

PROTECTION OF VALVE CHAMBERS FOR THE QINGNING GAS PIPELINE UTILISING ZONESENTRY PERIMETER INTRUSION DETECTION



The Scenario

Our client had multiple valve chambers along a 531Km pipeline running through 2 provinces, 7 prefectures and 15 counties and districts in Shandong Province. The valve chambers are situated in remote locations that the client wished to protect from potential intrusions that could cause vandalism, theft, or business interruptions. Each location was enclosed by a perimeter fence of around 200 metres and an entry /exit gate. A reliable and responsive solution was required.

The Solution

Bandweaver proposed our ZoneSentry optical fiber-based perimeter intrusion detection controller with 20 units to be deployed across our clients' various locations.

Each site would be split into 5 separate zones, one zone for each elevation North, South, East, and West, plus the entry/exit gate so that the system can report the location of intrusion.

This is in addition to the 12 Bandweaver COTDR FenceSentry controllers that were proposed to protect the larger sites i.e., sites above 600m.

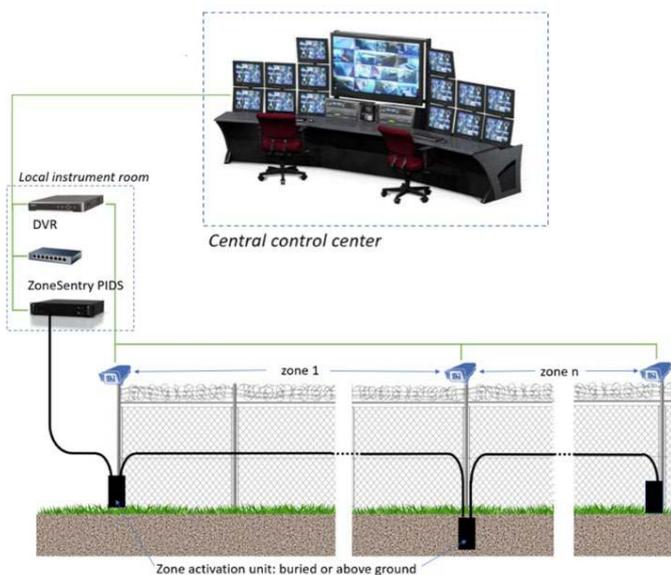
ZoneSentry

A fiber optic cable was to be installed onto the fence line in a straight-line configuration and used to detect unauthorised access by intruders climbing, cutting, or lifting the fence. With the ZoneSentry controller located in a secure cabinet at the nearest gas station. The ZoneSentry controller benefits from up to 10km lead in cable, which ensures flexibility of the control equipment location.

One of the key benefits of deploying ZoneSentry to protect remote oil and gas infrastructure is the ability to program each individual zone to ensure the highest probability of detection whilst avoiding time-wasting nuisance alarms. The system can be set differently for multiple alarm thresholds for each zone according to the actual environment, so that they are not affected by factors such as ambient temperature, humidity, vibration sources near the perimeter area, etc.

ZoneSentry has inbuilt self-test functions, including self-test of broken fiber, self-test of anti-zone failure, self-test of communication interruption, self-test of equipment failure amongst other functions. In addition, ZoneSentry provides automatic arming/disarming for a certain period of time through software configuration.

The system communicates via a TCP/IP connection to central monitoring station deploying Bandweaver's market leading MaxView integrated viewing platform.



MaxView graphical user interface displays an overview of all the remote site locations, and the dynamic real-time graphic displays any intrusion information, etc., and can arm, disarm, and set alarm strategies for each remote zone.



Benefits to the Client

Deploying a Bandweaver ZoneSentry fiber optic-based perimeter intrusion detection system offers the following benefits and advantages to the end user:

- **Early detection of an intruder:** Triggering a remote alarm before the intruder has entered the secure premises.
- **Complete Coverage of the perimeter:** The entire fence line is protected without any blind spots as would be the case with alternative technologies, due to the distributed nature of the fiber optic system.
- **Zonal reporting:** The relevant zone triggered is relayed to the control room, ensuring an appropriate response.
- **Low Cost of Ownership:** Fiber optic cables are completely passive and have no moving parts, they are non-corrosive and immune to electromagnetic interference and typically have lifetimes in excess of 30 years and so carry a very low cost of ownership and no maintenance
- **Intrinsically safe:** The optical power within the sensing cable is too low to be able to cause ignition and so is fully certified and suitable for use in hazardous areas where explosion or combustion of materials is a real risk.

About Bandweaver Technologies

With an installed base of over 60,000km and 7,500 systems installed worldwide, Bandweaver's vision is to be the first choice for integrated distributed fiber optic sensing solutions across the globe. Since 2002, Bandweaver has been committed to delivering reliable, innovative, client-centric and value-added products and services, via a dedicated and talented team of people.

Bandweaver manufactures and distributes advanced fiber optic monitoring sensors and integrated technologies, enabling customers to monitor, secure and keep personnel and critical assets safe.

With quality and excellence as fundamental elements of Bandweaver's portfolio, the business is continuously developing its range of technologies, including Distributed Temperature Sensors (DTS), Distributed Acoustic Sensors (DAS) and integrated smart intelligent software solutions.

Utilising the latest technologies, Bandweaver provides solutions for Security, Fire, Power and Pipelines. For further information please contact our global team at info@bandweaver.com

