

Use Case Paper

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“SOPHISTICATED SOLUTIONS OVER CRUDE”

Intrusion Detection and Targeted Surveillance for Crude Oil Pumping Stations



1450 West 105 North – Orem, Utah

www.thermalradar.com

USE CASE PAPER – CRUDE OIL PUMPING STATION

Pumping stations play a vital role in moving crude oil through an oil pipeline system. In general, crude oil pumping stations contain one or more electrically driven pumping units and they are strategically located to boost internal pipeline pressure and flow within safe operating limits. These pumping stations are typically less than 10 acres in size and have chain link fencing around the perimeter. Perimeter security is essential in protecting the infrastructure and pipeline operations.

A pipeline company evaluated a variety of technologies to enhance the perimeter security of a key pumping station including the proposed installation of fiberoptic fence detection, motion sensors, microwave sensors and fixed thermal cameras. The company was looking for detection and automated surveillance based on detections. After considerable analysis, the Thermal Radar Hydra which combines 360° continuous thermal detection with targeted surveillance of 360° day/night PTZ was chosen as the perimeter security solution. A single Hydra was able to provide comprehensive intrusion detection coverage to the entire property without substantial infrastructure changes on the property. The Thermal Radar Hydra integrates seamlessly with the Genetec VMS platform and allows the pipeline security agents to monitor each pumping station for intrusion detection alarms followed with target confirmation and surveillance of the property all from a single piece of hardware.



Object 1: Mounted Thermal Radar Hydra using an Axis Q6155-E PTZ on a 15 ft pole.

With any type of security technology installation there are project challenges. One of the project challenges consisted of ensuring that the Thermal Radar mounting was secure and strong. Thermal analytics require a stable background image in order to extract objects that are moving in the foreground for detection. If the Thermal Radar Hydra was mounted on a pole that had significant movement or instability, then detections are far less effective because the background imagery is continually having to be reset due to the instability of the pole.

Another challenge for this install was that the commissioning of the Thermal Radar unit was done during the winter with snow on the ground. Snow provides an excellent background as it is consistently cold thus making warmer objects stand out significantly. As the snow melted, the ground warmed thus requiring that the analytic settings be adjusted to work better with summertime conditions where the ground is consistently warmer.



Object 2: Coverage area of the Thermal Radar Hydra – 175m radius.

The project was very successful, and the customer has been very satisfied with the exceptional coverage of the Thermal Radar Hydra providing increased situational awareness and actionable intelligence. Perimeters are under attack daily from those that seek to do harm. One of the greatest risks that a commercial or industrial entity might face is from unknown perimeter incursions that threaten safety, security and peace of mind. It may not be clear how or when the enemy will be at the gates, but the risks are real and the earlier you detect a threat, the earlier you stop it.

Due to the overwhelming success of Thermal Radar's initial deployment the end user has since requested for their integrator to begin scaling the Hydra solution to the rest of their most critical pumping stations. Providing remarkable 360° detection coverage at a price that was nearly 50% less than a traditional security design the integrator was able to secure a long-term upgrade initiative while the end user maximized their budget and shortened their refresh cycle. A win/win for advanced perimeter intrusion detection deployments.

Thermal Radar, a mission critical and operationally relevant solution for wide area intrusion detection. Thermal Radar provides real-time, continuous 360° situational awareness of any physical incursion that may threaten your perimeter. Thermal Radar employs a FLIR Tau2 thermal sensor and continuously rotates the sensor so that a full 360° detection area can be viewed in real time. Thermal Radar can be a low power, standalone detection outpost or the centerpiece of your integrated physical security strategy.