



## CASE STUDY

### PRESSURIZED SAFETY SYSTEM

Refinery, Midwestern U.S.

**Haws**  
*Integrated*<sup>™</sup>

ENGINEERED SOLUTIONS<sup>™</sup> FOR SAFETY

ООО «ТИ-СИСТЕМС» ИНЖИНИРИНГ И ПОСТАВКА ТЕХНОЛОГИЧЕСКОГО ОБОРУДОВАНИЯ

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Телефоны: +7 (495) 7774788, 7489626, (925) 5007155, 54, 65 Эл. почта: [info@tisys.ru](mailto:info@tisys.ru) [info@tisys.kz](mailto:info@tisys.kz) [info@tisys.by](mailto:info@tisys.by)

## PRESSURIZED SAFETY SYSTEM

Refinery, Midwestern U.S.

Oil refineries are sprawling industrial complexes equipped with extensive piping and chemical processing units. With any number of hazardous materials being generated, safety is a top line concern. Regular exposure to these dangerous materials and liquids means proper safety management and emergency response is essential.

### BACKGROUND

A refinery in the Midwestern United States required 15 additional safety showers, eyewashes and water tanks in specific areas of the existing plant. Inadequate water supply in these sections mandated a self-filling safety system designed without pumps and ready for immediate use at all times. In order to comply with safety regulations, the system had to meet minimum flow requirements during simultaneous operation of 1.5 liters per minute for eyewashes and 20 gallons per minute for drench showers for a full 15-minute irrigation cycle. Tepid water was also an essential requirement to prevent additional harm to victims as a result of scalding or hypothermia. The refinery's limited water supply and pump-less design restriction required that the safety showers not be driven by electricity, necessitating a custom system.

### OBJECTIVE

*Haws Integrated*<sup>TM</sup> worked directly with the refinery to design a pump-less system that would use the limited available water supply to fill and pressurize the safety system's tanks, prompting them to refill once they had been emptied. Consideration was also given to average ground water temperatures in the region, which range from the high 30s to the low 50s, Fahrenheit. The system's design also needed to meet applicable American National Standard Institute (ANSI) standards pertaining to minimum flow gpm and length of flush (Sections 5.1.6, 6.1.6 and 4.1.4), simultaneous operation (Section 7.4.4) and water temperature (Section 7.4.4).

### SOLUTION

The refinery needed a safety system that would function with the available water supply and without the use of pumps. *Haws Integrated*<sup>TM</sup> developed a custom system that used the limited water supply and plant air to fill the tanks and then pressurize them. This system self-monitored tank levels and temperatures. During use, controls opened the water supply, closed the air supply and opened the system to the atmosphere, prompting the unit to refill automatically – and all without an operator. In addition, the safety system is remotely monitored using System Integrated Management Applications (SIMA<sup>TM</sup>), a cloud-based and location-independent platform that automates facility-wide monitoring, testing and documentation of continued ANSI compliance.

### RESULTS

Early engagement with the team from *Haws Integrated*<sup>TM</sup> allowed for thorough engineering consultation and site surveys. It also eliminated multi-party discussions, providing a smooth transition from the project's conception to its flawless execution. Working directly with the refinery enabled *Haws Integrated*<sup>TM</sup> to develop a fully-customized solution that satisfied the site's very unique needs and met relevant ANSI standards.

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