
com sur™
the missing piece of CCTV
THE FOOTAGE WHISPERER
"SEE WHAT THE CAMERA SAW"
100+ TOPICS - AIRPORTS TO ZOOS

UTILITY VALUE OF COM-SUR™ FOR NUCLEAR PLANTS

WELCOME

AUDIT HOURS OF FOOTAGE IN MINUTES FIND OUT HOW COM-SUR WILL HELP

CCTV and other forms of video surveillance are common in nuclear plants world over, but footage is often only reviewed reactively. Our company realized this problem early-on and has developed the world's only CCTV video footage auditing software that encourages daily auditing (hours in minutes) of CCTV footage, filling the gap for a complete "workflow". The software works with existing cameras and VMS, regardless of type/brand, and provides a standardized approach for intelligent incident reporting. Our software also offers exceptional investigative capabilities.

'COM-SUR' – THE WORLD'S ONLY CCTV/ SURVEILLANCE VIDEO FOOTAGE AUDITING, SMART BACKUP, AND STANDARDIZED INTELLIGENT INCIDENT REPORTING SOFTWARE – THE MISSING PIECE OF CCTV/ SURVEILLANCE VIDEO

COM-SUR is the world's only CCTV/ surveillance video footage auditing, smart backup, and standardized intelligent incident reporting software that serves as a complete workflow and force multiplier. It helps audit 24 hours of footage in minutes, reduces data size, creates standardized intelligent reports, and delivers business intelligence. COM-SUR helps unlock hidden information in CCTV/ surveillance video footage and enables people to gain actionable intelligence, improve homeland security, prevent crime and losses, identify and mitigate threats and hazards, and improve operational efficiency. It empowers people to gain new jobs as CCTV/surveillance video footage auditors and start new businesses of auditing video footage. Like MS Office, COM-SUR is an enabler that makes it easy to work with CCTV and other surveillance cameras in a standardized way, leading to better decision-making. It also offers exceptional investigative capabilities.

HOW COM-SUR SMARTLY REDUCES 'VIDEO' STORAGE SIZE

COM-SUR employs an innovative approach to smartly reduce the amount of video to be audited and consequently the storage size of videos. Regardless of the video's frame rate, COM-SUR captures a single screenshot of the consolidated 'moment' of 'that' one second, when the I, P, and B frames come together. This method significantly reduces data size without sacrificing vital information. It goes without saying that when multiple cameras are displayed in a grid view, say 4x4, the storage size is further reduced since all the cameras are captured as a single image. Since no suggestion is being made to replace the actual video with screenshots, COM-SUR acts as a wonderful supportive technology both to audit (review) just 86400 frames representing 24 hours and reducing the data size at the same time.

CHALLENGES FACED BY NUCLEAR PLANTS

1. Sabotage or Terrorism:

Nuclear plants are potential targets for sabotage or terrorist attacks due to the critical nature of their operations. Attacks may aim to disrupt operations, cause radiation releases, or damage critical infrastructure. Perpetrators often conduct pre-operational surveillance of the target area, making it important to detect suspicious activity during this phase to prevent an incident.

2. Radiation leaks and safety incidents:

Nuclear plants face the constant challenge of preventing radiation leaks and ensuring the safety of personnel and the surrounding environment.

3. Unauthorized Access:

Preventing unauthorized access is a significant challenge for nuclear plants. Intruders may attempt to gain access to sensitive areas or facilities, leading to potential sabotage, theft of nuclear materials, or intentional damage.

4. Emergency Preparedness:

Nuclear plants must be well-prepared to respond to emergencies, including natural disasters, accidents, or security incidents.

5. Radiological and Nuclear Material Security:

Nuclear plants need to have stringent safeguards to prevent the theft, diversion, or unauthorized handling of radiological or nuclear materials. In this context, the physical protection of fuel storage areas, transport routes, and spent fuel pools is critical.

6. Insider threats:

Nuclear plants have to deal with insider threats from disgruntled employees or even unwitting staff who fail to follow proper security and safety measures.

7. Humongous growth of surveillance video:

The exponential growth of surveillance cameras has resulted in an unprecedented surge in surveillance video. Effectively managing this data has become a daunting challenge due to the massive storage capacity required, especially considering the prolonged retention periods necessary for security, incident investigation, or legal purposes. Furthermore, the prevalence of high-resolution video with increasing megapixels compounds the storage demands, making efficient data management an urgent priority for

organizations grappling with the immense volume of surveillance footage.

COVID-19 PANDEMIC

The pandemic severely impacted the operations of nuclear plants worldwide. Owing to restrictions/lockdowns, there was a disruption in the supply chain which led to delays in the delivery of equipment and materials required by nuclear plants. Nuclear plants often conduct scheduled maintenance and refuelling outages to ensure the safe and reliable operation of their reactors. Due to the pandemic, some plants had to modify or delay their outage schedules. Guidelines were issued to prevent the spread of COVID-19, but outbreaks still occurred.

USE OF VIDEO SURVEILLANCE AT NUCLEAR PLANTS

Most nuclear plants have video surveillance covering the following areas:

- Entry and exit points
- Control rooms and sensitive areas
- Reactor buildings
- Fuel storage areas
- Auxiliary buildings and support areas
- Perimeter and access points

Further, the concerned stakeholders at nuclear plants generally need to review and analyse recorded CCTV video footage from time to time for investigating incidents and/or accidents, and other issues in order to corroborate evidence as well as assist Police/other Law Enforcement Agencies.

USE OF THERMAL CAMERAS

Thermal cameras are commonly used at nuclear plants due to their ability to detect and visualize heat signatures. Here are some specific applications of thermal cameras in nuclear plants:

1. Equipment Monitoring:

Thermal cameras are utilized to monitor the temperature of critical equipment and components. By detecting abnormal temperature patterns, these cameras can help identify potential equipment malfunctions, overheating, or anomalies that may indicate impending failures. This enables proactive maintenance and minimizes the risk of equipment breakdowns.

2. Leak Detection:

Thermal cameras assist in the detection of leaks in pipes, valves, and other systems. By visualizing temperature differences caused by fluid leaks, thermal cameras help identify potential areas of concern and facilitate timely repairs, reducing the risk of fluid loss, contamination, or safety hazards.

3. Fire Detection:

Thermal cameras can quickly identify abnormal heat signatures associated with fires or smoldering conditions, even in areas with limited visibility, thereby enabling rapid response and helping mitigate potential fire-related risks.

4. Perimeter Security:

Thermal cameras are often employed in perimeter surveillance systems to enhance security at nuclear plants. By detecting human or animal body heat signatures, these cameras can help identify intrusions or unauthorized access attempts, even in low-light conditions.

5. Radiation Monitoring:

In certain cases, thermal cameras can be combined with radiation detection sensors to provide an integrated monitoring solution. These cameras can help visualize radiation hotspots or anomalies, assisting in identifying potential sources of radiation leaks or contamination.

USING DRONES FOR REMOTE VISUAL INSPECTION

Drones are increasingly being used for remote visual inspection at nuclear plants, providing several advantages such as accessing areas that are difficult to reach, capturing high-resolution imagery, and reducing risks to personnel. They are employed to inspect exterior structures, cooling systems, elevated structures, and towers within the plant. Drones equipped with radiation sensors can also map and monitor radiation levels. In emergency situations, drones aid in incident response and investigation by providing real-time situational awareness.

LIVE MONITORING – CHALLENGES

Several nuclear plants have a dedicated control room with operators, set up for live monitoring of CCTV cameras. However, live monitoring comes with its own set of challenges of video blindness, poor attention span, boredom, operator bias, false alerts, and so on.

Moreover, these cameras continuously capture and record humungous amounts of video data. It therefore becomes a daunting task for the operators to review and analyse this data whenever the need arises. Thus, it may be noted that benefits from video surveillance systems can accrue only when they are used optimally, suggestions for which are enumerated further on, in this document.

COMPLIANCE - GENERAL

Conformity or compliance in any organization means adherence to laws and/or rules and regulations, various standards, as well as data storage and security requirements as laid down by government bodies, governing bodies of the respective industry, or the management of the organization. When an organization complies with the requirements mandated by government and/or governing bodies, then it is termed as ‘regulatory compliance’ which enables the organization to run in a legal and safe manner.

COMPLIANCE - AUDITS

Several organizations carry out compliance audits on a regular basis to avoid the potential consequences of non-compliance.
A compliance audit examines how well an organization adheres to compliance requirements. Some organizations use video surveillance to monitor compliance issues and audit recorded CCTV video footage from time to time for investigating and preventing compliance issues. Auditing CCTV provides

actionable insights on the level of compliance within the organization.

AUTOMATED SOFTWARE – WHY THEY WILL NOT WORK IN ISOLATION

In the wake of the Christchurch shooting incident, several high-profile places of worship considered deploying gun detection technology. However, there are concerns about its efficacy, since it may not be able to detect all types of weapons, or the perpetrator could still create damage before being detected. Similarly, automated systems like video analytics, AI/ML can only detect what they have been programmed for. What about the rest? Again, these technologies are prone to triggering huge amounts of false alarms. Also, since the permutation combinations of exceptions can be vast and varied, it becomes almost impossible to automate every kind of exception. Facial recognition technology also raises ethical and privacy concerns, and has been found to produce inaccurate results, especially for certain ethnic groups. Therefore, experts suggest that while automated technologies will continue to grow, human intervention and intelligence will still be necessary to verify alerts and ensure their efficacy.

"CCTV AND OTHER FORMS OF VIDEO SURVEILLANCE ARE NOT ENOUGH – WE MAKE IT WORK FOR YOU"

While it is not being suggested that optimal usage of video surveillance can cure all issues, several issues of the following kind can be addressed by doing just a little 'more' with respect to making the optimal use of video surveillance systems:

- Operational issues

- Recces/suspicious movements/activities

- Insider job/security lapses

- Equipment malfunction/other technical issues

- Violence and vandalism

- Unauthorized/unlawful activities/visitors

- Accidents/Causes of potential accidents

- Potential causes of fires

- Loss/theft

- Intrusions, especially by animals

- Inattentive staff (e.g. guard sleeping)

- Unruly staff/security guards

- Unclaimed/unattended objects

- Health and safety issues

- Issues with female staff

- Cameras/recorder malfunctions

So, what is the 'more' that needs to be done?

1) AUDIT CCTV AND OTHER SURVEILLANCE VIDEO FOOTAGE DAILY AS A STANDARD OPERATING PROCEDURE

'Auditing' means 'seeing' what the cameras 'saw'. Auditing of CCTV and other surveillance video footage should be done daily (continuous

investigation) to identify potential issues and threats. Auditing is a dedicated and systematic process that helps address challenges related to live monitoring and alert-based systems. Auditing helps in evaluating analyzing incidents to improve existing policies, procedures, and processes. Concerned personnel should be trained to become video footage auditors, and the audit teams should be rotated to avoid complacency/collusion. Daily auditing of CCTV and other surveillance video footage can also help in adhering to the principles of Kaizen and TQM for business improvement.

2) DOCUMENT AUDIT FINDINGS/INCIDENTS

Audit findings/incidents should be documented in a standardized template to find the root cause to prevent future recurrences. Historical data of such findings/incidents can reveal patterns that can help take better informed corrective and preventive action. If all nuclear plants report incidents in a standardized template, relevant authorities can derive business intelligence from the data and take action for the collective benefit of all nuclear plants.

3) ENSURE DISASTER RECOVERY OF CCTV AND OTHER SURVEILLANCE VIDEO FOOTAGE – LIKE A 'BLACKBOX'

CCTV and other surveillance video footage must be stored at multiple locations in order to ensure that even if the recorder/storage device is stolen, destroyed or tampered with the data is never lost. Further, any backed-up data must easily be searchable and retrievable; else, it is going to be a nightmare finding the relevant video.

4) DISPLAY DYNAMIC INFORMATION AT RELEVANT PLACES

Document and display details of information that is dynamic in nature in relevant areas. For example:

1. List of authorized daily staff.

2. List of authorized security personnel deployed at the nuclear plant.

3. List of potential suspects/miscreants likely to visit the nuclear plant's premises (a 'Watch out' list).

5) USE A POWERFUL NEW SIGNAGE

"WE AUDIT CCTV VIDEO FOOTAGE EVERYDAY".

One size, one color, one powerful message. Across the nation.

DE-CENTRALIZED SURVEILLANCE + CENTRALIZED SURVEILLANCE = OPTIMAL RESULTS

Organizations with multiple locations struggle with centralized video surveillance due to infrastructure cost, internet bandwidth, and operator limitations. De-centralized surveillance offers higher accountability at each location and better situational awareness, leading to more chances of discovering exceptions.

CONCLUSION

"You see, but you do not observe" is a quote by Sherlock Holmes in A Scandal in Bohemia (1891, written by Sir Arthur Conan Doyle).

COM-SUR makes 'observation' far effortless and effectual leading to superior results.

"Cameras don't lie" - but how will you know unless you 'see' what the cameras 'saw'? Audit video - why suffer!

Get award-winning COM-SUR now.
Don't wait for things to go wrong!