



### GAS UTILITY PANELS AND SCADA

**BACKGROUND:** We were approached by a newly created gas utility to provide a means of monitoring underground gas lines. They were doing a phased build-out of the distribution lines and needed a way to monitor the lines that had just been built. As they were a brand new utility then did not have an IT staff and needed a solution that after initial setup would run without any supervision.

**SOLUTION:** Provide a master server that would poll a PLC in the field over a cellular LTE network. We would design the polling system as well as the remote PLC panels. The server would perform the polling of all the remote panels and would provide a web page for operator's to access and monitor the reads. The server would also provide alarming in case the pressure or temperature increased or decreased beyond a pre-set level. In case of an alarm the server would send out emails or texts to notify the operator's of the condition.

**SYSTEM:** Used the Linux operating system as the polling master. Master system software was written in C and used MySQL to store and retrieve the remote PLC reads. Used HTML/PHP to provide a way for the operator's to log in and check the current status of any station.

Provided UL508a listed panels for the remote stations which contained the PLC and battery backup-up. With the battery back-up the panel could run for 24 hours without utility power continuing to provide reads and notify of power loss situation.

**RESULT:** During one summer building season the system was able to notify operator's that a gas line had suddenly lost pressure. They were able to respond quickly and found that a backhoe operator

had punctured one of the lines. The gas utility management was happy to have the ability to track down the problem very quickly.

Now over 3 years later, the system has run continuously without any IT supervision. Server uptime has been 100% and the cellular polling system has recorded only a single short outage. The customer has been very happy with the hands-off system that was provided.