



Instrumentation and Electrical Design and Procurement Support – Project Highlights Offshore Oil Process Module

THE BACKGROUND

Our client is a global leader in oil & gas engineering services managing large-scale multidiscipline projects across the globe but particularly on North Sea assets. Our recent project involved the production of an offshore process module to be integrated into an existing central North Sea oil platform as part of a major project to significantly extend its operating life. GSE successfully integrated with the client's multidiscipline engineering team to provide instrumentation, electrical design and consultancy services as part of the overall scope.

Services provided by GSE Systems:

- Instrumentation detailed design
- Electrical detailed design
- Technical procurement support
- Construction design and as-built drawings
- Package management and multidiscipline liaison

THE CHALLENGE

GSE Systems was requested to provide E&I design services associated with attaching a newly designed process module to an existing offshore platform with a view to extending the life of the rig by tapping into new oil fields beneath and up to 28 km away.



The newly fabricated module was to be “bolted on” to the existing platform, which required key weight considerations for the design. As well as the construction of the module itself, the project also encompassed the challenge of associated brownfield works necessary to “hook up” the module with the existing platform.

This required the GSE team to quickly and seamlessly integrate into the client’s project team through efficient remote liaison and interfaces on Teesside and in Aberdeen. The GSE team was responsive and flexible to assemble the appropriately skilled team within a short timeframe. They had to understand and utilize the client’s systems and procedures, such as to minimize the level of supervision in order to work through the client’s workload and meet strict deadlines.



The integration and responsiveness of the team was considered the most successful element of the GSE input into the project, which extended our involvement for 18 months during key delivery stages.

THE SOLUTION

GSE Systems operated as a fully integrated element of the client’s project team located on the client’s construction site on Teesside and adopted a collaborative, partnering approach to deliver maximum value. During the busiest period of the project program, GSE Systems provided a comprehensive team of engineers covering electrical and instrumentation disciplines with grades including CAD technician, designer, engineer, senior engineer and discipline lead.

This was achieved through proactiveness and flexibility and the use of the team’s considerable experience in the industry. This allowed the development of a clear understanding of the client’s systems and procedures, and included having to adapt to unfamiliar software packages to provide best quality deliverables within the required timeframes.

It was essential that a partnership with the client was developed so as not to overburden senior staff on the client’s side with excessive supervision and checking. A staged checking system was implemented to ensure deliverable quality, minimize rework and maximize efficiency.

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Specific Solutions and Services Provided

- Instrumentation layouts
- Instrument specifications
- Fire and gas loop diagrams
- Emergency shut down (ESD) loop diagrams
- Control management system (CMS) loop diagrams
- Metering loop diagrams
- Cause and effect matrixes
- Electrical layouts
- Electrical specifications
- Cable and equipment schedules
- Trace heating design
- Cable calculations

- CAD in microstation
- PDMS design development for E&I
- Installation inspections
- Technical tender evaluation
- Vendor liaison
- Vendor testing specification
- Factory acceptance testing



THE BENEFITS

- Fully integrated GSE and client design team
- Self-supervised delivery
- Proactive and flexible team structure to address program constraints
- Design team location on site
- Multidiscipline integration
- Expertise in design delivery
- Expertise in vendor management and equipment testing for quality assurance

About GSE Systems

We are a next-generation simulation, training, and engineering services provider applying a world of experience to help you achieve the performance you imagine. GSE is a world leader in real-time high-fidelity simulation, providing a wide range of simulation, training and engineering solutions to the energy and process industries. Our comprehensive and modular solutions help customers achieve performance excellence in design, training and operations. GSE's products and services are tailored to meet specific client requirements such as scope, budget and timeline.

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