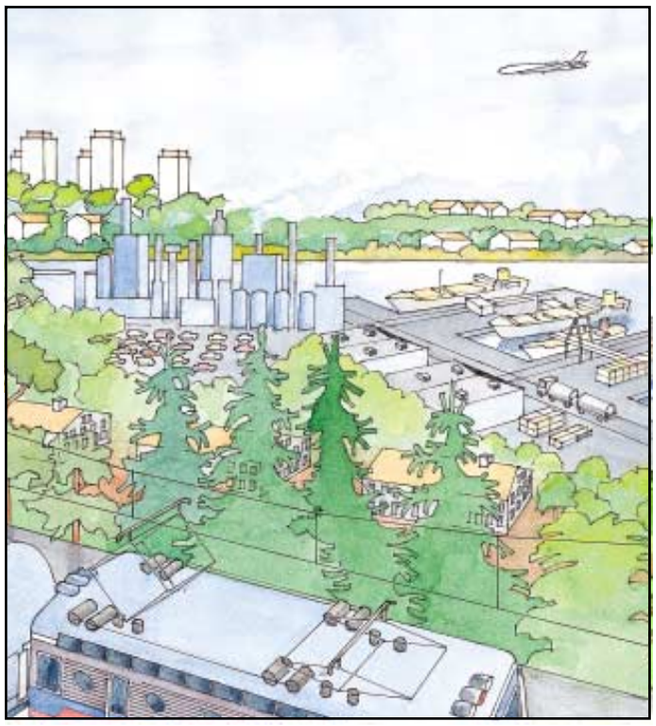
# M95

## *New control system for effective*
# Outdoor warning

The Swedish Rescue Services Agency (Räddningsverket) has developed a completely new control system for the guidance of the sirens that warn the public with the IMPORTANT ANNOUNCEMENT signal in the event of, for instance, a gas leak, large fire or other public hazard. The system, called M95, provides totally new and better conditions, than were available before, for effective outdoor warning, and is gradually being installed in all Swedish municipalities. The M95 replaces the older cable-guided control systems. The M95 will also replace existing equipment in all Swedish nuclear power plants.



The M95 is fully computerised and uses radio signals to control the sirens. From a central PC the rescue command has full control over every individual siren. A map displays the positions of the sirens, and if they are in full working order. In the event of a public hazard the operator can easily activate whatever sirens are required to cover the probable risk area. Besides the transmission of warning signals from the traditional pneumatic sirens, the rescue command can also issue warnings using speech messages, provided there are electro-acoustic sirens in the risk area.

Communication with the sirens via radio and a centrally placed base antenna makes it easy to supply an area with more sirens when required. Mobile sirens can also be guided by the M95.

Communication with those sirens placed in, for instance, the fringe areas of a municipality and therefore not covered by the base antenna is preferably carried out via an intermediate radio link.

As an alternative to a PC the operator also has access to a control panel placed beside the PC. The panel is easy to use thanks to a menu displayed on a screen, and provides the operator with complete control over all sirens, even when a map of the area can't be displayed.

The M95 control system can be installed in such a way that the equipment in one municipality can be controlled by an operator in another organisation, for instance, the emergency services switchboard or the fire & rescue service in a neighbouring municipality which also has the M95 installed. This means that sirens can be activated by another organisation in the event that the sirens' "home" control system is unmanned.

RÄDDNINGS VERKET
Swedish Rescue Services Agency

# Full overview. Complete control. High security. Low running costs.

The main components of a complete M95 system are: a PC with monitor, a control panel, a master control unit, and siren site controllers for each siren. For inspection and calibration of the guidance equipment there is a hand-held service unit.

The master control unit is the heart of the system and is placed on a specific stand, usually alongside other electronic equipment. The stand is shielded against electromagnetic pulses (EMP) that can occur with strokes of lightning. Similar pulses can occur in wartime when nuclear weapons are detonated. The master control unit handles all information to and from the sirens via a built-in radio connected to a base antenna.

Communication with other emergency service organisations, for instance, the emergency services switchboard or the fire & rescue services in other municipalities, is carried out via the normal telephone network. The PC for the master control unit continually updates the condition of every individual siren and handles all commands from the operator.

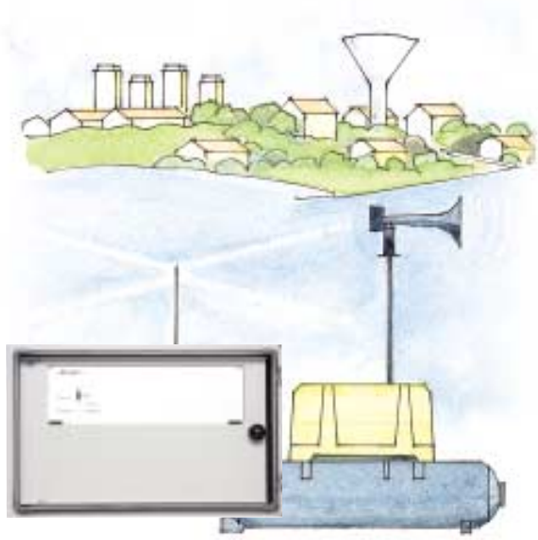
The operator at the PC is in full control of every siren. The map displaying the sirens can be zoomed in and out in several stages. The risk area in question can be encircled for the quick selection of sirens. If there are electro-acoustic sirens in the area the operator can, by voice, inform the public of the incident that has occurred. Usually though, a recorded message is transmitted.

A printer is connected to the PC to print out the reports that the M95 program generates.

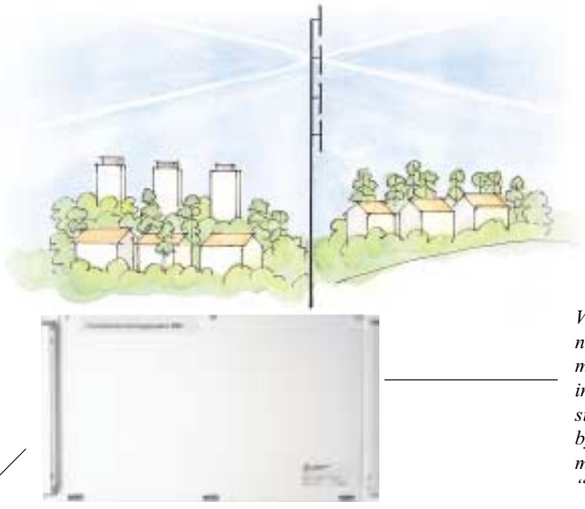
*The maps showing areas with sirens are very detailed and administered by a dedicated program. A green symbol indicates that a siren is in working order; a red symbol indicates that a siren is defective. By clicking on a symbol the operator accesses a list of the points for inspection. The point of inspection that appears in red text states where the fault is. This function simplifies maintenance in that it is not necessary to inspect every siren on scene.*

*The map can be quickly enlarged in several stages. By encircling the risk area in question the appropriate sirens can be chosen and then activated. To indicate what has occurred the operator can enter a symbol for the incident within the risk area on the map, e.g. a fire.*

*Next to the PC, apart from the control panel, there is a microphone that the operator can use to inform the public about what has happened within the risk area in question, always assuming that there are electro-acoustic sirens in that area. Usually though, a recorded message is transmitted. To send a message the operator must, as a last step, turn a switch on the microphone console with a key.*



*In connection with the installation of the M95 every siren is equipped with guidance equipment, which includes a radio for communication with the master control unit. A computer card delivers all commands to the siren and any possible error messages back to the master control unit. In the event of a power failure power is supplied by a battery which can keep the equipment running for up to three weeks. The equipment is mounted in a dedicated cabinet shielded against electromagnetic pulses (EMP).*



*Via a modem and the standard telephone network every M95 system has dual communication with the fire & rescue services in other municipalities. This means that sirens in one municipality can be activated by an authorised operator in another municipality in the event that the sirens' "home" control system is unmanned.*

**EMERGENCY SERVICES SWITCHBOARD**

**FIRE & RESCUE SERVICE IN ANOTHER MUNICIPALITY**

*The master control unit is the heart of the system and is placed on a specific stand, shielded against electromagnetic pulses (EMP), usually alongside other electronic equipment. The master control unit handles all information to and from the sirens and the PC stores all information about the system.*

*Two radio stations connected to an omni-directional aerial handle radio communication with the sirens. The stations operate on frequency band 370 –386 MHz. One station is always on stand-by as a reserve.*

*Communication with the PC and the control panel is via modem and cable.*

*As an alternative to the PC the operator also has access to a control panel. The panel is easy to use thanks to a menu displayed on a screen, and provides the operator with complete control over all sirens, even when a map can't be displayed. To send an alarm the operator must first turn a switch on the panel with a key, this is to prevent unauthorised people from signalling the alarm.*

*The hand-held service unit is used to inspect and set the parameters for the sirens. During this work the unit is connected to the siren site controllers. With the service unit it is also possible to send warning signals and recorded messages from the siren to which it is connected.*

Among its tasks the Swedish Rescue Services Agency works towards ensuring that the communication systems of the municipal fire & rescue services satisfy the demand for effective and safe command. Another important task is to promote increased co-operation with other rescue service organisations during peacetime as well as periods of high alert.

The Command & Control Systems Section of the Command & Technology Department at the Swedish Rescue Services Agency deals with issues relating to systems for command & control, communication, and warning.

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