

## Summary

### Years of Experience

3

### Office of Employment

Wood Group Kenny, India

### Industries

- Oil and Gas
- Upstream
- Onshore

### Types of Facilities

- Upstream systems
- Onshore/Offshore Pipelines

### Areas of Expertise

- Surge Studies
- Flow Assurance

## Professional Summary

Siddanth has 3 years of experience as a flow assurance consultant and has worked on projects associated with oil and gas production pipelines. He is currently working as a consultant at WOOD, India and is responsible for performing single and multiphase phase flow studies and provide technical service support for flow assurance.

He has been involved in performing steady state and transient simulations such as normal operations, pump trip, pump restart, sudden valve closure, shutdown, restart, pigging and pressure surge analysis.

## Qualifications

### Education

Bachelor of Engineering, Chemical Engineering, RV College of Engineering, Bangalore (2019)

### Software / Skills

- Synergi Pipeline Simulator (SPS)
- OLGA
- PIPESIM
- Synergi Pipeline Simulator (SPS)
- PVTsim
- Multiflash
- OLGA

### Languages

- English
- Hindi
- Kannada

## Experience

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### Flow Assurance Consultant (WGK, India)

#### AGOC Gas Export Facilities: Flow Assurance Analysis for 4" NGL Line.

The study objective was to enhance pipeline capacity by looping of pipeline and DRA injection.

- Steady state analysis was performed to establish the normal operating conditions of the network using **Synergi Pipeline Simulator (SPS)**
- Pipeline was split into two identical parallel sections to study flow capacity enhancement.
- Drag Reducing Agent (DRA) was injected upstream of pipeline to study flowrate enhancement.

### Marjan Increment Project FA and HIPPS Study

- The study objective was to perform steady state and transient analysis for MEG Injection System.
- Steady state analysis was performed to establish the normal operating conditions of the MEG Injection System based on the estimated MEG rate. The model consisted of various manifolds, umbilical cores and trunklines. The MEG Injection System was modelled using **Synergi Pipeline Simulator (SPS)**.
- Transient scenarios were simulated for the case with highest pressure requirement for MEG delivery (conservative case). Transient scenarios such as sudden valve closure, pump trip, restart of pump after trip and inadvertent start-up of spare pump were performed to determine maximum surge pressure and possibility of vapor evolution. The Transient scenarios were simulated with **Synergi Pipeline Simulator (SPS)**

### Hasbah- MEG Injection System

- The study objective was to perform steady state and transient analysis for MEG Injection Network.
- Steady state analysis was performed to establish the normal operating conditions of the MEG Injection System based on the estimated MEG rate. The model consisted of three manifolds and a recycle line. MEG flowed to the manifolds via three umbilical cores per manifold. The MEG Injection Network was modelled using **Synergi Pipeline Simulator (SPS)**.
- Transient scenarios such as sudden valve closure, pump trip, restart of pump after trip and inadvertent start-up of spare pump were performed to determine maximum surge pressure and possibility of vapor evolution. The Transient scenarios were simulated with **Synergi Pipeline Simulator (SPS)**

### Manifa Water Injection Conceptual Phase Studies

- The study objective was to perform steady state simulations for Manifa Water Injection Network, for both existing and new pipelines to estimate the line size adequacy for existing network and recommend line sizes for the new pipeline network.

- Various options were analyzed based on the water injection rates over the years. The best option was recommended based on simulation studies carried out using **Synergi Pipeline Simulator (SPS)**.
- Line size adequacy was subjected to constraints fixed by Saudi Aramco standards for velocity, design pressure and pressure requirement at the well head platforms.

### **SHELL Subsea Line Transfer – Hydraulic and Surge Study, Singapore**

- The study objective was to perform steady state and transient surge analysis for Heavy Naphtha pipeline using **PIPENET** software.
- Steady state analysis was performed to determine the operational envelope required to achieve pipeline design flowrate.
- Transient simulations like sudden valve closure, pump trip and pump start-up were performed to determine maximum surge pressure and possibility of vapor evolution. Valve closure time and pump trip and start-up times were recommended to prevent cavitation and maintain surge pressure within the design pressure of the pipeline.

### **HABSHAN GAS MASTER PLAN STUDY – SELECT STAGE – 30" -OAG and 42" -IGDE Pipelines Flow Assurance Steady State and Transient**

- Steady state simulations were performed using OLGA for 30" OAG pipeline and 42" IGD-E pipeline to verify the hydraulic capacity of the pipelines with the Habshan Master Plan's production profiles and estimate the liquid generation into the separators and verify their capacity. This steady state evaluation considered three operating modes for the offshore pipelines in terms of gas distribution – Segregated, Mixed and Hybrid.
- Transient simulations were performed using OLGA for the 30"-OAG pipeline and 42"-IGD-E pipelines to confirm the operability of the pipelines for transient operating scenarios and evaluate liquid generation into the Habshan 1st separators and verify their capacity.
- The following transient scenarios were evaluated across the three operating modes for the offshore pipelines in terms of gas distribution – Segregated, Mixed and Hybrid:
  - Shutdown (long-term)
  - Restart after long-term shutdown
  - Pigging

### **LZ LTDP-1 – New Main Gas Line from ZWSC to Das Island Project – 34" NMGL Through Pigging from Island G to Das Island**

- Steady state and pigging analysis were performed for pipeline commencing from Island G and terminating at Das Island, IGDE Receiver to estimate liquid surge at IGDE Receiver, as a consequence of pigging.
- The system was modelled on OLGA v2017.2 and the fluids were characterized using PVTsim Nova v2.2.
- Steady state simulations were performed to establish operation conditions and identify the governing scenario for pigging.

- The scenario with highest liquid content in the pipeline, as established by the steady state simulation, was used to analyze through pigging.
- The pigging analysis was carried out to study the effect of liquid surge on existing slug catcher.

## **Professional History**

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- Wood (2019 – Present)