Fire Detection in Waste Management Plants

Accurate up to 9 km, the system is able to discern and identify up to six fire sources in a scene, while avoiding false alarms from hot spots.

Nico Declercq, Chief Technical Officer, A&E Security N.V.

Waste Management Plant, Ghent, Belgium

SCENARIO

Outbreaks of fire in waste management plants is an ongoing concern, given stringent environmental regulations governing the emission levels generated by waste incineration.While there are a variety of security solutions available, they all have their drawbacks. CCTV cameras generally provide little advantage after hours, while on-site security guards are costly and can only guard one area at a time, leaving many opportunities for unseen intrusions. Guard dogs may be useful but present a liability. The solution lies in the ability to see illegal activities carried out under the cover of darkness.

Environmental concerns have led to stringent legislation governing waste management. The EU's approach is based on three principles: waste prevention, recycling and reuse, and improving on final disposal and monitoring. Waste that cannot be recycled or reused must be safely incinerated, with landfill only used as a last resort. The IVM waste management plant near Ghent, Belgium handles local household waste. The waste is stored in a gigantic trough (bunker) before it is lifted to the ovens using cranes. It's at this stage that fires can break out, caused by the interaction of various combustible materials — polluting the environment and impacting the health of the local population.

IVM needed a fire detection solution to provide timely alerts of potential outbreaks. "With tough limits on emission levels from incinerators and strict ongoing monitoring, it's imperative to prevent fires which can result in fines or even plant closure," noted Nico Declercq, Chief Technical Officer for A&E Security N.V., the company supplying the fire detection system to IVM.

Kurt De Kesel
Head Technical Department, I.V.M. Eeklo

The Sii AT provides full bunker coverage and accurate real-time alerts, allowing the plant operators to act quickly to prevent smoldering hot spots developing into full blown fires.

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SOLUTION

IVM sought a cost-effective solution, which utilized the minimum number of cameras while offering the greatest amount of coverage. Many other solutions may result in multiple false alarms, require external servers and software, and offer a narrow field of view. Based on the site parameters, Opgal and A&E Security N.V. decided on the **Sii AT fire detection camera** with wide angle field of view lens.

Embedded with fire detection and fire risk assessment software, the camera detects and clearly visualizes developing hot spots which could result in spontaneous combustion and fire. It measures the temperature and alerts when it exceeds a preset threshold. There are three different types of alarms: siren activation (signal from dry contact activates a siren), via communication (system logs the x,y location of the threat and sends it to PCs or mobile devices) and onscreen (graphical display which pinpoints the hot spot).

SUCCESS

"The results have met our expectations," said Kurt De Kesel, Head Technical Department, IVM. "The Sii AT provides full bunker coverage and accurate real-time alerts, allowing the plant operators to act quickly to prevent smoldering hot spots developing into full blown fires," he said.

Opgal's **Active Fire Detection Algorithm** identifies active fires, while the **High Risk of Fire Detection Algorithm** detects when a fire is about to occur. "Accurate up to 9km, the system is able to discern and identify up to six fire sources in a scene, while avoiding false alarms from hot spots. These versatile systems can provide both safety and security of equipment and personnel, enabling the prevention or containment of fires with minimal or no damage to facilities," concluded Nico Declercq.

Sii AT FD Key Features

Fire / Hot-Spot Detection
Detects fires and hot spots without smoke, from a few meters up to 6km, day or night.

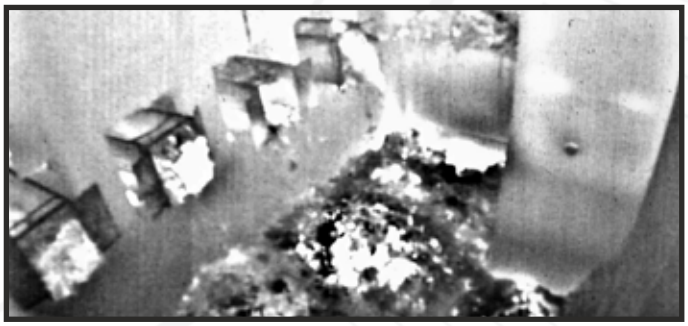
Proprietary FD Algorithm
Flame behavior analysis for accurate identification and zero false alarms.

Mulitple Lens Options
A wide range of lens options to ensure effective coverage for all projects.

Multiple Alarm Types
Visual, Serial, TCP/IP, ONVIF and Contact Closure alarms signal an alarm state.

Versatility
Can be used simultaneously for fire detection or prevention, security, and equipment monitoring.

Rugged Design
Ruggedly designed to withstand the harshest environmental conditions.



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