ENGINEERED SOLUTIONS

CASE STUDY

Wireless Sump Alarming

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FAMILY OF COMPANIES

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COMPANY PROFILE & CHALLENGE

COMPANY PROFILE

A leading chemicals company specializing in the development, production, and marketing of chemical intermediates, additives, specialty chemicals, and plastics.

CHALLENGE

1. Sumps frequently infiltrated by water from weather and equipment malfunctions.
2. Pump replacement was costly in money and production time.
3. Problem was only noticed after significant damage was done.

COMPANY PROFILE

The client, a leading specialty chemicals company with a global footprint, operates 60 production sites worldwide. Their expertise includes the development, manufacturing, and marketing of chemical intermediates, additives, specialty chemicals, and plastics.

THE CHALLENGE

The customer faced ongoing issues in several reactor areas where equipment is housed in below-grade sumps. Due to adverse weather conditions and equipment malfunctions, water frequently infiltrates these sumps, leading to flooding and damaging key equipment, especially electric motors located within the sumps.

Over an 18-month period, 10 pumps required replacement, resulting in an equipment cost of over $10,000, excluding the additional costs associated with lost production time and in-house labor for replacements. Control room operators were unaware of water presence in the sumps until equipment failure occurred, triggering alarms only after significant damage was done. A system to detect water leakage in advance was essential to prevent equipment flooding and avoid costly downtime.

SOLUTION & RESULTS

SOLUTION

1. Installation of a vibronic level switch.

RESULTS

1. Operators receive immediate alerts if water enters the sump areas.
2. Will provide greater facility-wide operational reliability.

SOLUTION

Rawson/Industrial Controls engineered a solution to address the water ingress by providing a vibronic style gap switch for water presence detection. In addition, six local control panels were installed, each equipped with wireless discrete input transmitters. These transmitters communicate wirelessly via point-to-point communication with a receiver radio located in the control room.

The receiver radio not only provides contact alarms to the customer's Distributed Control System (DCS) but also activates a horn & strobe alarm to alert operators promptly when a water leak is detected. This early warning system enables operators to take corrective action before water levels damage critical equipment.

RESULTS

With extensive knowledge of level and control applications, Rawson/Industrial Controls was able to design a solution using readily available components to create an effective annunciation system compatible with the customer's existing control infrastructure. The engineering team at Rawson/Industrial Controls configured and programmed the system for seamless integration with the customer's DCS, ensuring that operators receive immediate alerts for any water ingress in the sump areas.

Furthermore, the team provided a presale site survey and utilized mobile test equipment, instilling a high degree of confidence in the customer that the solution would perform as intended upon implementation. This customized solution is expected to prevent costly equipment replacements, minimize production downtime, and provide greater operational reliability across the customer's facility.

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