Hazem ElMancy

Oil & Gas Process Engineer

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PROFESSIONAL SUMMARY

Process Engineer with 4 years of experience in concept, FEED and detailed engineering for onshore and offshore oil & gas facilities, including brownfield revamps, pipelines, gas lift/gas injection systems and debottlenecking studies for clients such as Eni, ADNOC Offshore, PhPC, NORPETCO and Indorama. Aspen HYSYS Certified Expert User, skilled in steady-state simulation, heat & material balances, hydraulics and line sizing, equipment sizing, PSV/relief and blowdown assessment, and in issuing BOD, process philosophies, PFDs, P&IDs, C&E diagrams and datasheets. Experienced in HAZID/HAZOP support, vendor document review and multidisciplinary coordination in line with API and ASME requirements. Creator of Flowstead, an open-source process simulator for Android built on the DWSIM engine.

EMPLOYMENT HISTORY

DG Impianti Industriali S.P.A — Mar 2026 - Present

- **Title**: Process Engineer
- **Roles & Responsibilities:**
  - Performing process engineering for onshore and offshore FEED and detailed engineering projects
  - Performing steady-state process simulations and heat & material balances (Aspen HYSYS / UniSim)
  - Developing and reviewing process deliverables including BOD, process descriptions, PFDs and P&IDs
  - Performing hydraulic calculations, line sizing and relief/blowdown assessments
  - Sizing equipment and preparing equipment, control valve and PSV datasheets
  - Coordinating with multidisciplinary teams and reviewing vendor documents
- **Achievements:**
  - **Eni Congo – Nené WHP3 Well NNM-310 FEED (Congo):** Delivered key FEED process deliverables, including PFDs, P&IDs, steady-state Aspen HYSYS simulations, hydraulic line sizing and corrosion assessments.
  - **Eni Congo – Nené WHP3 & AEP Platforms Revamping (Congo):** Developed FEED process deliverables for a brownfield offshore platform revamp (flare/vent system upgrade, power generation, utilities and safety systems), including BOD issue, P&ID updates and support to HAZID/HAZOP studies.
  - **Ourhoud – Gas Supply to the CPF (Algeria):** Performed detailed engineering for a new Gas Injection-to-Gas Lift interconnection enabling CPF restart using stored GI trunkline inventory. Developed BOD, process description, PFD/P&ID updates, process calculations, valve and PSV datasheets, and relief & blowdown assessment.
  - **Ourhoud – Gas Lift Manifold Debottleneck Study (Algeria):** Performed a feasibility-stage process assessment of increased hydraulic loading, pressure drop and erosional velocity in the 10-inch and 14-inch gas lift supply lines. Supported site survey and process data validation, reconciled the HYSYS model, evaluated hydraulics/erosional velocity (API 14E) and compared modification options.

United Engineers for Petroleum Projects (UNEPP Co.) **Mar 2023 - Mar 2026**

- **Title**: Process Engineer
- **Roles & Responsibilities:**
  - Process design and steady-state simulation (Aspen HYSYS, HTRI)
  - Hydraulic calculations, line sizing and PSV sizing
  - Equipment sizing and datasheet preparation
  - Development of PFDs, UFDs and P&IDs
  - Preparation of BOD, process philosophies, C&E diagrams, line lists and equipment lists
- **Achievements:**
  - **NORPETCO – Abrar Production Station Rehabilitation (Egypt):** Performed process verification and rehabilitation studies for Abrar Production Station, the main oil facility of North Bahariya Petroleum Company. Developed the Process Simulation Report, PFD, P&IDs, UFD and Gap Analysis Report, supported by steady-state Aspen HYSYS modelling and performance assessment. Conducted site surveys and process data validation to define the rehabilitation scope across heater treaters, separators, storage tanks and shipping pumps.
  - **PhPC – Wet Flare KOD Level Transmitters Bottleneck Study (Egypt):** Assessed level transmitter reliability problems on the West Harbor wet flare knock-out drum caused by wax from Atoll field production. Developed alternative solutions including transmitter relocation with bridles, radar measurement, electric heating and nozzle modifications to improve reliability and operability.
  - **PhPC – New West Harbor Heat Exchanger (Egypt):** Developed a concept study for a new shell-and-tube heat exchanger to optimize plant energy consumption by raising the W/HC separator inlet temperature to flash more gas and improve separation. Issued the BOD, steady-state simulation (Aspen HYSYS & HTRI), PFD, heat & material balance and equipment datasheet.
  - **PhPC – New West Harbor Flashed Gas Compressor (Egypt):** Developed a concept study for a new flashed gas compressor boosting gas pressure to 90 barg. Issued the BOD, PFD, P&IDs, utilities description, line list and equipment list.
  - **UGDC – New Propane/LPG Export/Import Facility (Egypt):** Developed the process concept for new 14-inch propane export and 12-inch LPG import lines to replace terminal operations affected by FSRU deployment at Damietta Port. Issued the process philosophy, pipeline hydraulic calculations, P&ID and control philosophy.
  - **GEMSA – Fuel Gas for Power Generators, WARDA Platform (Egypt):** Performed detailed engineering for an 18 km, 4-inch onshore/offshore fuel gas pipeline feeding new gas power generators on WARDA Platform in the Gulf of Suez. Issued the process design criteria, fuel gas line hydraulic sizing, PSV sizing, P&IDs, UFDs, shutdown and control philosophy, and equipment list.
  - **ADNOC Offshore – Produced Water Injection Facility, Das Island (UAE):** Performed FEED for an additional produced water injection facility at Das Island, Abu Dhabi. Issued the BOD, PFD, P&IDs, C&E, line list and equipment list.
  - **Indorama – Ammonia Pipeline (Egypt):** Performed FEED for a 13 km, 16-inch ammonia transfer pipeline from Ain Sokhna Port to Indorama Misr Fertilizers Plant. Issued the BOD, PFD, UFD, P&IDs, process philosophies (design, operation, isolation, shutdown and utilities), C&E, line list and equipment list.
  - **PETROMASILA – Crude Topping Unit (Yemen):** Developed the process proposal for a 10,000 BOPD crude distillation unit. Issued the PFD, UFD, process & utilities description report and equipment list.
  - **Rumaila – Crude Oil Tank (Iraq):** Performed detailed engineering for a 25,000 m^3 crude oil tank at the Rumaila degassing stations. Issued P&IDs (demolition & construction), tank datasheet, storage volume calculations, nozzle and line sizing, LDT, C&E, PVSV sizing (in-breathing & out-breathing) and blow-off hatch calculations.

PERSONAL PROJECTS

Flowstead – Open-Source Process Simulator for Android **2026 - Present**

- Creator of a mobile simulator on the DWSIM engine: steady-state and dynamic flowsheets, columns, reactors, pump and compressor curves, PSV, relief and depressuring (API 520 / 521) and line sizing, tested against HYSYS cases: github.com/HazemMancy/Flowstead

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CORE COMPETENCIES

Process Simulation (Aspen HYSYS, UniSim) • Heat & Material Balance (H&MB) • Hydraulic Calculations & Line Sizing • Equipment Sizing & Datasheets • PSV Sizing, Relief & Blowdown (API 520 / 521 / 526) • Flare & Vent Systems • Erosional Velocity (API 14E) • Safety Analysis (API 14C) • Heat Exchanger Rating (HTRI, Aspen EDR) • PFD / UFD / P&ID Development • Basis of Design & Process Philosophies • Control & Shutdown Philosophy • Cause & Effect (C&E) • Line & Equipment Lists • HAZID / HAZOP Support • FEED, Detailed Engineering & EPC • Onshore & Offshore Facilities • Brownfield Revamps & Debottlenecking

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CERTIFICATIONS

- **Aspen Certified Expert User in Aspen HYSYS** | Aspen Technology Dec 2021
  - Credential ID: 43484732
- **Aspen HYSYS User Certification** | Aspen Technology Nov 2020
  - Credential ID: 25571209

EDUCATION & PROFESSIONAL DEVELOPMENT

- **Faculty of Petroleum & Mining Engineering, Suez University** 2016 - 2021
  - Bachelor's Degree in Petroleum Refining and Petrochemical Engineering
- **Coursera** Jan 2022 – May 2022
  - Google Data Analytics Professional Certificate Online

SKILLS & LANGUAGES

Language Skills

- Arabic (Native)
- English (Professional working proficiency)

Software

- Process simulation: Aspen HYSYS, UniSim Design
- Heat transfer: HTRI, Aspen EDR
- Drafting & office: AutoCAD, MS Office
- Programming: Python, SQL

PERSONAL INFORMATION

- **Date of Birth:** October 01, 1998
- **Citizenship:** Egyptian