

Up front in automation

Mustang's extensive automation and control experience played a significant role in the design of Kizomba's instrument and safety systems.

Mustang Automation and Control (MAC) is a business unit of Mustang Engineering, L.P. specializing in the design, development and integration of complex IT, automation and control projects. The MAC team is unique, having both an expertise in control systems software and hardware, coupled with a vast knowledge of the upstream oil and gas industry.

On the Kizomba A project, MAC worked under the auspices of Emerson Process Management, the project's designated Main Instrument & Controls Contractor (MICC). MAC performed an integral role in the Front End Engineering Design (FEED) work defining the project's integrated control and safety systems (ICSS), and contributed greatly to additional project phases.

MAC was a perfect candidate for the Kizomba project, having had extensive offshore automation experience, including work on several previous Exxon-Mobil projects. MAC was the systems integrator providing design, procurement, programming, integration and commissioning services of several computer-based subsystems as part of the platform control, safety and information systems on the ExxonMobil Hoover/Diana DDCV project in the Gulf of Mexico. Since the Kizomba A project relied on an INtools® integrated database for instrument engineering and design, Mustang was, again, a notable choice because of its intimate familiarity with the software and its ability to organize the project's database.

During the FEED stage, Mustang provided key personnel and services and worked closely with Emerson, supplying the Project Engineer, Lead INtools® Engineer, Lead Safety Systems Engineer and Lead Instrument Engineer to the team overseeing the project's instrumentation, control and safety systems scope. Mustang participated in P&ID development with regards to the control and safety systems, and provided design specifications for the FPSO's marine control systems. Mustang engineers interfaced with ExxonMobil's



Mustang assisted in the development of the Kizomba's instrument, control and safety systems.

lead engineers to develop project control and safety systems philosophies. Additionally, Mustang was responsible for training three of Exxon-Mobil's Angolan engineers for the project. Mustang's automation team assisted ExxonMobil in answering technical queries from the EPC contractors concerning issues associated with the automation and control bid packages during their submission of lump-sum bids. Additionally, the team was part of vendor bid review and offered clarification to vendors in the process of providing a bid analysis to ExxonMobil.

Mustang continued to supply expertise in the detail design phase by updating the SIL studies; instrumentation P&ID reviews; participating in HAZID/HAZOP/C&E reviews; INtools index and wiring development; design, fabrication and testing of the Safety Instrumented System (SIS). It led the factory acceptance testing of the ICSS and SIS logic designed to integrate the surface wellhead platform and the FPSO. Mustang further supported the commissioning of the wellhead platform and FPSO, coordinating with ExxonMobil and the prime contractors to assist in resolving site issues.

The project provided many challenges. Mustang personnel coordinated

INtools® and other automation issues between the MICC and four EPC contractors having responsibilities for the various portions of the project—subsea production, FPSO and surface wellhead platform. This coordination involved dealing with contractors whom were geographically dispersed around the globe. The experienced Mustang team was able to successfully achieve all of its objectives.



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