Emission Wireless Monitoring

Industry: Power
Product: Data Radios 945UE, DX1000 and Coriolis Meter

Introduction

A power plant in the Northeast was under pressure to meet State EPA requirements of reporting fuel consumption (used for emissions monitoring). The issue was digging a costly trench from the pump house to the control room building in order to run fiber optic cable that delivers a flow meter signal to the plant's historian where reports could be generated. The cost would be $20,000.00 alone to dig the trench.

Application

For State EPA Emissions requirements, the customer needed to monitor jet A fuel flow and report consumption (as a function of run time of the boiler). A flow meter needed to be installed in the pump house and the output communicated to the control room, then read into the plant's PI historian. The plan was to dig a trench and run fiber optic cable connecting the pump house to the control room.

There was a considerable amount of pressure to get a system in place and running or the plant would face costly fines.

A backhoe was on location, ready to begin digging. The customer was willing to try a Yokogawa wireless solution due to the plant already being equipped with Yokogawa video recorders that had proven to be reliable. The Yokogawa representative had also earned a reputation of providing solid solutions to tough process applications.

There was doubt on the ability of a radio's signal strength to reach the control room because of the proximity of the switch yard, penetration of building walls and interference of the main generators.

Solution

A wireless solution was implemented to save on the cost of installation and provide a means to remote monitor fuel flow. A flow meter was also provided.

1. The Ethernet 900MHz data radio 945UE was selected after determining that it could provide a strong signal to the control room, located directly above the main generator.

2. The Yokogawa representative did a survey to determine the channels that provide the strongest signal as well as determine the noise levels that might be

present and interfere with signal transmission. The 900 MHz radio provided a very strong and reliable signal.

3. A radio was mounted on existing din rail in the pump house with an antenna mounted on the roof. A mating radio and antenna were mounted just outside the control room above the main generator deck.

4. A DX1000 was provided in the control room and networked into an OPC driver into PI.

5. A DX1000 was mounted in the pump house that gave operators a remote view via the web page.

6. A Yokogawa 2 inch Coriolis Mass Flow meter was installed on the jet fuel line.

The customer is very impressed with the Yokogawa wireless system and will be deploying additional radios in remote locations where signals related to process conditions would be helpful to access.