

WATER AND WASTEWATER SYSTEM USES UNIQUE COMBINATION OF AUTODIALERS AND PROGRAMMABLE CONTROLLERS FOR ALARM REPORTING SYSTEM

The Evesham Municipal Utilities Authority, of Marlton, New Jersey, has combined a network of autodialers, programmable controllers, and remote sensors in an unusual way to come up with a sophisticated, but low cost, alarm reporting capability for remote facilities in their water and wastewater system.

The Evesham system, which is under the direction of J. Robert Flynn, Executive Director, and Rocco J. Maiellano, Operations Manager, consists of their main treatment facility plus 10 remote potable water sites and 18 remote wastewater sites. The wastewater sites are standard lift stations and the potable water facilities include an assortment of wells, booster stations, and elevated storage tanks.

Bill Weisman, of the Essex Service Corporation, Holland, Pennsylvania, served as system integrator for the Evesham alarm monitoring and reporting system, which provides protection for the district when their offices are unattended during nights, weekends, and holidays.

The alarm monitoring and reporting system consists of a RACO Verbatim® Gateway Autodialer and Allen-Bradley SLC-500™ Programmable Controller combination for the potable water system and another identical autodialer and programmable controller combination for the wastewater treatment system. The autodialers and controllers are mounted on the main instrument panel in the treatment plant.

At each of the remote stations, sensors monitor a variety of conditions including fire, power failure, high and low levels, pump operation, and intrusion.

The station sensors report by tone telemetry to the programmable controllers at the main instrument panel via leased telephone lines. The SLC-500 programmable controllers, in turn, are connected to the Verbatim Gateway autodialers.

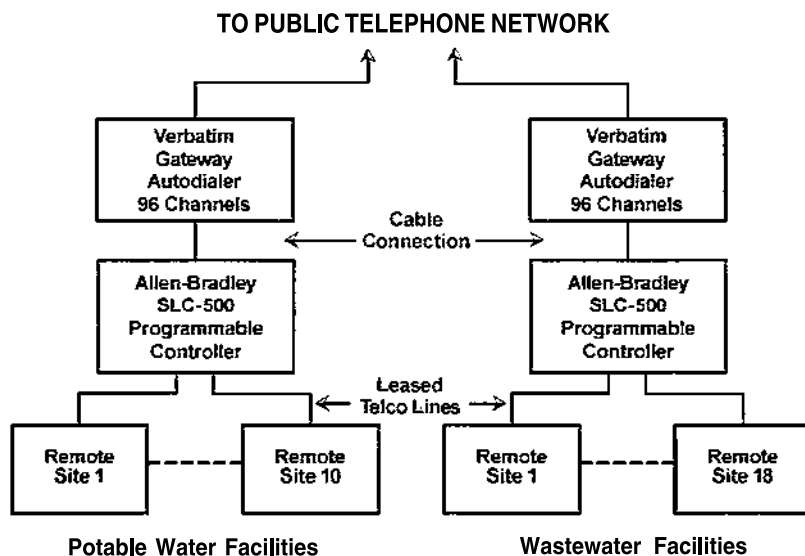
Alarm Reporting

The SLC-500 programmable controllers receive and discern alarm information from the remote sensors and pass it on to the Verbatim Gateway units. Upon detection of an alarm condition, the Verbatim Gateway is programmed to automatically start calling a list of up to 16 pre-programmed phone numbers, calling them one-by-one until it gets an acknowledgment.

At Evesham, the autodialers call the district's answering service first. When a connection is made, the system reports the specific alarm condition and station identity by way of a prerecorded voice message. Acknowledgement of the alarm is accomplished simply by pressing a button on the called phone.

When an alarm call is received, the answering service locates the duty supervisor by phone and provides alarm details. Armed with information on the nature of the trouble, the supervisor can then call in the required maintenance personnel and equipment. To handle an alarm, the supervisor can call from anywhere there is a standard tone phone — in the field, at home, at the store, at the game, or in a car.

After initiating a response, the supervisor can also track the trouble simply by calling the system. In addition to alarm reporting, the Verbatim Gateway



has a status-checking capability. Plant personnel can call in at any time from any tone phone to hear a voice message giving the present status of monitored functions.

With Evesham's previous autodialing system, the supervisor had to travel to the main instrument panel to see where the alarm had occurred. Maintenance personnel would then have to be dispatched to investigate the nature of the alarm. Often, the fault would turn out to be only temporary.

All of these factors resulted in delays in responding to the trouble and a great deal of unnecessary overtime. The new system eliminates this wasted time and effort by immediately identifying the location, type, and duration of the fault.

Autodialers Interaction with Programmable Controllers

The unique part of the Evesham system is the manner in which the Verbatim Gateway units and the programmable controllers were combined. In addition to alarm autodialing, the Verbatim Gateway provides interactive monitoring and control of a programmable controller network via dial-up phone lines using any standard tone phone.

The Verbatim Gateway allows read and write access to programmable controller data registers via the public telephone network. It turns a conventional tone phone into an interactive, multi-functional operator interface for remote network status checking, remote modification of alarm criteria and monitoring points, and remote alteration of process variable and setpoints.

Only a single serial cable connection is required to provide communications between the Verbatim Gateway and a programmable controller, avoiding the cost of complex wiring, additional controller outputs, relays, or modifications of control programs. The Verbatim Gateway, in turn, is connected to the public telephone network via a standard plug-in phone jack.

The RACO and Allen-Bradley units are small in size but the two systems are presently handling a combined total of 190 alarm points. Each Verbatim Gateway autodialer is equipped to interact with up to 96 data registers and has 32 dry contacts for future expansion.

Long-Term Benefits

Evesham has already realized benefits from the system, which has been in operation for almost a year. According to Rocco Maiellano, "We know right away what the trouble is and can determine if it is temporary or recurring. It has already eliminated a lot of overtime." He added that they have eliminated an average of six overtime maintenance trips per week and have saved \$700 per month in leased line fees with the new system.

Evesham feels that the Verbatim Gateway and Allen-Bradley programmable controller combinations have proved to be a cost-effective way to get state-of-the-art, digital alarm reporting capability. The district now has a simple, but highly reliable and efficient system that they were able to purchase outright.

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