CASE STUDY

EXTENSIVE TEMPERED-WATER SYSTEM LOOP

Petrochemical Plant,
Southeast, United States

Haws Integrated™

***ENGINEERED SOLUTIONS*® FOR SAFETY**

ООО «ТИ-СИСТЕМС» ИНЖИНИРИНГ И ПОСТАВКА ТЕХНОЛОГИЧЕСКОГО ОБОРУДОВАНИЯ
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The petrochemical industry generates various products that can be harmful if not handled with appropriate safety requirements. Large-scale petrochemical locations can have collections of production functions that integrate manufacturing infrastructure and processes to produce a number of related chemical products. These major commercial petrochemicals can include adhesives, resins, polymer additives, cleaning agents and agrochemicals. Frequent exposure to these hazardous materials makes safety management and response important components of day-to-day plant operations.

BACKGROUND

The expansion of a petrochemical plant in the Southeastern region of the United States included a large new facility requiring numerous emergency response systems in various parts of the plant. As with most large projects, there were a number of site-specific conditions. The region's hot, humid summer temperatures and mildly cool winters cause ambient water to have temperature variations. A full 15-minute flush is required after exposure to hazardous chemicals, and tepid water is essential for emergency showers and eye/face washes. Water that is too hot can scald and potentially aggravate chemical reactions. Therefore, the petrochemical plant's safety system mandated tempered water at each emergency shower and eyewash.

OBJECTIVE

Haws Integrated™ worked closely with the engineering firm responsible for the plant expansion to properly design an appropriate system. Water pressure, volume and temperature were important requirements. This custom solution would need to factor for particular site conditions and comply with standards set forth by the ANSI Z358.1 Standards regarding water used in combination shower and eyewash equipment. All systems would need to run simultaneously while maintaining the appropriate 20-gallon per minute flow for the required 15-minute flush period.

SOLUTION

It was necessary to design a single system that would manage both the temperature and pressure of the water across each safety shower and eyewash in a centralized 1.5-mile loop. *Haws Integrated* worked directly with the engineering firm from the onset of the project to develop a custom system of chilling and heating equipment, pumps and controls that would help maintain proper pressure and temperature to every system in the loop. Careful calculations were also made to determine the ideal speed of the recirculating water, ensuring its proper temperature at all points of use. A central control station featuring a Programmable Logic Controller (PLC) would monitor system temperatures and pressures, and additional controls would offer both summer and winter modes.

RESULTS

Haws Integrated successfully designed, specified and built the safety system to meet the project's unique needs in compliance with applicable ANSI standards. Engaging *Haws Integrated* early in the project design stage eliminated costly and time-consuming redesigns that can arise from improper specifications.

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