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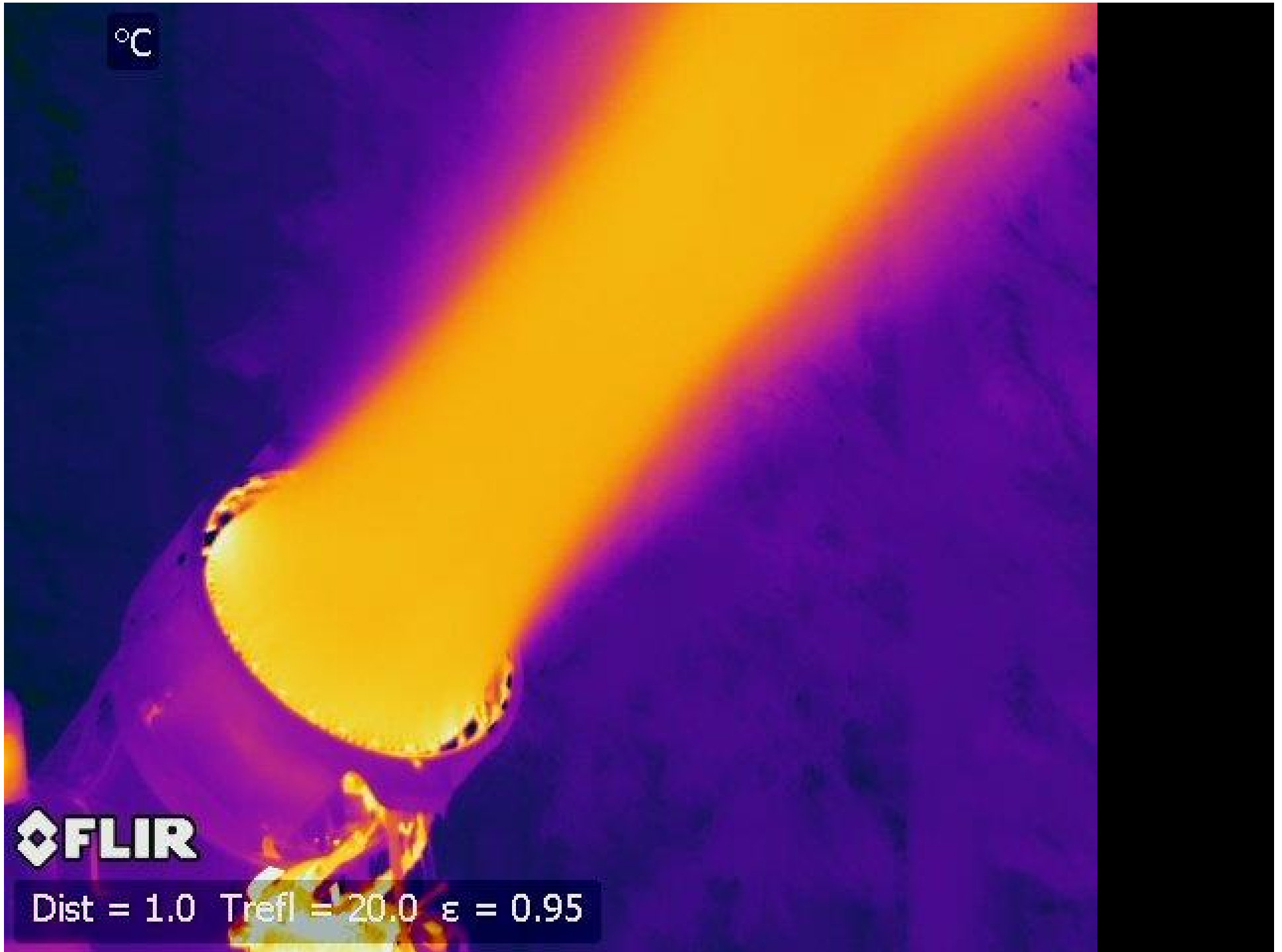
sales@thermascan.co.uk



°C

 **FLIR**

Dist = 1.0 Trefl = 20.0 $\epsilon = 0.95$





Detect the Fire in Time!



Fires in Waste and Biomass - Sweden



Numbers

🔥 Fires / year ca 190 st (290) *

Cost / year

🔥 Total cost of fires: 15-35 million € *

🔥 In average every fire cost 55,000 € *

🔥 Burnt or damaged material: 6,500-7,500 ton*

Environmental

🔥 Emissions of dioxins from fires in waste storage can exceed the total emissions from all waste incineration plants in the country up to a factor of 10. **

“ SP – storage of biomass and waste – statistics and experiences from incidents and fires.

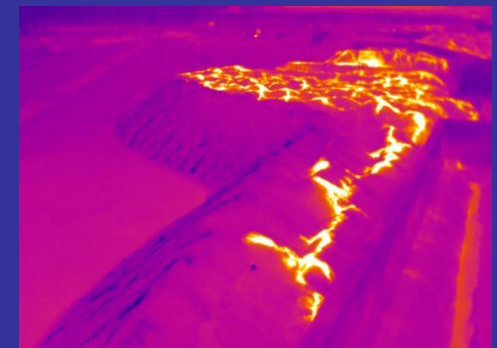
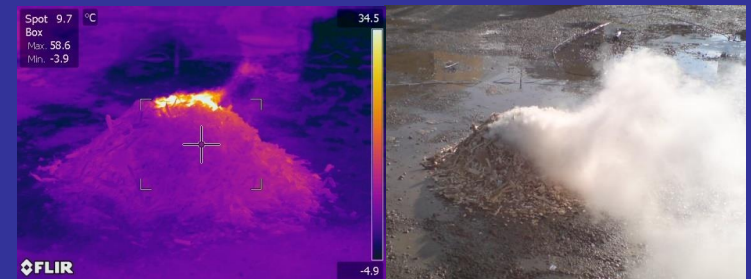
“ ** MSB – Effects of social security (ESS)



Benefits of Using Thermal Cameras



- “ Early fire detection.
- “ No flame is needed.
- “ No smoke is needed.
- “ No need for large heated area.
- “ Temperature trending in the material is continuously monitored.



Fuel Storage



“ Temperature monitoring allows us to take action before a fire occurs and it also helps us to build up a knowledge base so we can optimise our fuel management best”

Olle Ankarling, Söderenergi



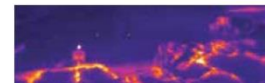
APPLICATION STORY

Just like with many other organic materials, storing wood materials in large quantities and for a long duration always carries the risk of spontaneous combustion and fires.

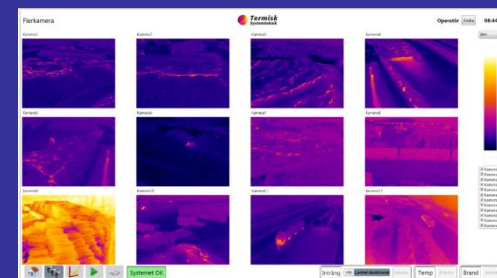
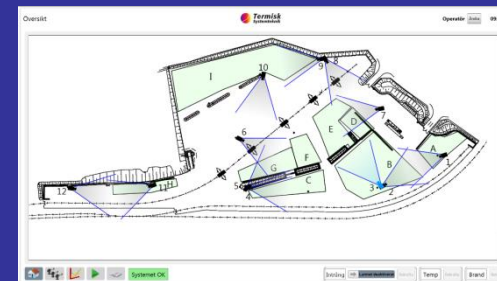


FLIR CAMERAS HELP PROTECT BIOFUEL SUPPLY FOR STOCKHOLM AREA

FLIR A615 thermal imaging cameras monitor large wood piles for spontaneous combustion.



The FLIR A615 is a compact and affordable thermal imaging camera producing crisp thermal images of 640 x 480 pixels.





Biofuel storage

Storage of other
bulk material

Waste storage

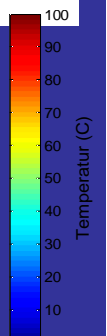
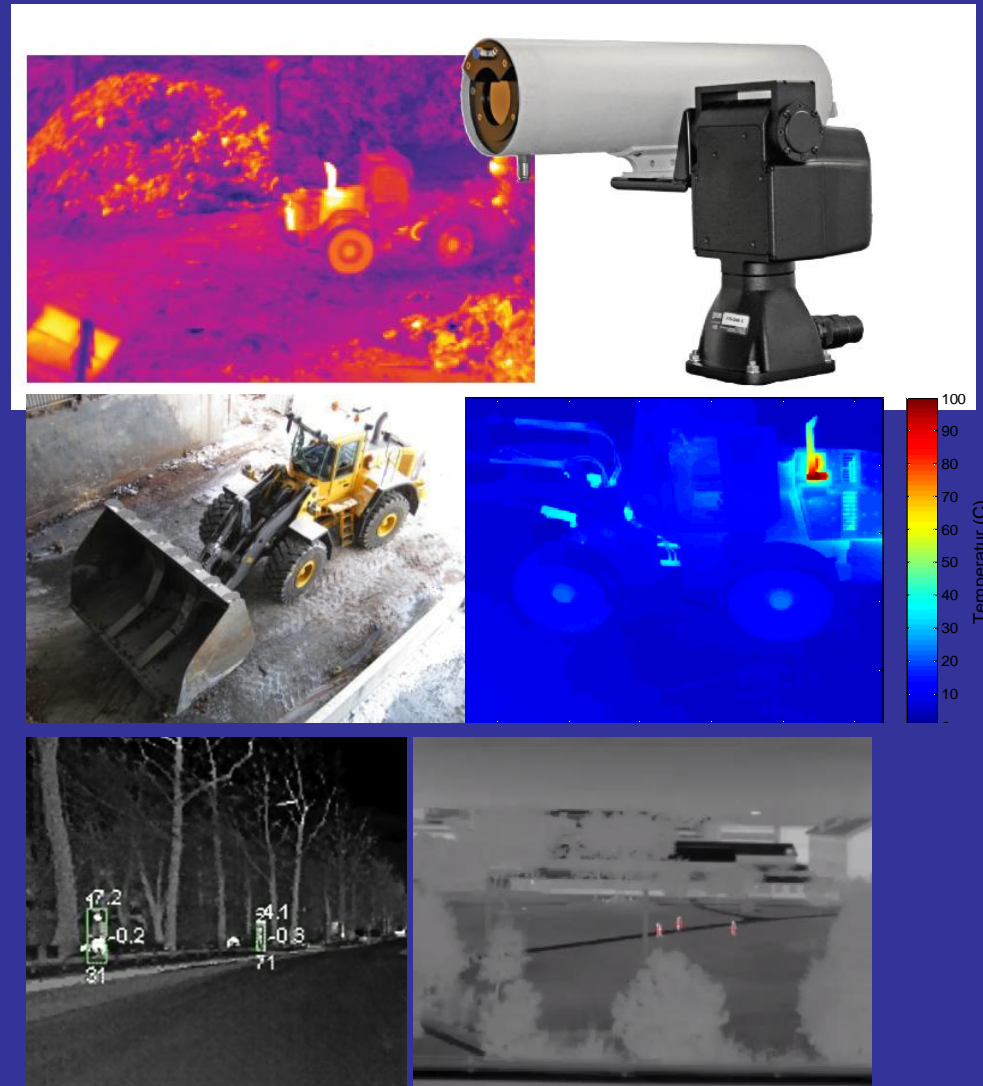
Waste bunker

Outdoor – False Alarms



Advanced image analysis:

- “ Detect and filter out vehicles
- “ Detect and filter out persons
- “ Solar glint reduction
- “ Weather conditions



Camera Units



Water Cannons



Software Features



- “ Two types of monitoring, Fire and Temperature
- “ Compensation for exposed area from different camera FOVs
- “ Intrusion detection and prevention (optional)
- “ Steering and control of water cannons (optional)
- “ I/O control
- “ Email
- “ SMS (optional)
- “ Support for Weather station
- “ Adaptable alarms, compensation for atmosphere

Benefits



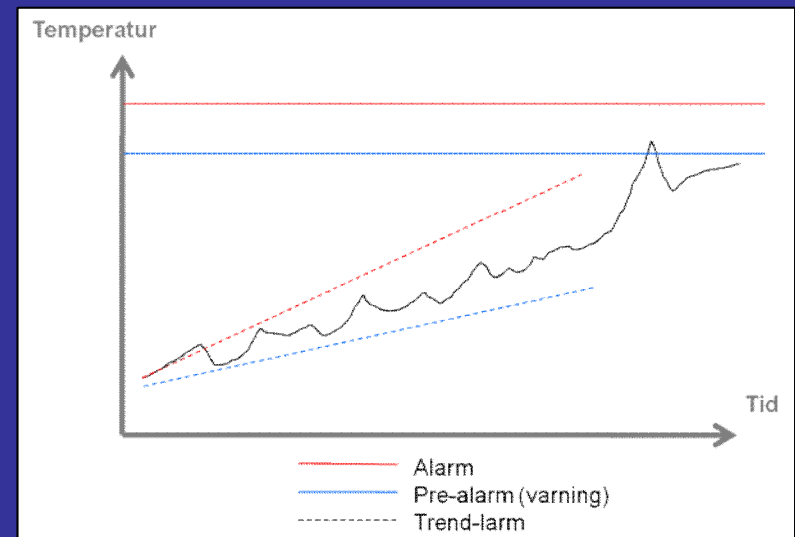
- “ Easy set-up and configuration
- “ Flexible. Indoor-Outdoor
- “ Dedicated for all FLIR A-series GigE cameras.
- “ No limits in number of cameras
- “ 24/7/365 operational.
- “ False alarm reduction
- “ Self watching the status and the modules, could send a report if anything is wrong. Also if an UPS is used
- “ Unlimited AOI's and individual thresholds
- “ Unlimited zones

Alarms



Two types of alarms:

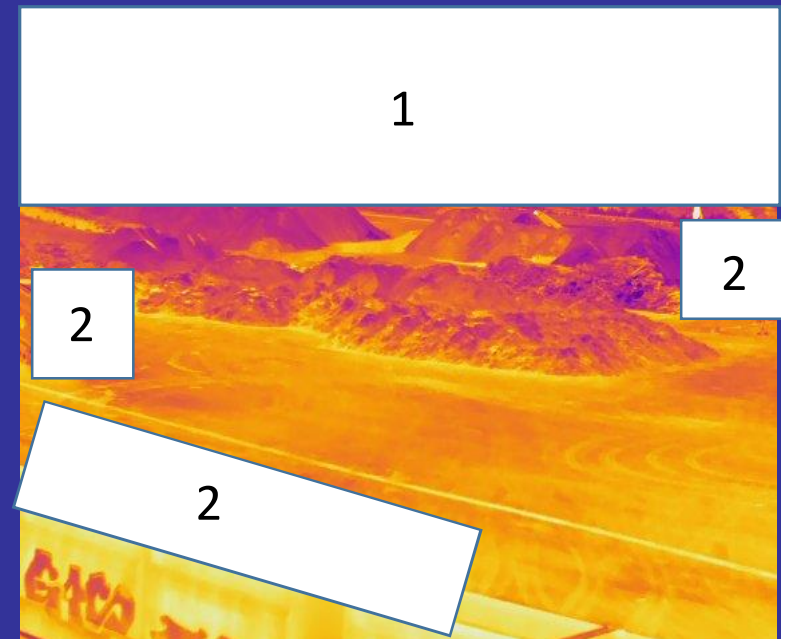
- “ **Fire Alarm** - constantly monitors an entire storage area to detect fires at an early stage.
- “ **Temperature Alarm** - monitors the temperature of the fuel piles specifically to find long-term temperature increases.



Alarm



- “ Each image is analyzed with regard to Fire or Temperature level due to the configured criteria
- “ Exceptions:
 - “ Parts of the image that is not inside the AOI (1)
 - “ Parts of the image where there are machines or people, (Tracking module) (2)

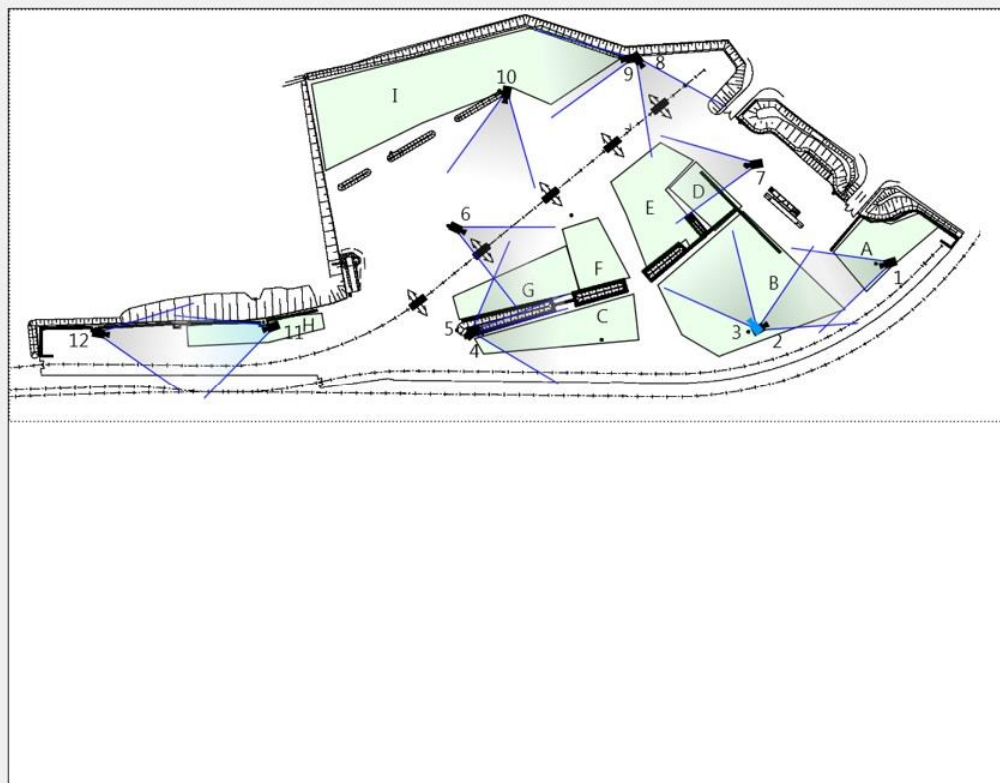


Main View

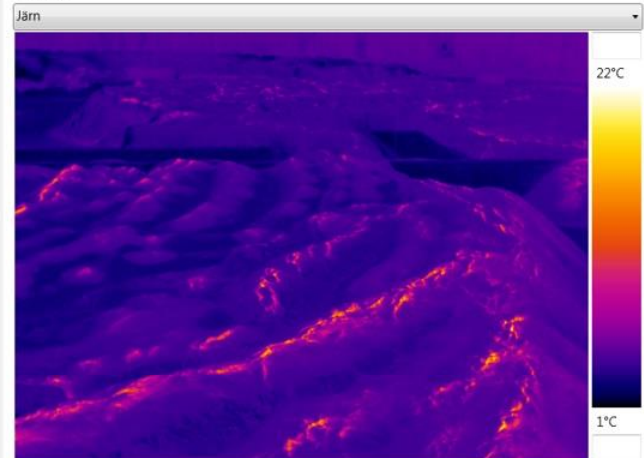


Översikt

Operatör 08:41:40



Kamera3



Systemet OK

Intrång Temp Brand

Multi Camera View



Flerkamera

Operatör 08:44:28

Kamera1 Kamera2 Kamera3 Kamera4

Kamera5 Kamera6 Kamera7 Kamera8

Kamera9 Kamera10 Kamera11 Kamera12

Järn

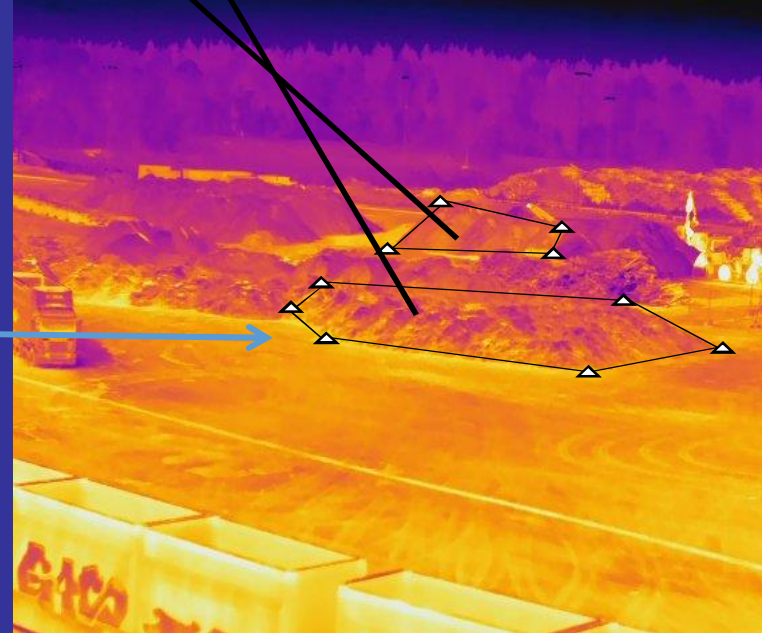
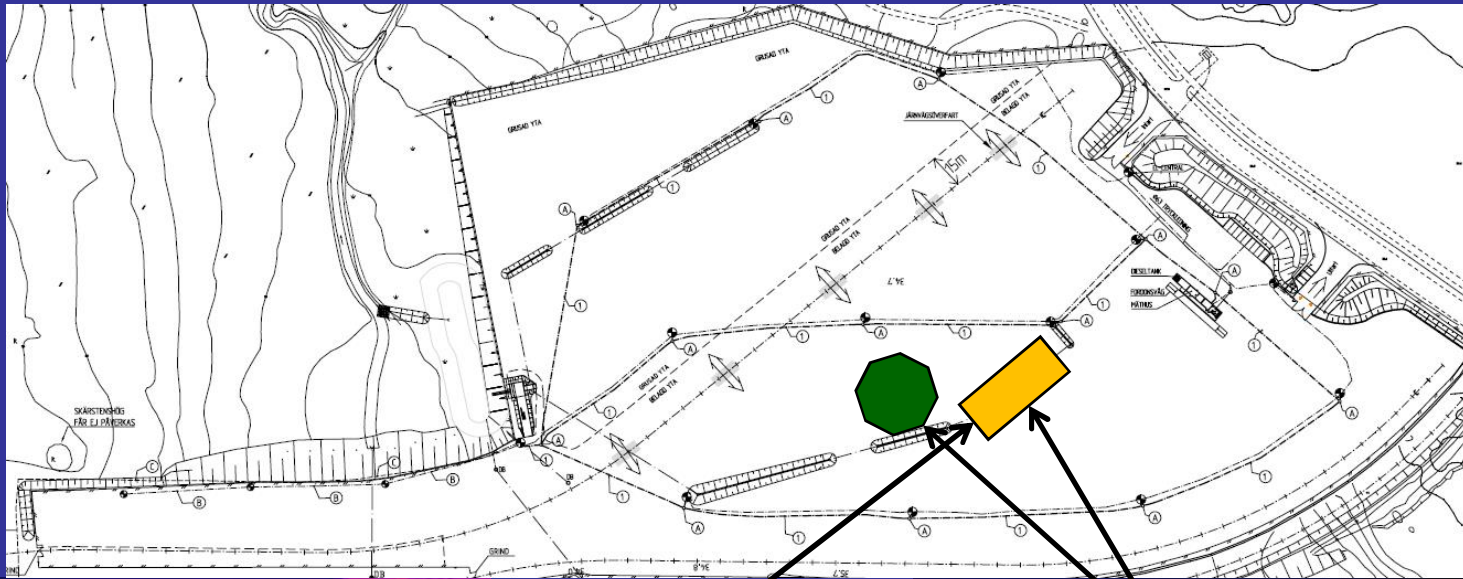
- Kamera1
- Kamera2
- Kamera3
- Kamera4
- Kamera5
- Kamera6
- Kamera7
- Kamera8
- Kamera9
- Kamera10
- Kamera11
- Kamera12

Systemet OK

Intrång Larmet deaktiverat Rikta Temp Rikta Brand Rikta

The interface displays 12 thermal camera feeds arranged in a 3x4 grid. The top-left feed (Kamera1) shows a close-up of a textured surface with some heat signatures. The bottom-left feed (Kamera9) shows a large, bright yellow and orange area, likely a fire or a very hot object. The other feeds show various views of industrial or outdoor environments with scattered heat signatures. On the right side, there is a vertical color scale legend ranging from dark blue (low temperature) to bright yellow (high temperature). Below the legend is a list of camera checkboxes, all of which are checked. At the bottom, there are several control buttons: 'Systemet OK' (green), 'Intrång' (grey), 'Larmet deaktiverat' (grey), 'Rikta' (grey), 'Temp' (grey), 'Rikta' (grey), 'Brand' (grey), and 'Rikta' (grey). There are also some small icons on the left side of the bottom bar.

Temperature Monitoring - AOI and Zones



Zones

AOI's

Zones



Zoner Area of interest

The diagram shows a floor plan of a building with several rooms labeled A through I. A dashed line with arrows indicates a path or boundary. The control panel on the right includes the following elements:

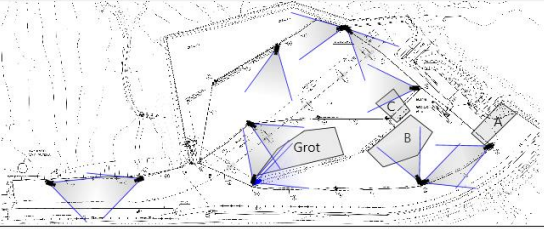
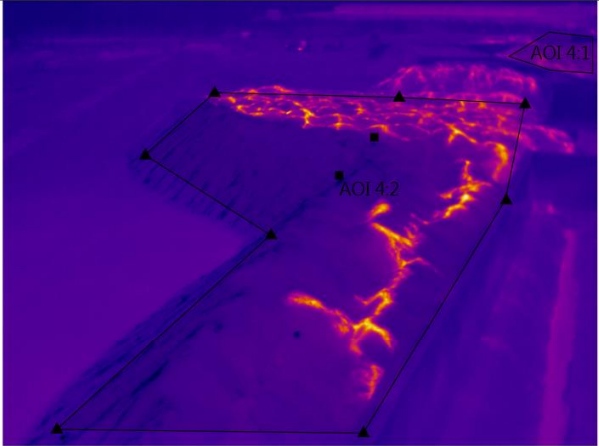
- Buttons: Radera zon, Ny zon
- Dropdown menu: B
- Text input: Namn (B)
- Text input: Beskrivning
- Text input: Spån
- Text input: Larmtemperaturer (Flis: 80°C, 100°C)
- Text input: Area of interest (AOI zon B, AOI zon B, AOI zon B, AOI zon B, AOI zon B)
- Button: Spara

AOI



FireOutdoor Service Change user mode 11:16:19

Zones Area Of Interest



Camera4
Palette Iron
Delete AOI New AOI
AOI 4:2
AOI Type Fire
Name AOI 4:2
Zones
Save

Systemet OK Automatic Acknowledge Firealarm

11:16 2015-03-30

The screenshot shows the FireOutdoor software interface. The main window displays a thermal camera feed with two Areas of Interest (AOI) marked: AOI 4:1 (a small triangle) and AOI 4:2 (a large polygon). Below the thermal view is a floor plan diagram with corresponding AOI markers. The right sidebar contains configuration options for the selected AOI, including camera selection, palette, and name. The bottom status bar shows system health (Systemet OK), mode (Automatic), and an Acknowledge Firealarm button. The Windows taskbar at the bottom indicates the time is 11:16 on 2015-03-30.