Solution Story: Block Valve

Solution

Motorola ACE RTUs

The first step is to divide the pipeline into small sections that make up the whole pipeline. We analyze where the pump stations are located and where the pipeline crosses any body of water. Once this has been broken down we can look at how to communicate from the pump station to the block valve sites. In most cases the pump station will have to communicate with multiple water crossings.

The approach is then to use a Radio Frequency (RF)approach; relaying the data through a set of RF frequencies on a per station basis. A radio path study is performed at each station to determine the best communication network such as Analog VHF / UHF radio, digital or analog trunking radio, wide band spread spectrum data network, GSM / GPRS, iDEN / Nextel or CDMA.

The Motorola ACE RTU comes into play with its robust over the air protocol that is optimized for remote communications. This protocol handles all the errors, retries, rerouting and remote application downloads/ uploads online without complicated setup or programming. The seven layer MDLC protocol takes care of this for you, a true multi-session protocol for RF. The other advantage to the protocol is that it has built-in encryption at no additional cost, which keeps your application safe and secure.

We install an ACE3600 RTU at each block valve site and an ACE Data Concentrator at the pump station that communicates with a PLC.

Benefit

CTH Systems has found the RF solution fits well:

- you own the infrastructure and are not dependent on a public network

- low initial costs - as you expand the pipeline you can use your existing RF system
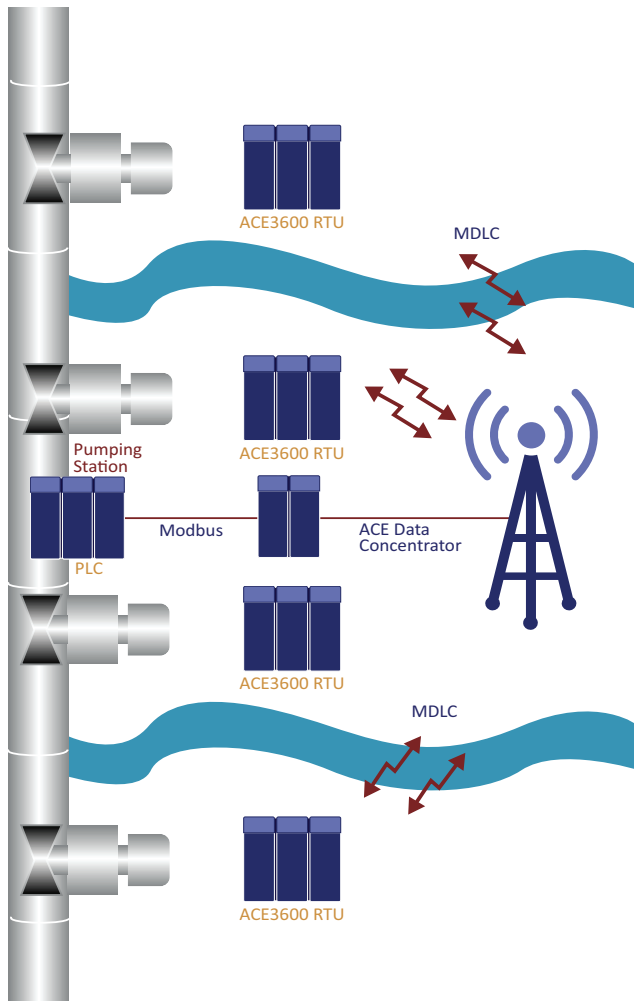
- saves your on-site travel costs plus protects you with encryption

Challenge

When operating a pipeline spanning great distances over vast and varied terrain there are many environmental and technical challenges. One challenge CTH Systems has been involved in solving is remote communications that are secure and reliable over the entire pipeline for block valve control at river crossings. The environmental regulations addressing the potential of a leak into the water are many. The financial impact of a failure can be huge in addition to the public perception.

MOTOROLA

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