Deepesh Khandelwal
Flow Assurance Consultant

Summary

Years of Experience

<5

Office of Employment

Wood Group Kenny, India

Industries

- Oil and Gas
- Upstream
- Onshore

Types of Facilities

- Production Facilities
- Upstream
- Onshore/Offshore Pipelines

Areas of Expertise

- Reservoir Engineering
- Production Engineering
- Fluid Modeling
- Flow Assurance
- Conceptual Studies

Professional Summary

Deepesh has less than 5 year of experience in oil and gas industry and is currently working as Flow Assurance Consultant at Wood, India. He is responsible for performing multiphase flow studies and provide technical service support for flow assurance.

His experience includes reservoir simulation modeling studies (including understanding of PVT simulator coding). He has basic knowledge of PVT Analysis and Equation-of-State tuning for compositional fluid models.

He has also performed project on field development planning and implementation using ECLIPSE software, risk analysis of Oil and Gas projects.

Qualifications

Education

Bachelor's in Petroleum Engineering, IIT Dhanbad, India, 2017

Registrations / Certifications / Licenses

Members of Society of Petroleum Engineers

Software / Skills

- MATLAB
- PIPESIM
- PIPENET
- TLNET/TGNET/SPS
- ASPEN HYSYS
- OLGA
- ECLIPSE
- PVTSim, Multiflash

Languages

- English
- Hindi
- Gujarati

Experience

Flow Assurance Consultant (WGK, India)

SAUDI ARAMCO, Mcdermot, Marjan MIP Package-04– Rich Gas, Lean Gas and MEG system, Flow Assurance Study

The study objective is to provide the steady state and transient analysis to estimate normal operating conditions, liquid management strategies, hydrate management to ensure safe operations.

- Performed steady state thermal-hydraulic analysis of the rich gas pipeline network to validate the various line sizes proposed in FEED, fluid temperatures and pressure profiles, and to estimate the liquid arrival rate at TGP expected during the various steady state operations.
- Evaluated the risk of hydrate formation during steady state operation and to estimate the MEG injection rate required at WHP.

ADNOC, Thermal Transient Analysis for Umm Al Dalkh Field, United Arab Emirates

The study objective is to establish the maximum operating temperature for the oil pipelines based on current and forecasted future production profile.

- Assessment of operating temperature in all 7 multi-phase pipelines in PIPESIM for the given production profile.
- Transient shutdown and restart simulations in OLGA for identified critical pipelines.

SAUDI ARAMCO, Marjan MIP Package-02 Offshore Oil Facilities – Detailed Engineering, Flow Assurance Steady State and Transient Analysis

The study objective is to provide the steady state analysis results and outcomes for Marjan Package-2 Network assessing the impact of additional oil on tie-in platforms and pipeline size verification.

- To perform fluid characterization using PVTsim Nova.
- Built integrated network model starting from wellhead platform to receiving facilities using OLGA. Performed thermal-hydraulics analysis of the wild crude production network connected to GOSP to confirm line sizes.
- To confirm low flowrates operability for selected production years and mitigate liquid surges experienced from low flow slugging through application of choke upstream of each HPPT separator.
- To provide operating envelope and fluid properties for pipeline design.
- To estimate swing line capacity under pressure constraint at the Wellhead platform and estimate the best production distribution among various tie-in platform connected to swing line.

SAUDI ARAMCO, Marjan MIP Package-01 Offshore Oil Facilities –, Flow Assurance Steady State and Transient Analysis for GOSP-4 Production Manifold Design and Pressure Surge Analysis for Crude Oil Export Trunkline

The study objective is to confirm the design properties of GOSP-4 production manifold and High-Pressure Production Traps. The study also includes steady state and pressure surge analysis for crude oil export trunkline using Synergy Pipeline Simulator (SPS).

- To perform fluid characterization using PVTsim Nova.
- Built integrated network model starting from production manifold to receiving facilities. Performed thermal-hydraulics analysis of the GOSP-4 production manifold.

- Estimated HPPT surge volume capacity and drain rates for various operating conditions.
- Studied the effectiveness of manifold cross-over design and effectiveness of choking as a liquid surge mitigation strategy.

Crude Oil Export Trunkline Studies:

- Steady State hydraulic was conducted in SPS to verify the line sizes and pressure ratings.
- Various transient scenarios like valve closure, pump trip and restart will be executed to estimate maximum surge pressure in the pipeline.
- Performed adequacy check of the GOSP-4 wet crude export trunkline network to ensure that no design limit exceeds.

Steady State Flow Assurance study for LS17-2 Gas Field Development, China

The study objective was to identify upper & lower limit of flow rates, hydrate inhibitor requirement & verifying the capacity of the system.

- Built integrated OLGA network model including wells and connection to manifolds to achieve equal flow splits
- The discrete standalone well model was tuned for formation conductivity and thickness to match against the Wellhead flowing pressure and temperature data by using standard OLGA base license
- The key outcomes of this steady-state study provide the operating envelope in field, natural and equal flow split difference, liquid handling capacity, upper and lower limits on flowrates and system integrity in normal and abnormal production scenarios.

ADNOC, ADNOC Onshore MOL Replacement TLNET Study, United Arab Emirates

The study objective was to build the model for ADNOC Onshore MOL Network in TLNET and perform steady state and transient hydraulic study to evaluate surge pressure in the flowlines.

- Steady State hydraulic was conducted in TLNET to validate the adequacy of existing and new facilities.
- Various transient scenarios like valve closure, pump trip and restart were executed to estimate maximum surge pressure in the pipeline.
- Performed adequacy check of the MOL network to ensure that no design limit exceeds.

Wood Dubai, BGC Liquid Surge Analysis for 12-inch pipeline, Dubai

The study objective was to establish the normal operating conditions for the subsea liquid pipeline based on the production profile and perform turndown, ramp-up and pigging operation to evaluate slugging potential and to estimate maximum allowable liquid hold up in slug catcher.

- To perform fluid characterization using PVTsim Nova.
- Steady State hydraulic was conducted in OLGA and operating conditions for the subsea pipeline were established.
- To estimate liquid surge volumes for various transient scenarios which include turndown, ramp-up and pigging simulations.

SAUDI ARAMCO, Hydraulic & Pressure Surge Analysis for Arabian Heavy Oil Pipeline, KSA

The study objective was to validate the hydraulic study in SPS for Arabian Heavy cross-country pipeline from Ju'aymah & Ras Tanura terminals to storage tanks un YCOT.

- Steady State hydraulic was conducted in SPS and operating conditions for the existing and new pipeline networks were established.
- Various transient scenarios were executed to estimate maximum surge pressure in the pipeline.

ADNOC, Thermal Transient Analysis for US & ZK Fields, United Arab Emirates

The study objective was to establish the maximum operating temperature for the oil pipelines based on current and forecasted future production profile.

- Assessment of operating temperature in all 113 pipelines in PIPESIM for the given production profile.
- Transient simulations in OLGA for identified critical pipelines.

Engineering Intern (PetroMinds Consulting LLP, New Delhi)

- Involved in development of PVT flash algorithm using MATLAB software.
- Worked on building E&P financial models to demonstrate project cash flows.
- Worked on understanding the structure of reservoir simulation algorithm.

Summer Intern (Imperial Energy, Tomsk, Russia)

- Coordinated with technical support in monitoring the production activities by using Mimic software in Sneznoye and Maiskoye field.

Winter Intern (Institute of Reservoir Studies, ONGC Ahmedabad)

- Worked on reservoir modelling and simulation for developing the field development plan using ECLIPSE software.
- Conducted reservoir performance analysis studies using ECLIPSE software for Neelam Heera type carbonate reservoir.

Project Trainee (ONGC Mehsana)

- Field training in Drilling operations, Mud Services, Cementing Services, Directional Drilling, Fishing operations and HSE activities.

Professional History

- Wood (2018 – Present)
- PetroMinds Consulting LLP (2017– 2018)
- Imperial Energy, Tomsk, Russia (July, 2016- August, 2016)
- Institute of Reservoir Studies (December, 2015- January, 2016)
- ONGC Mehsana (May, 2015- June,2015)