



CASE STUDY: ASSET DELIVERY AND MECHANICAL, ELECTRICAL AND ACCESS MAINTENANCE SERVICES FOR REFINERY OPERATIONS

An integrated approach in providing long term asset management services for large refineries

Project Delivery:

Ongoing for various contracts in the region

Service offering:

- Project management
- Engineering
- Construction
- Fabrication
- Commission
- Asset management
- Maintenance

Location:

Australia

OVERVIEW

Leading international oil and gas companies provide their clients with fuel for transportation, energy for heat and light, retail services and petrochemicals products for everyday items. Generally, their downstream operations include the refining, manufacturing, marketing, transportation, and supply and trading of crude oil, petroleum, petrochemicals products and related services to wholesale and retail clients.

In Australia, multinational oil and gas companies operate complex oil refineries that represent a critical element in their downstream operations. The largest refinery in the region is located in Western Australia with a capacity of 137,000 barrels of crude oil per day.

UGL continues to provide a comprehensive range of mechanical, electrical and access maintenance services to major refineries across Australia, as well as capital project planning, management and execution services for critical downstream operations.

THE CHALLENGE

Major oil and gas companies are in the business of creating hydrocarbon value chains and have an intense focus on safety and reliability. This enables operators to build platforms to sustain and grow world-class businesses in order to meet the growing demand for energy worldwide.

Stringent operational policies for downstream refinery operations support the ultimate objective for oil and gas companies in delivering the safe and continuous supply of high quality oil based products for their clients. For large scale refineries, operators periodically set objectives and targets for environmental, operational, maintenance and safety aspects.

The challenge the operator contractors is to support meeting refinery objectives and targets which are set to maintain business as usual performance, maintenance events, investigations, or the implementation of an improvement.

THE SOLUTION

Throughout its long term partnerships with blue chip oil and gas companies, UGL has delivered large scale high quality fabricated assets and also instigated and implemented a number of key maintenance improvement projects that have enhanced operational efficiencies and extended the life of assets.

Major Shutdowns and Turnarounds

UGL's refinery based multi-discipline team's work closely with key client personnel in order to achieve site based operational objectives. UGL provides cost effective mechanical and electrical lifecycle maintenance services for critical operational assets located throughout refinery operations.

UGL has delivered a number of large maintenance shutdowns and major Mogas Complex turnaround projects for a number of prominent refineries. Usually, projects are delivered with UGL's personnel working in a multi organisation alliance arrangement to plan and execute projects on time and within budget. Maintenance projects delivered continue to set impressive benchmarks with respect to environmental targets, recordable injuries and the prevention of spills throughout these events.

An integrated planning approach with clients has enabled early involvement in the turnaround process, critical to the success of these projects. Generally, UGL is responsible for safety and environmental risk assessments and the creation of detailed work packs for turnaround programs. In addition, the company can take on responsibility for materials handling and heavy lift programs and planning associated with shutdown infrastructure.

Major Asset Delivery - Naphtha Spitter Column

In 2008, UGL designed, fabricated, delivered and installed a new Naphtha Splitter Column for a large scale refinery operation located in Western Australia. This project won an Australian Steel Institute award and was the largest single unit of equipment of its type ever fabricated with steel in Australia.

The project was completed on time with zero health and safety recordable injuries and zero quality issues, undertaken in 51 weeks, a lot earlier than the planned 68. UGL constructed the shell of the vessel in 3m by 4.5m diameter sections at UGL's Kwinana workshop due to the immense size and weight of the column. This modular construction method was used to maximise resources and optimise schedule compliance. The different modules were then welded together in the horizontal plane. Over one kilometre of welding was performed without a single defect and over 17,000 bolt holes made without a single misalignment.

Fabrication, hydrotesting, painting, insulation and cladding in multiple work fronts at one plant location also meant that the vessel could be transported to site in one piece. The column fitted into the refinery on the first attempt.

KEY OUTCOMES AND BENEFITS

Whether it is maximising asset service life or the fabrication of large high quality refinery equipment or maintenance procedures that provide early warning of failure, UGL has the knowledge of industry processes, applications and best practice services to keep large scale refinery operations on the success curve.

UGL continues to meet the most demanding standards of the environment, reliability, safety and quality when delivering oil and gas solutions to clients.

Key benefits and outcomes include:

- Lower costs, reduced operational risk and improved reliability, safety and availability of client assets in leveraging UGL's best practice maintenance shutdown and turnaround capability.
- Consistency and alignment with safety systems, processes and communication has contributed to building a strong and effective safety culture on site.
- Effective and reliable separation of hydrocarbons with the UGL designed, fabricated, delivered and installed Naphtha Splitter Column which won an Australian Steel Institute award.
- An accountable business partner who can tailor a maintenance solution that optimises operational performance and reduces risk for our clients.
- Valued added services for shutdowns and turnarounds including the supply and erection of scaffolding within tight delivery times to meet with compressed schedules.
- Expertise held with UGL's long term based supervisors and leading hands located on client sites which have resulted in excellent safety records and high quality re-starts and pre-starts for shutdown and turnaround events.



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