Resume

**P.K. BALASUBRAMANIAN**

B.E. (Chemical) Tel: +0091-9619624767 (mobile-India)

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5th Road, Santa Cruz ( E),

Mumbai-400055

Senior Process Engineer with 16+ years’ experience of process design in oil and gas, environmental and mineral engineering related projects. Projects executed from concept, basic engineering, detailed design upto commissioning. Experience also includes process screening, optimization, de-bottlenecking and techno-economic studies.

**Activities involved**

Prepared concept and basic engineering packages

Detail engineering for various projects

Process calculations & equipment sizing

Preparation and/or checking of P&ID, PFD & material balance

DD for various augmentation or revamping projects

Preparation of equipment list, line list, load list etc.

Process datasheets

Control philosophy

Hydraulic calculations

Process Operating Manuals

**Educational qualification**

1. **B.E. in Chemical Engineering** from D.J. Sanghvi College of Engineering from Mumbai University in 1999
2. **NIIT**( Swift India) in 1999
3. **MBA (Finance)** from Narsee Monjee Institute of Management Studies, 2008

**Professional Experience**

**Organization: Damit Worley Parsons Engineering SDN BHD, Brunei** 23rdMay 2011 till date

Designation: Senior Process Engineer

**B23 Champion Water Flood Project (Production and well head platforms), Client: Brunei Shell Petroleum**

1. Involved in CD Stage for preparing the following calculations and reports:
2. LP Production Separator Sizing calculations.
3. CO2 Snuffing system calculations
4. Hydraulic calculations for the flow lines, production manifold, Liquid export line and gas export line.
5. Chemical Injection System calculations.
6. Coriolis meter Hydraulic and Flash check calculations.
7. KO Drum Pump Hydraulic calculations.
8. Prepared Relief, Flare and vent study report comprising of

* LP production Separator relief valve calculations for blocked outlet and fire case scenario
* Vent network Hydraulic simulation in Aspen Flare System Analyzer comprising of the complete system from LP Prod Separator PRV to Vent Header , Vent Header to Vent KO Drum, Vent line downstream of the KO Drum to Buckling Pin Relief Valve and Self Regulating PCV and to the Vent Boom
* Vent KO Drum and Open Drain Drum Sizing.
* Involved in casing blow down calculation using HYSYS Depressurization Utility

1. Involved in setting up HYSYS Simulation Model for Well head and Satellite platforms

1. Involved in DD Stage and closure of the same to update the key drawings (P&IDS, PFS & PSFS) due to Design Development & Vendor inputs. Also involved in complete review of vendor documents for the package system and comments on the same. Also involved in fixing the Process Set points, alarm and trip values for the Project.

C. Involved in getting BSP approval on the Key drawings (P&IDS, PFS & PSFS) with Key Design Change Log (KDCL) for the DD close out stage.

D. Involved in Darat Water flood CD for SRU system related to Sea water Injection. Involved in Preparation of PEFS, PFS, PSFS for the complete SRU System including critical equipment such as Dissolved Air Flotation Units, Multimedia filters, Deaerator, SRU Membranes and Injection Water System. Conceptualized the control and safeguarding philosophy as per Shell DEP standards. Actively participated HAZOP & IPF workshops and prepared Close out points for the same. Involved in Preparation of Process Datasheets.

E. Performed relief valve sizing for supercritical case for the Separator vessel under fire scenario for Glycol Project.

F. Gas Turbine Generator Package System for AMPA Integrated Power Plant Project

1. Developed Simulation model on Unisim R 430 and conducted simulation studies for the Fuel Gas conditioning system to the GTGs for the HHP, HP & LP sources of Fuel gas to the GTGs with respect to various inlet pressures to the GTGs. Estimated the HC Dewpoint, Water Dewpoint, Wobbe Index, LHV & superheater duty based on the simulation runs for various Scenarios. Prepared Simulation report to capture the findings such as hydrate formation, Adequacy of superheater duty.
2. Prepared relief valve sizing calculations to determine the existing system adequacy checks for relieving flows related to various scenarios such as blocked gas outlet scenario from the Fuel gas scrubbers, Fuel gas inlet line Control valve failure scenario to the fuel gas scrubbers, Fire Case Scenario.
3. Prepared Utility adequacy report for the various utilites such as Fuel gas system Diesel Fuel System, Instrument Air (IA) System ,Fine water Spray system & Water Wash System.
4. Prepared Adequacy check for the existing fuel gas system comprising of fuel gas scrubbers, fuel gas filter & superheater.

G. Completed First Oil Production Study for the Champion West Platform to ensure oil flowability during Platform startup scenario. This is using Pipesim Software

H. Prepared BFD for the CO2 Removal system which includes the following:

(i) Simulation of CO2 Removal system using Unisim R-430.

(ii) CO2 blending calculations for Low CO2 Gas and High CO2 Gas.

(iii) Pipeline Hydraulic Study for off-shore pipeline from CPGP07 to onshore and on-shore pipeline to AGRUs using Pipesim.

(iv) Blowdown study for the HP side of CO2 Removal system.

(v) Utility quantity estimation.

**Awards:**

1. Received Certificate of Appreciation for excellent contribution to Champion Water Flood Project.
2. Received Long Service Award for 5 years at Damit Worley Parsons.

**Organization: Petrofac Engineering India Ltd, Mumbai** 2009 till 2011

Designation: Senior Process Design Engineer

**Worked on FEED for Lekhwair Gas Development Project, client: Petroleum Development Oman**

Completely Involved in checking of Vendor offers & package associated P & IDs

for Amine Gas Sweetening Package, TEG Dehydration Package & Hot oil Package as per Petroleum Development Oman Specification & Shell Standards

**Major Projects**

**EPC for ASAB FFD Project for Abu Dhabi; Onshore Oil Operations.**

Remote Degassing Station-2 which produces 70,000Nm^3/hr gas &210m^3/hr liquid.Prepared P& IDs for Multiselector Manifold, Multiphase flowmeter, Transfer Line Pig launcher, Lift Gas Pig receiver, Lift Gas KO Drum, Lift Gas Manifold, Produced Water Reinjection Manifold, Produced Water Pig Receiver.

Prepared P & IDs for Utility Section comprising Closed Drain System which includes Closed Drain Drum, Closed Drain Drum Pumps & its associated Booster Pumps & Closed Drain Collection Header, LP Flare System which includes LP Flare KO Drum,Flare Drain Sump Drum & Flare Header, Chemical Injection Packages comprising of Corrosion Inhibitor, Demulsifier, Biocide& Scale Inhibitor.

Prepared Datasheets (with respect to Shell Standards)& Estimated Dosing rates for Chemical Injection Packages. Prepared C&E diagram and Control Philosophy & Isolation, vent & Drain Philosophy for ASAB RDS-2.Prepared pigging Philosophy for ASAB RDS-2 with respect to Shell Standards &ADCO Standards.

Estimated wash water quantity required for Crude oil Desalting.

**EPC for Qatar Petroleum Project (Augmentation of existing SRU from 285TPD to 308 TPD)**

Prepared P & IDs for Acid Gas KO Drum, Process Air & Acid Gas Preheating System, Reaction Furnace System,1st& 2nd Stage Auxillary Burners, 1st& 2nd Stage Convertors& Associated Condensers, Last Stage Condenser, Final Seperator &Sulphur Degassing Pit. Designed Heating coils for the Sulphur Degassing pit. Prepared process Control Philosophy for the SRU Plant

**Elmerk Project**

Performed PSV sizing for Injection Gas Compressor Blocked Outlet Case,PSV Sizing for Control Valve Failure for Gas Blow By case for Condensate Inlet Separator, PSV Sizing for Fire liquid Vaporization for Condensate Inlet Separator using Steady State ASPEN HYSYS Simulator.

**EBLA Project**

Performed BDV sizing for Dethanizer System for Fire case, Adiabatic Case & Isochoric case using Depressurization Dynamics Utility in ASPEN HYSIS Simulator

**Organization: Hindustan Dorr Oliver Ltd, Mumbai** 2003 to 2009

Designation: Assistant Manager (Process) - Design & Engineering Division

Successfully managed Basic and Detailed engineering of more than 15 Projects for process division. Work with the team of 4 Process Engineers in Design Department. Work encompasses project related to refinery, petrochemical, alumina, recausticization system, scrubbing systems etc. Responsible for providing direct technical guidance, leadership, supervision of larger and complex projects. Involved in more than 4 bid analysis

**Major Projects**

**Augmentation of Oily Effluent Treatment Facility, Capacity 16800 m3/day for Oil & Natural Gas Corporation (ONGC), Uran, India.**

Detail Design of Oil-Water separators (API and Corrugated Plate Interceptors), Slop Oil Storage and Transfer Facilities, Filters with Hot backwash, Bio-Towers (14 M Height with Blowers) and Disposal system with Oily Sludge handling facility.

**Refinery Oil Effluent handling and Treatment Plant, Capacity 18000 m3/day for Indian Oil Corporation Limited (IOCL), Mathura, India with Consultant H&G Jacobs, India.**

Involved in Basic Engineering Package (BEP), equipment layout, detail engineering, equipment specifications, hydraulic calculation for pressure and gravity lines, process operating manuals, HAZOP studies. Site visits during erection and pre commissioning. Technical Evaluation of Vendors offers. Major equipments were Tilted Plate Interceptors, Dissolved Air Flotaion, Belt/Pipe/Drum Oil skimmers, Bio-Towers and Activated Sludge Process followed by Dual Media Filter and Activated Carbon Filters.

**Basic design to Detail Design to install Settler & Washers and hydrate thickerns and Greenfield project for Vedanta Alumina Refinery at Lanjigarh, India.**

Involved in the Preparation of Basic Engineering Package for the Settler & washer Package which includes preparation of P & I.D, settler sizing, Control philosophy & Interlock description, Pump hydraulic calculations for the slurry & liquor pumps Equipment List, Electrical load list & line schedule

**Recausticization Plant for J.K Papers of green liquor capacity1100m3/day**

Involved in preparation of BEP, Equipment specifications, Preparation of Piping & Instrumentation Diagram, Mass Balance Calculations, Sizing of Equipments such as Green Liquor Clarifier, White Liquor Clarifier, Slakers, Causticizers& Lime Mud Washers by referring Dorr-Oliver recaust manual.

**Milk of Lime Preparation Plant of 20MTPH for Vedanta Alumina Ltd, Orissa**

Involved in preparation of P& ID, Process calculations for yield of Hydrated lime, mass & energy balance, Equipment Sizing for major Equipment like Lime Silo, S Dorrco Drum Slaker, Dorrclone by referring Dorr-Oliver Manual for MOL System

**Completed detailed engineering for Nalco alumina refinery for the settler& washer, flocculant dosing &causticizer package which includes:**

Preparation of equipment list, electrical load list, pump hydraulic calculations for slurry & liquor pumps. Preparation of DCS schemes for all the equipment drives. Reviewed the correctness of the functional schematics with respect to process control philosophy.Involved and responsible for approval of the P & IDs and BEP from EIL, New Delhi.

**Scrubber calculations for GFCL**

Prepared scrubber design calculations for cyclonic scrubber &venturi scrubber for the milk of lime plant.

**Organization: Capital Controls India Pvt Ltd, Mumbai**2002 to 2003

Designation: Process Engineer

**Major projects**

**Project of Petronet LNG Ltd (Consultant: Toyo Engg).**

Prepared the project schedule for the entire project on MS Projects which includes completion of Basic & Detailed engineering activities, procurement of bought out items for such as pumps, valves, pipe & pipe fitting, strainers , pressure indicators , completion of Design activities for in–house manufacturing items such as chlorinators, ejectors, roller supports & skid fabrication.Prepared Datasheets for Pressure indicators, valves for water & chlorine solutionservice, water supply & chlorine solution Piping & booster pumps for water service.

**Project of Paramount Ltd (Consultant: EIL).**

Prepared Engineering activities which includes the following:

* 1. Caustic Tank Sizing, fixing of blower capacity & calculation of blower head.
  2. Estimated of ***diameter & packed height*** of chlorine absorption column.

c. Vaporizer Design. Prepared Process Design of Vaporizers for Vaporizing Liquid Chlorine of capacities of 138 kg/hr, 227 kg/hr, 772 kg/hr7 1445 kg/hr which involved (i) theHTA for vaporizing liquid chlorine & (ii) Estimating no of tubes, tube bundlediameter & the shell diameter for the vaporizer

**Organization: Pipecon Consultant of India Ltd,** 2000-2001

Designation: Assistant Process Engineer

**Project of HiranOrgochem Ltd.**

1. Calculated utility consumption for the Production of 175 TPA of Ciprofloxacin.
2. Estimated peak utility consumption in order to size the boiler, cooling tower & brine chiller.
3. Prepared Equipment Capacity & occupancy chart for 175 TPA.
4. Estimated Batch Size & Equipment for 400 TPA and also estimated peak utility consumption and prepared Equipment capacity and occupancy chart for 400 TPA.
5. Prepared Equipment & Electrical Load List for 400 TPA.
6. Explored various possibilities for reducing power requirement.

**Project of ZydusByk Health Care Ltd.**

Technical Comparison of quotations of various vendors for equipments like Boiler, incinerator, chiller & cooling tower.

**Project ofAtul Chemicals Ltd.**

1. Design of plate type distillation column to separate a binary mixture of methyl alcohol & water containing 32 mol% of the alcohol to overhead product of 97% purity. Estimated the following process parameters. Calculated the following process parameters: (i) Minimum reflux, (ii) Operating reflux & (iii) Theortical plates for the rectifying section & stripping section.
2. (a.) Design of plate type distillation column to separate a binary mixture of Benzene& toluene containing 50 mol% of the benzene to overhead product of 98% purity for the following conditions:(1) Saturated liquid feed, (2) Saturated vapor feed. Calculated Theortical plates for the rectifying section & stripping section.

(b) Calculation of plate hydraulics of sieve plates for the above column

**Organization: AIMCO Pesticides Ltd,** Feb 2000- May 2000

Designation: Management Trainee

Worked in Aimco Pesticides Ltd as a Management Trainee in the Production Dept for the period February 2000to May 2000.

ACHIEVEMENTS: Efficiently handled manpower & controlled the production process.

**Organization: EXCEL Industries Ltd,**  Dec 1999 - Feb 2000

Designation: Management Trainee

**Organization: EXCEL INDUSTRIES LTD.**

Worked in Excel Industries Ltd as Management Trainee in the Life -Sciences Dept for the period December 1999 to February 2000.

**Personal detail**

Date of birth : 03/02/1977

(P.K. BALASUBRAMANIAN)