Reshma Beloshe
Senior Process Engineer

Summary

Years of Experience

>12

Office of Employment

Wood Group Kenny, India

Industries

- Oil and Gas
- Refinery units
- Thermal Power Plants

Types of Facilities

- Downstream systems
- Chemical Process Industries

Areas of Expertise

- Process Simulation – Steady state and dynamic simulation
- OTS
- Process Engineering

Professional Summary

Reshma has 12+ years of experience as a Process simulation engineer and has worked on projects associated with high fidelity OTS systems for oil and gas processes, refinery units and thermal power plants. She has been involved in high fidelity dynamic modelling of three phase separators, compressors, pumps, distillation columns, heat exchangers and control philosophy of these equipment. She is currently working as a consultant at WOOD, India and is responsible for performing process engineering activities. She has been involved in performing steady state and dynamic simulation for engineering studies.

Qualifications

Education

Post Graduate Diploma in Process Engineering from Suvidya Institute of Technology (2012)

Bachelor of Engineering, Chemical Engineering from Datta Meghe College of Engineering, Mumbai (2008)

Software / Skills

- K-Spice
- UniSim/HYSYS/Petro-SIM – Steady State and Dynamics
- CHEMCAD

Languages

- English
- Hindi
- Marathi

Experience

Senior Process Engineer (Wood. , India)

BP-ROO, Dynamic Simulation study for Gas Blowby Scenario in DS04

- Worked as a Senior Consultant for HYSYS dynamic study. The project scope includes dynamic simulation study of the FWKO separators using ASPEN HYSYS to determine the adequacy of the relief system with analysis of gas blow-by through the crude lines from 1st Stage Separator and 2nd Stage separators to the corresponding downstream systems with the objective to
    a. Identify the peak relief flow and establish adequacy of proposed relief valve size and numbers installed on Separators in the event of a gas blowby from upstream Separator
    b. If found inadequate, establish the max. pressure in Separator to mitigate gas blow by relief load through same proposed relief valve size and numbers
    c. If the estimated pressure is below maximum operating pressure (MOP) of Separators, determine the new size and number of PSVs required to mitigate the gas blowby relief rate
    d. Establish the peak relief gas flow to HP flare stack and duration of peak gas flow rate

Senior Process Engineer (Kongsberg Digital Software and Services Pvt Ltd. , India)

OTS for Grane, Equinor, Norway

- Technical lead for the project and was responsible for Model QA, tuning of topside process, FDS preparation. The scope of the project covered complete Offshore oil field including subsea, topside and all the utilities and electric system of the plant.
- Involved in modelling ConsiMAP controllers for compressor Anti-surge control system.
- Involved in complete Logics emulation of Startup and Shutdown sequences for compressors, turbine in K-Spice
- K-Spice model and DCS integration for ABB DCS
- Successfully completed MAT and FAT of the Project

OTS for Liza Subsea, ExxonMobil, Norway

- HMI Emulation of TechnipFMC subsea DCS using K-Spice and DCAD graphic building tool
- The scope of the emulation included building all the process graphics, shutdown graphics, faceplates, and the functionalities of the faceplates to closely match the functionalities on the actual DCS.

OTS for Portovaya LNG, Linde

- Implemented Cause and Effect matrixes for ESD logics of compressor and turbine in K-Spice
- Logics emulation of Startup and Shutdown sequences for compressors, turbine in K-Spice
- K-Spice model and DCS integration for Yokogawa DCS

OTS for Johan Castberg, Equinor, Norway

- P&ID Mark-up, K-Spice Model building, integration and Tuning for topside process
- Developed k-Spice model for Oil and Gas train (Three phase separators and compressors), TEG regeneration.
- Reading isometrics using K-Spice ISO Explorer.

OTS for Johan Sverdrup, Equinor, Norway

- P&ID Mark-up, K-Spice Model building, integration and Tuning for topside process
- Reading isometrics using K-Spice ISO Explorer.

OTS – Gate Terminal

- Configuration of Emulated Graphics for Yokogawa DCS using K-Spice and DCAD graphic building tool
- Reading isometrics for the topside plant and read the isometric details in k-Spice model

Senior Process Engineer (Ingenious Process Solutions Pvt Ltd. - WOOD , India)

OTS for Carbon Black Plant, Continental Carbon Company, USA

- Developed steady state and dynamic model using Petro-Sim Dynamics Simulation software.
- Modeled Bag filters, Waste gas Combustor, Thermal Oxidizers, Dryers, Pumps and Compressors with process control system.
- Performed startup and shutdown of Carbon Black OTS model and prepared Standard Operating Procedures (SOPs) for plant operations on OTS.
- Graphics Development on ProDyn – Operator Training Simulator.
- DCS Integration with Delta V (DCS by Emerson).

OTS for CHF Heater, KJO, Saudi Arabia

- Developed steady state and dynamic model for Controlled Heat Flux (CHF) heater for Ratawi Plant, using Petro-SIM software.
- Developed logics for startup and shutdown sequence of heater Burner Management System and Cause and effect analysis.

Generic OTS Models

- Developed generic OTS models for Sulphur Recovery Unit, Natural gas dehydration Unit (Using TEG) and Natural Gas Liquefaction (NGL)
- Maintenance and up-gradation of Crude Distillation Unit (CDU), Gas Concentration Unit (GCU), Boiler, Oil and Gas Platform and unit operations models.
- Implemented Cause and Effect matrixes and startup shutdown sequences.

OTS for Vinyl Chloride Monomer (VCM) Plant, Reliance Industries Ltd. (RIL)

- Involved in scope definition, FDS preparation, steady state model of the plant.
- Developed dynamic model for VCM purification section in UniSim software.
- Prepared Acceptance test procedures for MAT and FAT.

OTS for Fluidized Catalytic Cracking (FCC) Plant, Reliance Industries Ltd. (RIL)

- Worked as Team Lead and Involved in scope definition, FDS preparation, steady state model development of the plant.

PSV Sizing and Rating, Formosa Plastics Corporation, Texas

- Done PSV sizing and rating as per API 520 and API 526

- Done adequacy checks for inlet and outlet lines of PSVs.
- Used DIERS method for two phase relief using CHEMCAD.

Simulation study and Rating of Distillation Column, Chemie Tech, Baroda

- Simulated Continuous and batch column for the separation of oil having C9+ components in CHEMCAD.
- Done rating of reboiler, condenser and column for both the columns.
- Compared the results of the continuous and Batch column.

Refinery Planning and optimization using ProPlan Software

- Build refinery models to get optimum operating conditions and allocation of components to finished products with specific quality constraints.
- Build models with different time horizons to meet different planning objectives associated with daily, weekly and monthly production planning including startup and shutdown.
- Testing of ProPlan/ProSched software.

Installation and Training

- Installed ProDyn software and delivered training to BITS Pilani – Goa Campus.
- Installed ProPlan software and delivered training to LEMIGAS, Jakarta, Indonesia
- Delivered training on CHEMCAD software to Gujrat Flurochemicals Ltd.
- Defined scope and prepared technical proposals for OTS projects for refineries and oil and gas processes.
- Worked on Real time Performance Monitoring (RPM) tool Pro-RPM for monitoring key performance indicators (KPI's) of plant continuously.

Senior Process Engineer (Triangle Simulations Pvt Ltd. - WOOD , India)

OTS for 500MW Thermal Power Plant, MAHAGENCO (MSEB)

- Developed DCS based Operator Training Simulator (OTS) project for 500MW Thermal Power Plant situated at Chandrapur Super Thermal power station (CSTPS) using C++ programming and dynamic graphic development using wingraph tool.
- Developed dynamic models for condensate cycle containing Surface condenser, Condensate Extraction pump (CEP), Drain cooler, Low Pressure heaters, Deaerator, feed water cycle, steam cycle, Turbine and Generator auxiliaries.
- Involved in FAT and SAT of the project.
- Lead engineer for developing trip and interlock logics of the plant. Developed Sub Group Control (SGC) logics for Automatic Turbine Run-up System (ATRS), Startup and shutdown of CEP, BFP, FD fan, ID fan, PA fan.
- Team Member for development of special control systems such as Turbine Electro-hydraulic Governing (EHG) system, Boiler three element control for Feed Control Station (FCS), Turbine follow mode control, Boiler follow mode control and Coordinated Master Control (CMC) of the plant.

OTS for Sulphur Recovery Unit (SRU), BPCL, Mumbai

- Developed OTS for Sulphur Recovery Unit (SRU) using visual C++ and also completed FAT, SAT at BPCL having emulation of Honeywell TDC3000 DCS.
- Developed dynamic model for thermal reactor (Reaction Furnace), waste heat boiler, Tail gas treating unit (Incinerator). Modeled logics for startup and shutdown sequence of Reaction Furnace and Incinerator.
- MCRC Claus converter and series of three catalytic reactors which switch automatically from regeneration mode to sub dew point mode and vice versa (based on sulphur loading on catalyst bed).
- Integrated the whole model with closed loop control system as well as trip & interlock logics of incinerator, reactor furnace.
- Prepared Standard Operating Procedures (SOPs) for plant operations on OTS.

Professional History

- WOOD, Chennai, India, Senior Process Engineer (Jan 2022 – Present)
- Kongsberg Digital Software and Services Pvt Ltd. Mumbai, India, Senior Process Engineer (March, 2017 – December, 2021)
- Ingenious Process Solutions Pvt Ltd, Mumbai, India, Senior Process Simulation Engineer (2011 – 2017)
- Triangle Simulations Pvt Ltd., Mumbai, India, Process Simulation Engineer (2008 – 2011)