

Crude Oil Plant Development

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| Owner | Confidential |
| Client | Confidential |
| Location | Confidential |
| Year / Status | 2024 / Successfully Delivered |
| Project Type | Front-End Engineering and Execution Planning |
| Keywords | Oil Refinery, Blend Crude Processing |

Scope of Work

UNIFIED was engaged to lead Phase 1 of a new crude oil plant designed to process 10,000 BPD of Blend Crude, producing diesel oil, heavy fuel oil (HFO), naphtha, and off-gas, which serves as fuel for the direct-fired heater. Phase 1 focused on defining the technical scope, execution and contracting strategy, establishing the design basis, budget cost estimation, and scope for detailed design, procurement, installation, and commissioning. Key systems included power generation, feedstock transfer, truck loading, utilities, safety, instrumentation, and site-wide interconnections.

Technical Challenges

- Rapid mobilization under time-constrained conditions
- Defining system architecture using legacy data and client pre-studies
- Ensuring project controls and cost estimates without vendor quotations
- Establishing a flexible execution framework for future phases

Engineering Consultancy

Execution Strategy

Two options, reviewed and approved by the Damietta Port Authority and UGDC, were developed to ensure uninterrupted Propane and LPG transfer during FSRU operations. Option 1: a new south-side fixed berth with breasting/mooring dolphins, dredging, and pipeline extensions and Option 2: floating offloading facilities using extended hoses, minimizing dredging. Both include 3 short buried pipelines—a 14" Propane line with a 4" chilling line and a 12" LPG line (~800 m)—plus a 4 m draft access platform.

Strategic Outcome

UNIFIED executed a structured Front-End strategy led by a qualified PM and multidisciplinary teams. The approach involved a formal kickoff with the Client, and preparation of a live technical description forming the Basis of Design. System philosophies were aligned with client needs, cost estimates developed using internal data, and modeling supported by Pro II and PipeSim. Phase 1 also advised on Phase 2 contracting, design basis, and scope for detailed design, procurement, installation, and commissioning.

Photos / Diagrams

