

Offshore Oil Platform Mitigates Risk of Reduced Production in Flowing Oil Wells and Pipelines with Timely Process Data

RESULTS

- Mitigated risk of reduced production in flowing wells and flowing pipelines
- Increased workers safety
- Decreased operations and maintenance costs of offshore facility

APPLICATION

Remote monitoring of flowing oil wells and flowing pipelines

APPLICATION CHARACTERISTICS

Unmanned offshore platform without electric power supply

CUSTOMER

An offshore platform in the Gulf of Mexico

CHALLENGE

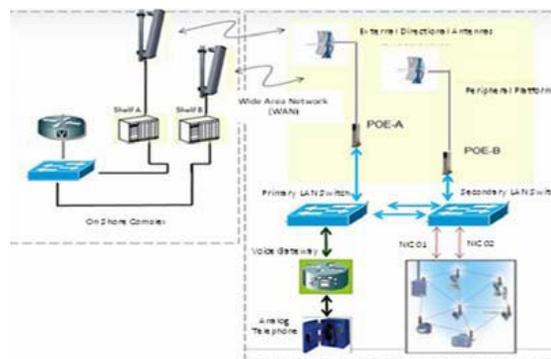
This petroleum company needed to remotely monitor well performance and platform operating conditions in one of its unmanned offshore installations. Well performance monitoring is very important in order to maintain production targets and to improve the decision making process for reservoir exploitation. It is ideal to have the process data delivered cost-effectively and in real time.

There are several challenges present in the project. First is infrastructure limitation such as power availability. Without an electric power supply, process conditions can only be monitored through chart recorders. Second is thermowell preparation in the flowing pipelines. Pipeline temperature measurement is used to monitor presence of parafin build-up which may impact production and flow. There are ten flowing pipelines with one temperature and pressure measurement point each. These pipelines have no existing thermowell insertion points and drilling one will incur cost and delay the production. Third is process data timeliness and availability. Each day they are sending workers to the platform via helicopter to manually gather process data from the chart recorders. The platform is about 100 km (62 miles) from the onshore control center. It takes an approximate 4-6 hours before process data can reach the management team in the onshore operation center.

With process information delayed, decision making was affected. This risked reduced oil production in the flowing well and flowing pipelines as proper adjustment to efficiently operate oil exploitation was not timely. This delay may also increase maintenance cost as they cannot immediately adjust unstable process and platform conditions that may lead to damages in infrastructure. Add also the cost of transporting workers daily to the platform to gather data which increases operating cost and the risk of an accident during personnel transport.



The innovative solution provided the petroleum company valuable process data, giving way to a deeper visibility on production processes, enhancing operation decision.



Schematic diagram of the offshore wireless network connected to the onshore control system via WiMax.

SOLUTION

The petroleum company tapped on Emerson Process Management’s Smart Wireless solution to solve the inherent challenges of the project. The non-intrusive Rosemount Pipe Clamp RTD Sensor measures pipe surface temperature in the flowing lines. Pipe intrusion was not needed anymore, saving on installation time and cost, while the Rosemount 3051S Wireless Pressure Transmitter was used to wirelessly measure flowing pipeline pressure. These field devices send the data to a Smart Wireless Gateway which is then connected to a WiMax base station. This solar-powered base station connects the SCADA system in the onshore operation center and the field devices in the offshore platform. Emerson Process Management provided all means to integrate information from the two facilities. This innovative solution provided the petroleum company valuable process data. It gave way to a deeper visibility on production processes and enhanced operation decision making, mitigating the risk of reduced oil production. In addition, their personnel do not need to fly to the offshore platform to manually gather process data, reducing risk of accidents during transport. Finally, the timely adjustment, brought about by real time process data, enabled maintenance and operating cost savings.



The non-intrusive Rosemount Pipe Clamp RTD Sensor measures pipe surface temperature in the flowing lines.

RESOURCES

Emerson Process Management Oil and Gas Industry

<http://www2.emersonprocess.com/en-US/industries/oil-gas/Pages/OilandGas.aspx>

Rosemount Pipe Clamp RTD Sensor

<http://www2.emersonprocess.com/en-US/brands/rosemount/Temperature/AIS-Sensors/Pipe-Clamp-Sensor/Pages/index.aspx>

Rosemount 3051S Wireless

<http://www2.emersonprocess.com/en-US/brands/rosemount/Pressure/Pressure-Transmitters/3051S-Wireless/Pages/index.aspx>



The Rosemount 3051S Wireless Pressure Transmitter used to wirelessly measure flowing pipeline pressure.

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