

Remote Pipeline Pressure Monitoring Using Low Power Wireless Transmission

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[Abstract](#)

Manual data acquisition of pressure readings in order to build a static pipeline hydraulic profile for a pipeline network, increases the security exposure of personnel, logistics cost with the attendant delay in determining and reporting pipeline pressure used in Hydrocarbon accounting, making it prone to errors, inaccurate and unrepresentative of the actual situations on the network. This paper presents results of a wireless pipeline real time (RT) pressure monitoring system using low power wireless transmitters installed at selected pressure points on the pipeline networks located in remote areas of SPDC operations. The system utilizes secure wireless transmission and special encryption systems designed to protect the data transmission from interference and degradation. The system achieved a data transmission over a 10km range from a pipeline pressure point to the gateway, with a battery life of over 6 months. Longer battery life durations can be achieved by the deployment of exception based reporting. The system provides a means of monitoring

the pipeline pressure and thus enables the development of a dynamic pipeline pressure profile for the monitored pipelines. The data from the system can also be used with special algorithms to monitor the pipeline for leaks. The system versatility has also been tested as means of collating vital well data to a data concentrator enroute an enterprise intranet.

