

# SAFEHOUSE

BY ELEMERA

## PRESSURISED HABITAT FOR NON-EX EQUIPMENT

The risk of flammable gas ignition caused by non-Ex certified equipment in hazardous areas is a significant area of concern for any industry with potentially explosive atmospheres. To mitigate this risk, electrical equipment in these areas must be specially designed or protected to eliminate ignition sources. IECEx certified electrical equipment is the ideal engineered solution to this problem, however, when certified equipment isn't available, alternative solutions must be used to manage the risk.

### THE CHALLENGE

During the commissioning phase of a large offshore hook-up and commissioning project, the cooling water system in the acid gas removal unit (AGRU) was being flushed. As part of this process, the filters required cleaning at regular intervals. The filters were cleaned using a non-Ex rated ultrasonic bath – introducing an ignition source into a hazardous area.

To avoid the costs and time associated with the laborious task of transporting the filters for cleaning into the non-hazardous zoned machinery space in the vessel substructure, the non-Ex ultrasonic bath needed to be installed as close to the worksite as possible, within a zone 2 hazardous area.

Additional health and safety challenges arose due to the high ambient temperature, and the high operating temperature and humidity created by the ultrasonic bath – heat stress of personnel operating the equipment was a concern.

### OUR APPROACH

Our experienced technicians worked closely with facility operations personnel and subcontractors to design a habitat system to encapsulate the equipment and created a job-specific permit using the facility's electronic permit to work system.

After habitat commissioning and before the commencement of the work scope, our technicians guided senior facility management, including the offshore installation manager (OIM), through the habitat inspection to ensure compliance with facility requirements.

### OUR SOLUTION

To combat the high temperatures and humidity and create a cool and comfortable environment for the work party, an IECEx certified air-conditioning unit was used as part of the Ex certified Safehouse habitat ventilation system.

### THE RESULTS

Our habitat allowed the non-Ex equipment to be utilised safely within a hazardous area. The positive pressure barrier created by the habitat system ensured that ignition sources on the non-Ex equipment would not meet potentially explosive atmospheres.

Despite the external ambient temperature of 34°C and the ultrasonic bath's operating temperature of 60°C, the internal temperatures of the Safehouse habitat were kept to a comfortable 25°C with the use of our IECEx portable air conditioning unit.



### STATISTICS

60°C

EQUIPMENT OPERATING  
TEMPERATURE

34°C

AMBIENT TEMPERATURE

24°C

COMFORTABLE HABITAT  
WORKING CONDITIONS