

CASE STUDY



Energy Projects I/R GOSP SIMULATION AND OPTIMIZATION STUDY

Country
Libya

Dates
2010 - 2011

ENOIA's Consulting Value
227.760 €

Owner
Akakus Oil Operations (AOO)



The project "I/R GOSP Simulation and Optimization Study" refers to modifications on the process scheme adopted in the FEED design of the previous "I/R GOSP Development" project of AKAKUS OIL OPERATIONS (AOO).

The modifications are envisaged to improve the system performance and/or simplify the plant operations and include the following major points:

- Confirm GOSP maximum and minimum inlet fluid temperature on the basis of the actual data for the oil-gathering network
- Develop I/R GOSP Heat and Material Balance (H&MB) for a design crude oil production capacity of 85,000 std BPD (against 100,000 std BPD crude oil production considered in the FEED phase)
- Improve the condensate handling system by using compressed fuel gas (FG) for the gas turbines (instead of condensate considered in FEED phase)
- Optimize the GOSP compression section by using fuel gas from the second FG compression stage (instead of the third FG compression stage considered in FEED)
- Confirm the diameter (8") of the gas export pipeline to NC-186 considered in FEED

Scope of Services

ENOIA, acting as Engineering Consultant of AOO, provided the following services:

- Process Engineering Design Services including optimization and simulation works for
 - Production Wells and Gathering Network, comprised of a steady state calculation of system in HYSYS PROCESS
 - I/R GOSP, in Normal Case corresponded to 75000 BPD crude production at stock tank outlet, Design Case corresponded to 85000 BPD crude production at stock tank outlet, Minimum Case corresponded to 25000 BPD crude production using water cut of the normal case (27%) and End-Of-Life Case corresponded to year 2036 crude oil production profile given by AOO
- Preparation of Equipment Process Data Sheets for:
 - Fuel Gas/ Pipeline/ VRU Compressors
 - Crude Oil Booster/ Shipping/ Transfer Pumps
 - Dehydrator Water/ Degassed Crude Pumps
 - Condensate Flash Drum Pumps
 - Condensate Flash/ Fuel Gas Knock Out Drum
 - Production Separator/ Degasser/ Dehydrator/ Gas Boot & Fuel Gas Filters
- Preparation of Front-End Engineering Design (FEED) Process Data Sheet, PFS, UFS and Process Narratives associated with the Technical Improvements