Early Warning System Helps Hungary Avert Further Disaster

When a million cubic metres of toxic red sludge escaped from a storage reservoir at the Ajkai Timfoldgyar alumina plant on 4 October, Hungary faced an ecological catastrophe. A state of emergency was declared as the sludge flooded surrounding areas, affecting 7000 people and threatening to contaminate major watercourses.

As cracks in the northern wall of the reservoir risked compounding the disaster, the National Catastrophe Agency approached Motorola's distribution partner Fercom to install a Public Early Warning System. The criticality of the situation meant the system had to be up and running in the shortest time possible.

Within 48 hours, Fercom set up six sirens connected to ACE3600 Remote Terminal Units (RTUs) based on Motorola's SCADA (Supervisory Control and Data Acquisition) technology, with a TETRA network and MTM800 terminals providing communication between the units – a deployment which would normally take up to four months to complete. The early warning system was installed around the city of Devecser, which was the most threatened in the event of a second spill.

“In an emergency situation such as this, the foremost criteria of a Public Early Warning System are: high availability, ensuring alarms are sent to the right authorities and the ability to notify a large number of people at a moment’s notice,” said László Imre, Fercom’s Sales Director.

“The system also has to provide feedback to the emergency control centre to confirm that messages have been delivered successfully and be able to broadcast live messages as well as pre-recorded ones,” he added.

Fercom’s solution consists of a central unit which is a standard PC that communicates with the RTUs to activate the sirens one-by-one or simultaneously. The RTUs can be monitored and repaired remotely, to ensure the system remains fully operational. Auto-checking tests the system regularly and in the event of a siren failure, the system automatically sends a warning message to the control centre.

A series of messages can be pre-recorded and stored on the RTUs, enabling a particular message to be broadcast according to the nature of the emergency. Live voice messages can also be transmitted, providing the flexibility to adapt in critical situations and send out alarms on the spot.

The volume of data transmitted between the RTUs and the central unit is minimal, lending itself to a two-way radio communications infrastructure. Due to the mission-critical nature of such communications, however, security is vital. To prevent control systems from being subject to abuse or fraud, an embedded end-to-end security solution is required.

“The TETRA IP network provides advanced, over-the-air data encryption, keeping messages secure and preventing interception,” explained Imre. “The fail-safe, robust reliability and enhanced security of TETRA networks makes them the ideal communications infrastructure for Public Early Warning Systems such as the one we’ve deployed for the government of Hungary,” he noted.

Fercom has rolled out several early warning and public alarm systems throughout Hungary, including a solution for the Paks Nuclear Power Plant which has 228 sirens installed around the facility.

“Industrial accidents can occur at any moment. Having a public early warning system in place can help prevent accidents from becoming disasters by enabling rapid evacuation. We have developed a range of indoor and outdoor solutions based on both analogue and digital radio platforms, to trigger alerts and alarms immediately in the event of an incident. The value these solutions can add has resulted in widespread adoption by organisations who operate in hazardous environments and governments looking to enhance public safety,” concluded Imre.

For more information on Fercom’s Public Early Warning and Industrial Security Solutions visit: http://publicearlywarning.com