

Raychem Heat Management Solutions Protect Critical Operational Reliability of Alabama Refinery Conversion to Steam Methane Reforming (SMR) Hydrogen Plant

Mission Critical Solutions in Hydrogen



PROJECT DETAILS



Applications:

- Pipe Freeze Protection
- Process Temperature Maintenance
- Instrument Winterization



Location:

Saraland, Alabama



Contract Scope:

- Engineering, Product Supply, and Instrument Winterization



Technology:

- Raychem Self-Regulating (XTVR, HTV),
- Mineral Insulated (XMI)
- Advanced Control and Monitoring



Date:

2026

KEY CHALLENGES

As part of their commitment to the energy transition a Houston-based oil and gas company has recently purchased a 90,000-bpd refinery in the Mobile, AL area with plans to convert this refinery to renewable diesel. This conversion requires supplemental hydrogen which will be supplied by a global hydrogen manufacturer using a new technology very similar to steam methane reforming.

What is different are the feedstocks this new hydrogen plant can use to minimize the carbon contribution per ton of hydrogen produced. Raychem, working closely with the project EPC firm, has been awarded the engineering and product supply for this new hydrogen plant

The customer's mission critical objectives for the heat management solution include finding the optimal system design that would keep critical process maintain and freeze protection applications running, prevent condensation in large bore piping that transports process gases, protect instruments, and provide an energy efficient control and monitoring solution. In summary, the customer needs assurance that the plant's heat management system operates reliably.

SOLUTION

Chemelex was chosen to support this key project because of our reputation for comprehensive expertise of complete heat management systems, and our established HMS relationship with the project EPC firm in the Gulf Coast area. Chemelex engineers created an optimized heat management solution design using our proprietary Raychem TracerLynx 3D HMS software. Raychem engineers analyzed all heating technologies and determined that Raychem high temperature self-regulating heating cables with high power retention (HPR) proved ideal for both the process temperature maintenance and freeze protection applications. In addition, the Raychem engineers designed and supplied heat traced tubing bundles to support the large instrument winterization base on the project. We installed our advanced Raychem NGC-40 control & monitoring solutions to deliver energy savings, minimize operational risk, maximize productivity, and communicate with the operation staff.

PROJECT FACTS

To meet the mission critical needs of this new (HyCO) hydrogen facility, our Raychem heat management solution was provided on schedule and included:

- Engineering design experts providing optimized design and support using TracerLynx 3D HMS Software
- Raychem XTVR and HTV high power retention self-regulating heating cables
- Raychem XMI mineral insulated heating cable
- Traced tubing bundle for instrument winterization
- Raychem NGC-40 control and monitoring skids including power distribution

BENEFITS

Designing and supplying the complete heat management system for this new hydrogen plant requires an experienced team focused on power distribution, heating cable technology, thermal insulation, control and monitoring and instrument winterization. From detailed engineering design and procurement to onsite installation and construction support, our experts provide the best freeze protection, process maintain and winterization solutions and expertise available today. Additionally, smart control and monitoring provide plant reliability and an opportunity for heat management to be connected and communicate with site-based control systems. The Raychem team plans to pursue the construction of the heat management system at this hydrogen project and to provide feedstock heating designs to the local refinery, further demonstrating our commitment to the energy transition and turnkey heat management.

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