

Tier One Oil Company

The Challenge

Our customer is a tier one oil and gas company who needed to monitor an unmanned offshore operation in order to reduce the number and duration of emergency shutdowns and to increase the extent of control and supervision of both manned and unmanned assets.

They needed a web-based system for remote management of an unmanned platform that operates as a hub for an entire field, receiving oil from all other platforms and sending it to the coast.

All the equipment telemetry had to be transmitted via the customer's intranet. The platform is monitored and controlled (i.e. gas, fire, pressure etc.) from an operations room over 160km to the south. The new system needed to

improve on the old operational procedure for an alarm that offered a grace period to check all safety parameters before shutting down the platform. If the response team received a second alarm the platform was shutdown immediately. A variety of delays and costs would then be incurred, including flying engineers to the platform and many hours with the platform out of operation.

A typical shutdown would take around 12 hours and cost millions of pounds in lost production.

The new system would need to increase the grace period following an alarm by providing the operators with vision from all areas of the platforms allowing a much more comprehensive evaluation of any alarm incident and hopefully avoiding platform shutdowns.



*Safety
Continuity of Operations
Compliance and Governance
Control and Supervision
Cost Reductions*

Critical Elements

- The system had to be built on the existing Control Network using TCP/IP connectivity. Both Video and Data for monitoring and control of system cameras needed to be communicated over TCP/IP.
- Video needed to be recorded on a central server, which is connected to the cameras via the network infrastructure 100 miles away.
- The server had to be capable of archiving video data for at least one week.
- The server needed to be able to export data to CD or DVD.
- All cameras - and therefore recordings - had to be colour and intrinsically safe.
- Date and time of recordings had to be saved with, or on the recordings.
- The system needed to enable copying of recordings to allow them to be used as evidence following an incident.



Solution supplied:

- Titan Vision PSIM System including application server and client stations.
- Interface to Honeywell SCAN 3000 system.
- PTZ and Static cameras specified inclusive of lens, housings, wash wipe facilities, enclosures, telemetry equipment, and termination boxes.
- CCTV termination distribution box, for termination of field cabling and twisted pair to coaxial converters.
- IP Encoders for connection of cameras to network.
- Cabling, switching and power supplies.
- Installation, integration and configuration.
- Staff training.

How does it work?

The cameras are HD 1/2" day/night JVC's installed in ATEX approved Exd explosion proof housings giving excellent images in all lighting conditions. As the platform is unmanned it was decided to house the control server and network video recorder in the head office frame room on the mainland and transmit all camera images over the wide area network via compression codecs. Due to bandwidth restrictions the streams were capped at 750kbps for the PTZs and 256kbps for the fixed cameras.

Using Titan compression codecs these figures easily allow real time images at a good resolution offering an accurate view of conditions and incidents on the rig. The main viewing stations are based further along the pipeline WAN where the operator has full view and control of the cameras.

The CCTV server is linked to the platform's modbus serial alarm interface and responds to any given alarm condition by automatically moving cameras to the alarmed area and displaying the 4 most critical images on the operator's PC

This automation vastly reduces the time taken to evaluate the alarm condition, assisting with the decision to override the platform shutdown routine.

Results

This Titan Vision system has been in operation for 9 years, during which time it has given the operator the confidence to avert numerous potential shutdowns and hence save many millions of pounds in lost production. Following the success of this new system on the unmanned platform, a decision was taken to upgrade the 4 existing pumping station CCTV systems on the mainland in line with the new specification in order to give the operators full view of all sites along the pipeline. Again, limited bandwidth of 128kbps has restricted the image quality, but making the system automatically respond to alarms has removed the need for operators to physically move the cameras and delivers sufficient image quality to allow an informed judgment on the response required for each alarm.