said the new system is virtually maintenance-free and after installation, BCI provided technical support seamlessly over the phone and with modems.



RSView operator interface screen for Wastewater Treatment Plant B. Ketchikan, Alaska.

“We’re not having to wait for someone to come to town,” Fleury said. “It’s a sweet deal for us.”

“It greatly increased the efficiency of the pump stations,” Smith said. As flows increase, the old system would bring one pump up to 100% speed and then run a second pump at a lower speed to maintain flow. The new system can run up to all three pumps at the same varying speeds, thereby increasing efficiency.

The next phase of the project included a retrofit of a third large pump station with VFDs and control system upgrades at the wastewater treatment plant. Boreal Controls replaced old Texas Instruments PLCs with new Allen-Bradley SLC 5/05s to control the operations of the plant. Part of this project also included putting the three large pump stations and the treatment plant on a SCADA system. The PLCs at the pump stations and at the plant all use Ethernet to communicate with the SCADA system through a DSL network.



Wastewater Pump Station No. 2 VFD and PLC control panels. Ketchikan, Alaska.

“At the wastewater treatment plant an RSView SCADA system was installed which provides the central control and monitoring station of the plant and the three large pump stations,” Smith said. “The system is fast, data and alarm information is received in milliseconds, compared to other systems which might take ten minutes or more for remote station updates.”

The third phase of the project included adding the remaining four sewer pump stations to the SCADA system. BCI was awarded a sole source contract by the city for the complete design/build and programming of the system.

Such a system allows plant operators to monitor data from remote pump stations such as pump performance. Soon after its installation they were able to pinpoint a problem with an ailing lift station pump and replace it.

“We saw that on the system (and) we were just tickled,” Fleury said. “We’re able to monitor efficiency ... and it’s quick, too.” The station had been the cause of callouts for quite some time, but the real problem was difficult to diagnose until the data trends were displayed on the SCADA system.



Allen-Bradley SLC RTU for Wastewater Pump Station No. 4.
Ketchikan, Alaska.