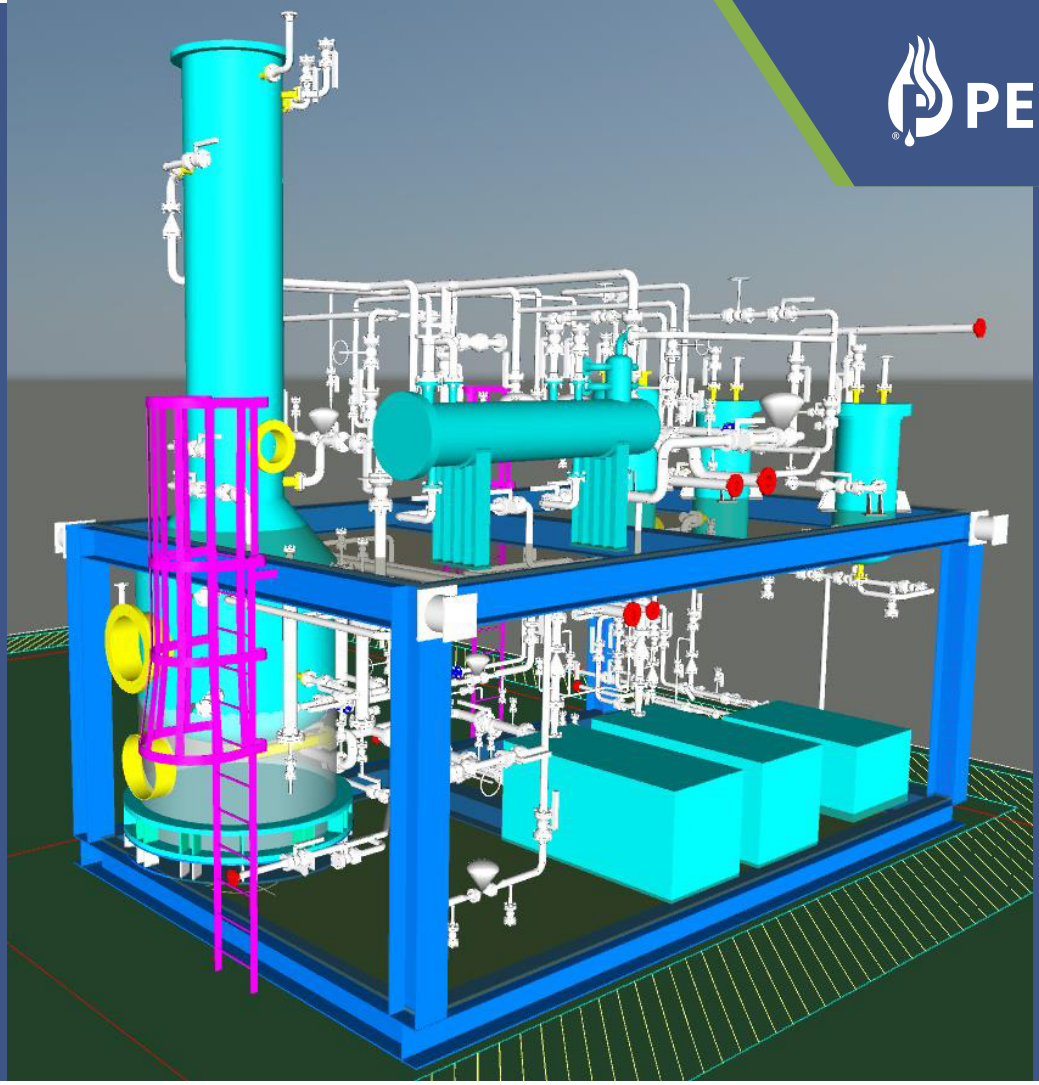
PEERLESS



CASE STUDY ON COMPACT INNOVATION FOR OFFSHORE WATER TREATMENT

Our Modular Solution Tackles Complex Contaminants and Tight Footprints on ENI Indonesia's Offshore FPSO

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EXECUTIVE SUMMARY



Peerless engineered a state-of-the-art Produced Water Treatment Package for ENI Indonesia's Floating Production Storage and Offloading (FPSO) Kutei, operating in offshore Indonesian waters. The client, with purchasing managed by Saipem, Italy, faced the significant challenge of treating produced water contaminated with total suspended solids (TSS), dissolved and free oils, and elemental mercury. This had to be accomplished within severe space constraints while adhering to strict local environmental regulations for overboard disposal. Peerless designed and delivered a compact, modular solution centered around its core Liquid/Liquid (L/L) Coalescer technology. This innovative system successfully removed all contaminants, met the required overboard water quality standards, and fit within the limited footprint available on the FPSO. The project highlighted Peerless's ability to provide game-changing, efficient, and compliant solutions for complex offshore applications.

Client: ENI Indonesia (End User), Saipem, Italy (Purchaser)
Location: Indonesia Offshore Waters
Project: Produced Water Treatment Package for FPSO Kutei

The Challenge: Complex Contaminants and Critical Space Constraints

ENI Indonesia required a robust system to treat produced water from its FPSO Kutei operations. The produced water contained a complex mix of contaminants, including total suspended solids (TSS), free and dissolved oils, and elemental mercury.

The primary objective was to treat this water to meet the stringent quality standards mandated by local Indonesian environmental regulations for overboard disposal. Adding to the complexity was the severe space limitation on the FPSO. A conventional produced water treatment (PWT) system would be too large for the designated area, creating a significant engineering obstacle for the client. The solution needed to be not only highly effective but also exceptionally compact.

The Solution: An Integrated, High-Efficiency Modular System

Peerless developed a multi-stage, modularized treatment package that integrated several advanced technologies to address each specific contaminant within a minimal footprint.

1. **TSS and Free Oil Removal:** The core of the solution was the Peerless Liquid/Liquid (L/L) Coalescer, preceded by prefilters. This proven technology uses high-efficiency coalescer cartridges to effectively separate free oil and TSS from the produced water. The L/L Coalescer's small footprint compared to conventional technologies made it the ideal choice for overcoming the client's space limitations.
2. **Dissolved Hydrocarbon Removal:** Following the coalescer, the water was processed through a BTEX Stripper Column. This stage was specifically designed to remove dissolved hydrocarbons, ensuring the water was free from these soluble organic compounds.
3. **Polishing for Final Purity:** As a final step, the produced water was passed through a two-stage Activated Carbon Filter system. The first stage removed any residual traces of dissolved hydrocarbons, while the second stage was dedicated to capturing elemental mercury. This comprehensive polishing ensured the final effluent was clean and safe for overboard disposal.

Scope of Work

Peerless provided a complete, turnkey solution in a modular skid configuration for easy integration onto the FPSO. The scope included:

- Cartridge Prefilters
- Liquid/Liquid (L/L) Coalescers
- BTEX Stripper Column
- Transfer Pumps
- Two-Stage Activated Carbon Filters (for dissolved oil and mercury removal)

Results and Impact

Environmental Benefits: The primary success of the project was achieving full compliance with local Indonesian regulations for overboard water disposal. The Peerless system effectively treated the complex produced water, protecting the sensitive marine environment in offshore Indonesia.

The Peerless Advantage: The Peerless L/L Coalescer was the game-changing element of this project. Its high efficiency and compact design provided a solution that simultaneously addressed the client's process and physical constraints. By integrating this core technology with other specialized treatment stages, Peerless was able to deliver a system that was:

- **Effective:** Met and exceeded all water quality requirements.
- **Compact:** Fit within the highly restrictive footprint of the FPSO.
- **Reliable:** Provided a robust and dependable solution for a critical operational need.

This project demonstrates Peerless's expertise in designing and implementing customized, space-efficient solutions for the most demanding offshore water treatment challenges.