Pengembangan Detail Desain Sistem Kelistrikan Mooring Tower (MT) dan Floating Storage Offloading (FSO) Proyek Banyu Urip = Development of Detailed Design for the Electrical Systems of Mooring Tower (MT) and Floating Storage Offloading (FSO) in the Banyu Urip Project

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Abstrak

Mengelola proyek dengan investasi triliunan rupiah bukanlah perkara yang mudah. Berbagai kendala bisa saja ditemui, baik yang sudah diidentifikasi dalam kajian risiko maupun yang tak terduga sebelumnya. Butuh perencanaan dan pertimbangan yang matang. Secara umum tahapan pengembangan proyek terdiri dari konseptual desain, kelayakan, FEED (Front End Engineering Design), DED (Detail Engineering Design), Pengadaan, Konstruksi, Komisioning, Start Up dan Operasi. Tahapan konseptual desain dan kelayakan dilakukan oleh internal Perusahaan. Tahapan FEED dilakukan oleh konsultan teknik. Tahapan DED, Pengadaan, Konstruksi, dan Komisioning dilakukan oleh Kontraktor EPC (Engineering Procurement and Construction). Sedangkan Start Up, Operasi dan Pemeliharaan dilakukan oleh Perusahaan. Tahapan FEED dan DED merupakan tahapan dimana praktik keinsinyuran mendominasi keseluruhan pekerjaan dari berbagai bidang kejuruan. Keluaran FEED dititik beratkan ke estimasi biaya dan lingkup pekerjaan karena akan dipergunakan untuk keperluan tender EPC. Sedangkan DED merupakan pekerjaan yang dilakukan ditahapan awal EPC dan keluarannya dipakai untuk dokumen konstruksi dan pengadaan. DED merupakan tahapan yang sangat krusial. Pada proyek ini, Mobil Cepu Ltd sebagai pemilik proyek (sekarang Exxon Mobil Cepu Ltd) menggandeng pihak konsorsium PT. Rekayasa Industri dan Likpin LLC sebagai kontraktor EPC-3 untuk pekerjaan Mooring Tower. Sedangkan konsorsium PT. Scorpa Pranedya dan Sembawang Shipyard sebagai kontraktor EPC-4 untuk pekerjaan Floating Storage and Offloading. Pekerjaan ini telah diselesaikan secara professional dan tepat waktu dengan menjalankan prinsip dasar kode etik keinsinyuran dan senantiasa memperhatikan Keamanan, Keselamatan, Kesehatan, dan Lingkungan Hidup. Kepatuhan terhadap spesifikasi teknis, standard, biro klasifikasi dan peraturan peraturan yang terkait telah diperiksa dan sudah mendapatkan sertifikat sertifikat terkati. Tidak ada kecelakaan kerja selama proyek EPC-3 dan EPC-4 berlangsung. Sistem kelistrikan yang telah di desain dan dibangun dengan cara professional serta menjalankan dasar kode etik keinsinyuran memberikan hasil yang maksimal. Hal ini dibuktikan dengan kehandalan sistem yang masih berfungsi dengan baik sampai saat ini setelah sembilan (9) tahun beroperasi.
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Managing a project with billion dollars in investment is not an easy matter. Various obstacles can be encountered, both those already identified in risk studies and those unforeseen beforehand. It requires thorough planning and consideration. Generally, the stages of project development consist of conceptual design, feasibility, FEED (Front End Engineering Design), DED (Detail Engineering Design), Procurement, Construction, Commissioning, Start-Up, and Operation. The conceptual design and feasibility stages are carried out internally by the Company. The FEED stage is conducted by an engineering consultant. The DED, Procurement, Construction, and Commissioning stages are carried out by EPC Contractors (Engineering Procurement and Construction). Meanwhile, Start-Up, Operation, and Maintenance are carried

out by the Company. The FEED and DED stages are where engineering practices dominate the entire work of various disciplines. The output of FEED focuses on cost estimates and scope of work as it will be used for EPC tender purposes. DED, on the other hand, is the work carried out at the early stage of EPC, and its output is used for construction and procurement activity. DED is a very crucial stage. In this project, Mobil Cepu Ltd as the project owner (now Exxon Mobil Cepu Ltd) has partnered with the consortium of PT. Rekayasa Industri and Likpin LLC as the EPC-3 contractor for the Mooring Tower work. Meanwhile, the consortium of PT. Scorpa Pranedya and Sembawang Shipyard as the EPC-4 contractor for the Floating Storage and Offloading work. This work has been completed professionally and on time by adhering to the basic principles of engineering ethics and always paying attention to Safety, Health, and Environmental aspects (K3L). Compliance with technical specifications, standards, classification bureaus, and related regulations has been checked and has obtained the relevant certificates. There were no work accidents during the EPC-3 and EPC-4 projects. The electrical system, which has been designed and built professionally and adhering to engineering ethics, has yielded maximum results. This is evidenced by the reliability of the system, which is still functioning well to this day after nine (9) years of operation.