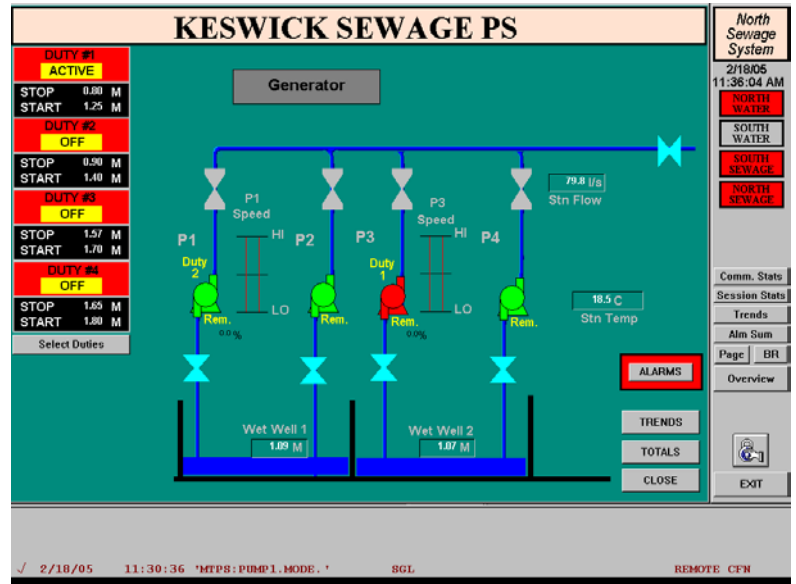


Region of York North Wastewater SCADA

Introduction

MAAK designed and supplied the automation/SCADA system for five sewage pumping stations for the Regional Municipality of York. The systems were part of control/electrical upgrades to the facilities. For each facility, MAAK's scope included design, fabrication (control panels), instrumentation, programming, SCADA system, installation and commissioning, FAT and SAT. The system design and development adhered to the GAMP (Good Automated Manufacturing Practice) life-cycle approach to the validation of automated systems.



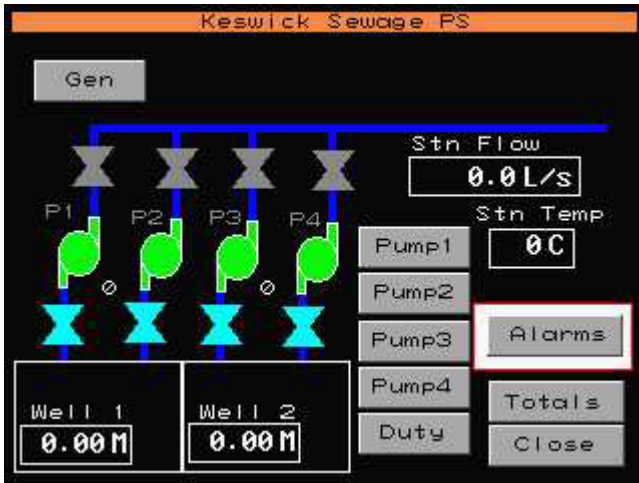
The project also involved the use of radio modems to establish communications between the central SCADA server location and the five remote sites.

Process Description

Each sewage pumping station has one or two wet wells and is equipped with two or three effluent pumps per well, some of which are constant-speed and some variable-speed. The levels in the wet wells are monitored by two level transmitters. The wet wells are also equipped with floats which act as alarms, and provide back-up control. In some stations a diesel generator provides auxiliary power which operates all pumps if required.

Automation

The RPU (Remote processing Unit) is a Bristol-Babcock system using a Controlwave CPU module. The OIT (Operator Interface Terminal) is a Nematron unit, providing process information (device status, setpoints, alarm conditions) to the operators. The OIT also allows the operator, via a password protected screen, to perform maintenance functions on the control system such as acknowledging alarms and disabling instruments for calibration. The SCADA system is Intellution's FIX32 system. The SCADA allows for remote control and monitoring of all the stations, as well as providing data logging for critical process parameters.



Special features were designed and implemented. For example, one of the stations includes lagoons that can only be discharged seasonally (based on date) and only to a maximum volume in a 24 hour period. The discharge is passed through a biological system, requiring limits to the volumes per day to allow for nitrifying bacteria to regenerate. MAAK provided a scheduling system to allow operations to control how much usage each filter gets. MAAK also developed efficient totalization schemes that were required to interlock the discharge system from exceeding the approved limit.