MUKUND SADASHIV CHIPLUNKAR

Process & Technical Safety Consultant

Education : **B. Tech.** (Bachelor of Technology) *in Chemical Engineering*. Passed out from *Indian Institute of Technology* [I.I.T.], Mumbai (earlier Bombay), INDIA in 1975

Date of Birth : August 18, 1953

Nationality : Indian

EXPERIENCE SUMMARY:

Over Forty (40) years of experience in process design, engineering, operation and troubleshooting in all areas of hydrocarbon processing industry. Wide ranging experience, from consultancy organizations to operating companies,
Involved in all aspects of oil and gas production facilities, gas processing and petrochemical plants,
Major areas of expertise and career responsibilities include:

- Safety Assessment, Risk Management, Chairing HAZOP/ HAZID/ PHSER Studies, and related assignments in the area of Technical & Process Safety in oil & gas, chemical and other process plants
- Basic process design, simulation, process flowsheet optimization and related studies, technology evaluation and selection
- Feasibility studies and preparation of study reports.
- Development and evaluation of available commercial processes.
- Process engineering related to project implementation, i.e., preparation of P&ID's, sizing and specification of equipment, instruments plant piping and pipelines, selection of major equipment, etc.
- Plant operation troubleshooting, including performance improvement exercises, optimization studies, start-ups, test runs, debottlenecking, HAZOP exercises and plant modifications.
- Evaluation of commercially available software for simulation, process design and engineering.
- Developing basic requirements for operator interface for process monitoring, reporting, using DCS.

CAREER OBJECTIVE

To take up a strategic role wherein I get an opportunity to leverage my skills to steer development and deployment of management systems aligned to business needs of the organization

KEY ASSIGNEMENTS

I have handled following assignments as Lead Process Technologist and as Process/ Technical Safety Consultant:--

- Chaired and conducted a number of HAZID[1]/ HAZOP[2]/ PHSER[3] studies, including sour gas environments, offshore/ onshore oil/ gas process plants, utility systems, and storage facilities
- Preparation of various FEED documents for Vietnam Block B Gas Development Project of Chevron Vietnam
- Basic Design of South Nemba Auxiliary Platform for CABGOC, Angola, West Africa
- Debottlenecking of N2 Generation Plant for ADMA OPCO at USSC, TA Platform
- Revamp/ Upgrade of Flares for ADMA OPCO
- Debottlenecking Studies for Das Island Process Facilities
- *Super High Yield Project for Bu Hasa* -- Project consists in addition of cryogenic plate-fin exchanger, separator and pumps. It aims to increase plant yield from 97 % to 99%+ in Train #1 of Bu Hasa NGL plant in the Emirate of Abu Dhabi, UAE.
- *Technical services activities* related to GASCO's NGL Plants at Asab, Bab, Bu Hasa and Ruwais in the Emirate of Abu Dhabi, UAE.
- *Hydraulic & dynamic simulation and control study* for GASCO's *NGL Pipeline* in the Emirate of Abu Dhabi, UAE.
- Establishing *maximum processing capacity for NGL Plant at Bab* in the Emirate of Abu Dhabi, UAE.
- Detailed design and engineering follow-up of *Diyab Development Project* in Dukhan field, Qatar. The project called for installation of an Oil/Gas Separation Facility of 100,000 bbl per day capacity at Diyab.
- Commissioning of *Powered Water Injection* (PWI) pump stations (6 pump stations for a total of 210,000 bbl/day water injection capacity).in Dukhan field, Qatar
- Operation troubleshooting of a low-temperature C_3/C_4 separation plant for recovering LPG components from associated gas streams (capacity 1800 t/day approx.) at Fahahil, Qatar
- Conceptual planning and implementation of a *centralized data acquisition center* for entire Dukhan field, including PWI facilities, in Qatar
- Design of topside facilities *for process platforms* of Shell, offshore Sarawak, Malaysia

[1] HAZard IDentification
[2] HAZards & OPerabiity Review
[3] Project Health Safety & Environment Review

- Conceptual design of *gas re-injection facility* for St. Joseph field of Shell, offshore Sarawak, Malaysia
- *Debottlenecking of Emulsion Treatment Plant* of Shell at Miri Crude Oil Terminal in Sarawak, Malaysia
- Pre-investment Feasibility Studies for putting up ethylene-based Petrochemical Complexes on behalf of ENIP, Algeria and United Breweries
- Ethylene plant of *Maharashtra Gas Cracker Complex,* including *cryogenic storage* facilities for C_2/C_3 and ethylene
- Process studies and test runs *to debottleneck two (2) naphtha cracker plants* (of NOCIL and IPCL) in India
- Following integrated ethylene-based petrochemical units in India, using Stauffer process:
  - 55000 TPA *Vinyl Chloride Monomer* plant of IPCL
  - *Oxychlorination* plant of NOCIL (to use 2.86 Tons per hour of HCl)
- Start-up and test run activities of following plants
  - *LAB plant* of IPCL, Baroda, India
  - *LNG-II plant* of SONATRACH, Arzew, Algeria

EMPLOYMENT HISTORY

From	To	Employer
November 2012	***Till to-date***	Freelance Consultant
June 2011	***November 2012***	Quanta Process Solutions Pvt. Ltd., Vadodara (Baroda), India
July 2008	***Dec. 2010***	EDG Consulting Engineers Pvt. Ltd., Pune, India
June 1998	***March 2008***	Abu Dhabi Marine Operating Company (ADMA OPCO), Abu Dhabi, UAE
June 1993	***October 1997***	Technip, Abu Dhabi, UAE Seconded to work for Abu Dhabi Gas Industries Ltd., (GASCO) from the very first day
August 1989	***May 1993***	Qatar General Petroleum Corporation (QGPC), Dukhan, Qatar
November 1988	***July 1989***	Protek Engineers Sdn. Bhd, Kuala Lumpur, Malaysia
February 1976	***October 1988***	Engineers India Ltd. (EIL), New Delhi, India
September 1975	***January 1976***	GRASIM Industries, Nagda(MP), India

C A R E E R D E T A I L S

A) November 2012 till to-date:

Working as freelance Process / Technical Safety Consultant. Chairing process design and safety reviews, HAZID & HAZOP studies and PHSERs (Project HSE Reviews) for chemical and oil & gas projects/ plants. Refer Annexure (separately attached) detailing all the studies chaired/ carried out.

B) June 2011 till November 2012:

Worked for M/s Quanta Process Solutions Pvt. Ltd., Vadodara as Executive Director. Quanta is multi-disciplinary consultancy organization specializing in design and engineering of chemicals and oil and gas plants.

In Quanta, I was involved in execution and close out of all ongoing projects besides various management activities like strategizing, proposals, business development, recruitment, personnel management.

C) July 2008 till December 2010:

Worked for M/s EDG Consulting Engineers Pvt. Ltd., Pune, as Head Facilities. EDG is multi-disciplinary consultancy organization specializing in design and engineering of oil production facilities and gas plants. It has head office in Houston. Pune is one of their international branch offices. (Other offices outside US are Angola, Singapore and Vietnam.}

In EDG I have been involved in following major activities:

- Design and Engineering of South Nemba Auxiliary (SNX) Platform for CABGOC. SNX facility is to be located off the coast of Angola in West Africa.
- Debottlenecking of N2 Generation Plant for ADMA OPCO. This is a small modification to incorporate air dryers in N2 Plant located in Umm Shaif Super-complex (USSC) on TA Platform. EDG is carrying out FEED and detailed engineering for implementing the modification thru Construction Contractor.
- VBGP FEED: The Vietnam Block B Gas Project (VBGP), located in the Gulf of Thailand, is a green-field offshore gas development with concept including a Central Production Platform (CPP) with bridge-connected Living Quarters platform, a flare structure, and a bridge-connected Wellhead Platform (WHP). Additionally, the initial development includes four Wellhead/Hub Platforms and a Floating Storage and Offloading (FSO) vessel that will be connected to the CPP by in-field pipelines. My role in the Project was in various capacities as under:

- Finalization of CPP P&IDs
- Process Documentation/ Review of WHP, HUB, & AQC-C, Pipelines
- Flow Assurance Studies
- HAZOP participation
- Various Safety Studies

- Preparation of documentation for ISO 9000 certification.
- Troubleshooting and upkeep of IT Infrastructure in Pune office.

D) June 1998 till May 2008:

Worked for M/s Abu Dhabi Marine Operating Company (ADMA OPCO), Das Island, Abu Dhabi, UAE, as Operations Process Engineer. ADMA OPCO operates a Gas/ Oil Separation Plant @ 600 ~ 700 MBD at Das Island. Oil is produced from offshore concession areas, off the coast of Abu Dhabi, UAE. It is processed at Das Island for removal of gas, water, salt, H2S and light ends. Sweet crude oil conforming to international specifications for RVP, BS&W, etc., is loaded on to ships for export. Gas is piped to the neighbouring ADGAS Plant for LPG and NGL production. My roles and responsibilities as Process & Procedures Engineer, based at site (Das Island), can be summarized as follows:

- Operations monitoring and troubleshooting
- Operations-oriented inputs for engineering development of various schemes and projects, plant modifications, etc.
- Identifying opportunities for growth and improvement,
- Close integration and trouble shooting of all interface activities with upstream hydrocarbon producers and also downstream consumers like ADGAS, etc.
- Emergency management
- Risk management
- Integrity management
- Mentoring of juniors

I was involved in a huge number of projects & activities in ADMA OPCO, as I was the only technical authority available to site personnel all the time. Some of the key assignments that I have successfully handled during my tenure at Das Island are as follows:

1) Debottlenecking of Process Plants and Storage facilities to process 600/ 640 MBD, and then further up to 1 MMBD oil ex ADMA fields

   All the running Plants were assessed for available capacity by field trial runs, then engineering modifications were finalized for debottlenecking to higher

capacity systematically. Various field modifications were engineered and implemented in-house to minimise shutdowns and outages in operations.

2) Flares Upgrade Project
ADMA OPCO operates sixteen flares for various services. The Project involved upgrading of the installations, provision of pilots & KO Drums, and accurate measurement of flare gas. As Operations representative for the Project, I reviewed and commented on engineering documents, participated in HAZOP and PHSER exercises, prepared testing and commissioning procedures, etc., I actively participated to provide and coordinate considerable Operations-oriented inputs to Project; participated in Coanda Flare Flow tests, Ignition System reliability study, Sweet Gas Supply system conceptualisation. Later, participated in numerous studies, investigations, troubleshooting exercises related to operational problems in all the flares, such as high purge gas consumption for Inshore Flares, Coanda pilot flame detection, water seal instability & troublesome operation for atmospheric flares, Inshore Flares KO Drum Pumps, excessive pressure fluctuations in Atmospheric Flare system, unusual combustion in Ground Flare, safe inerting of finger flare headers during changeover, etc. Buoyancy theory, proposed as cause of the problem of high consumption of purge gas in Inshore Flares, was later experimentally proved as the sole cause for not meeting target purge gas rate.

3) Effluent Water Disposal Project
The project involved installation of pumping facilities and a disposal well for injection of process water in a reservoir for safe disposal of effluent water. Activities similar to those for Flares Upgrade Project were carried out.

4) Training of UAE Nationals

   a) Contributed to the development of Jr. Process Engr. and other UAE nationals.

   b) Was a member of **Subject Matter Experts group** to define competencies required in Process Engineers.

   c) Presentations to Process operators were given on relevant topics, including Flares, TOTAL ABK Pipeline project, safe isolations and Y2K

5) Decommissioning Guidelines – I was a member of the Task Force to develop guidelines for decommissioning of various offshore and onshore facilities.

6) Operations Monitoring & Troubleshooting

   a) Optimized fuel gas usage, operation of minimum but safe number of flares and purge gas consumption for various flares to minimize gas flaring on daily basis.

   b) As a part risk mitigation, prepared a work request for Relief Header Replacement. Also proposed plant modifications to address failure due to corrosion in US Stripper Feed Header, to eliminate risk of passing gas to COST via b/c 2 & 18 outlet lines to BQP rundown line.

c) Carried out a number of investigations to address operational problems, such as GT2 failure, CTU HX E-002 tube leaks, blowcases, Nitrogen Plant operation, chemical consumption, ZK Emergency Relief Incident on 22/5/2005, etc. Designed a silencer for effective abatement of noise in N2 Plant area. This also resulted in savings in costly spare parts and reduced dependence on third parties for smooth operation.

d) Developed data reporting system using electronic media for improving accuracy, information flow, calculations & management of historical data. Was instrumental in developing data entry screens and daily calculations for emissions using APEX.

e) Prepared **Field Log Sheets and Critical Operating Parameters** tables for all Plants.

f) Carried out trials related to ZK Separators Capacity assessment, spheroids mal-distribution, ZK Charge Pump Impeller trimming.

7) **Emergency Management** –

a) Participated in exercises

b) Attended Emergency Control Room duties during live emergency situations such as 30" old USSC-Das MOL leak & USSC accident involving Al Hyleh barge, mobile IGG (unit A2) combustion chamber collapse. Later, participated in all phases of work related to deoiling of 30" USSC-Das MOL. Custodian for Das Asset Risk Register.

8) ISO 14001 accreditation –I developed missing forms/ procedures needed for maintaining documentation related to Process Operations Team.

9) Process Alarm & Trip Index –Coordinated extensively with Consultant & Engineering Team to update/ prepare the Index. This was an important recommendation of Shareholders' Audit.

10) GSU 4 Troubleshooting – Achieved stable operation of Gas Sweetening Unit (GSU). Successfully proved operation using US 230# stream, which provided considerable flexibility and reduced flaring and emissions. Spurious trips in GSU had considerably reduced due to changes to operating parameters implemented based on my recommendations. Also optimised parameters and introduced sampling for closely monitoring unit performance.

11) Utilities – Considerable amount of work was done in Utilities area at Das Island. Highlights are:

a) Aiton Units (for potable water generation) operation/ reliability/ maintenance, chemical cleaning, deliberations of Reliability Team

b) IGG (Inert Gas Generator), liquid nitrogen procurement for shutdown in April 2001.

c) Engineering modification development to prevent Deaerator #3 overpressure

d) Air System upgrade, **Boilers 6 & 7, Potable Water Task Force**

12) **Spheroid Level troll** – Discussions were held with operators and personnel from Maintenance, Engineering groups to address this long pending and vexatious issue. Ultimately, steam tracing of standpipes and level trolls is being done thru PMR.

13) **PMR's & WR's** –

a) A number of PMRs and WRs were raised to address various design/ safety/ operability issues and problems. Some of these can be highlighted – C3 Offgas rerouting to LP Header, etc.

b) Expedited implementation of various schemes & studies like, TB2 replacement, storage system adequacy, conceptual study for replacement of buried STOREX pipework, chemical cleaning of boilers, draining of liquids from fuel gas supply line to Power Station, among others.

c) Prepared scope of study for reviewing possible cases of overpressure due to incorrect piping spec breaks in process facilities. This is to address possible risks and have been demonstrated to failure of GRE line in SWDP, and such other incidents.

d) Worked towards resolution of contentious issues related to Safety Devices Register updating, ZK Charge Pump trimming/ trials, US MOL Slugging, Flare Rationalisation, Water Circulation System for Atm. Elevated Flare, US & ZK MOL Operation at Low pressure, E-valve capacity, ZK ETPP Bypass, etc.

e) Chaired a number of **HAZOP** studies (e.g., Zirku rerouting/ segregation in CTU, PMR for purging of Finger Flare Headers), including sour gas handling facilities like CTU, Bunduq Plant, Umm Shaif Plant, and Utilities. Also carried out **"what-if"** analyses for HCV301 elimination, PCV 303 removal, etc.,

f) Contributed positively in a number of HAZOP studies for SIL Assessment and Verification in all Process Plants, Control System Upgrade for Boilers 3/ 4/5, Modification of Spheroids Internals, "what-if" analysis for Boiler Start-up, as well as in PHSER for ADGAS OAG Project in Fluor office (Camberley, UK).

14) **Integrity Management**–

a) Participated as a process rep in assimilation of **Risk Based Inspection** approach to inspection and integrity management activities.

b) Worked exhaustively to identify weak links in CTU as a part of **System-based Integrity Management Project**. Also contributed effectively to develop **Integrity & Operability Assurance Action Plan**.

15) Operation of LP Separators at Lower Pressure: Successfully concluded plant wide exercise to operate all LP Separators at 30 psig. {Previously, the separators operated at 40~ 45 psig.} Objective was to reduce flaring of atmospheric gases. Issued feedback reports highlighting impact on operations, gains, etc.

16) **TOTAL ABK Oil Export Pipeline Project: --** This was a fast track project. I participated from initial stage of engineering design up to commissioning. Participated in meetings with Engineering. Dept., and TOTAL ABK to finalize basic design parameters, tie-ins and strategy, HAZOP and PTR, etc. A number documents, drawings, specifications were reviewed. Provided all site related data and inputs. Participated in FDS meetings with Alderly. Metering skid was identified as the area of concern at very early stages in the Project and this was proved right later.

17) **Debottlenecking Study:** Participated in deliberations with Engineering. and Corporate Planning to finalize requirements, methodology, deliverables, and important parameters for the study to debottleneck Das Process.

18) **Coordination of Shutdown Activities:** Discussed and finalized Scope of Work and relevant operation mode during the shutdown.

19) Team Player/ Key Member role -- Effectively contributed on a number of issues in coordination meetings, with FED, DEST, ADGAS. Participated in solving joint ADMA/ ADGAS issues like integrated flaring, combined utilities and services, CTU custodianship, etc.

20) Replacement of STOREX Buried Pipework -- Made a number of suggestions to improve system design of **STOREX piping network** and to optimise the cost. Based on these alternatives, FEED for ED081 was redone. Piping network has been **simplified** and project **cost** has been **considerably reduced** compared with like-to-like replacement.

E) June 1993 – October 1997:

Joined M/s Technip, Abu Dhabi, UAE, as Senior Process Engineer. Technip had seconded me to work for GASCO from day one; hence, I was effectively working for GASCO all the time.

GASCO (Abu Dhabi Gas Industries Ltd.) is an affiliate company of ADNOC (Abu Dhabi National Oil Company). It processes all associated gases, released during the degassing and stabilization process of crude oil, and produces NGL. GASCO has three NGL extraction plants at Asab, Bab and Bu Hasa. NGL is pumped by pipeline to a fractionation plant at Ruwais, where it is separated into propane, butane and light naphtha fractions. All GASCO Plants handle sour gas.

I had been associated with the following major activities in Process Technology and (Operations) Coordination Dept. of GASCO:

- Production Planning

I was involved in all production activities, forecasting production for the next three months to eighteen months, coordination of shutdown activities inside GASCO and with interfacing agencies outside.

- Process Study for Low Temperature Operation during ESD

I was coordinating a process study to determine mechanical design conditions, i.e., limiting conditions expected to occur during emergency shutdown and plant depressurization in GASCO plants. Initial study for Asab plant is already on hand and study for other plants will follow soon after that.

- Technical support services for Bu Hasa NGL plant

Bu Hasa NGL Plant is a two-train plant for producing NGL from associated gases using propane refrigeration loop and turbo-expander. Feed capacity is 17 MM scfd approximately; NGL production ranges from 7000 tpd to 8000 tpd.

My involvement in plant operation included process monitoring and evaluation, troubleshooting, simulation studies to improve performance, design and engineering of all approved plant modifications and changes, etc. During the closing stages of my stay with GASCO, the most active assignments were: -- installation of RO unit for potable water, and of PSA-type Inert Gas Generator unit, environment-driven activities, and monitoring monthly plant operation for increased levels of H2S, etc.

- Super High Yield Project for Train 1 of Bu Hasa NGL Plant

This was a full-fledged project valued at US $ 6 MM approximately. Objective was to improve yield of the plant from 97 % to 99.3 % and to increase feed processing capacity of Train 1 by 10%. My role was to function as a Lead Engineer on behalf of GASCO for all process engineering activities.

- NGL Pipeline -- Hydraulic and Control Study

I had completed a dynamic simulation study related to future operation of GASCO's NGL pipeline for handling NGL production from the three extraction plants and ADNOC plants up to the fractionation plant at Ruwais. It was done with the help of outside consultants (Stone & Webster / Hydraulic Analysis Ltd.) My role was tender preparation, evaluation of bids, defining basis of study and simulation cases, monitoring study progress, reviewing feedback reports and conclusions. Recommendations of the study have been already implemented.

- Determination of Maximum Capacity of Bab Plant

I had carried out desk studies to determine maximum processing capacity of the NGL plant at Bab in winter, based on equipment as installed. Considering the findings of the study, plant successfully achieved 5 MM scmd feed processing capacity.

Prior to that, I had carried out simulation studies to evaluate gains estimated by some plant modifications. Considering my recommendations, GASCO dropped the idea to carry out

unnecessary modification, which would not have improved product recovery as estimated earlier.

- Lean Gas Recycle at Asab

GASCO had been prevented from using lean gas recycle (LGR) at Asab to significantly increase NGL product by ADNOC as it had some impact on product slate of UAN Refinery. I had carried out a feasibility study to investigate various alternatives to resume LGR operation at Asab. One of the options (modification of loading facilities at GASCO Ruwais) has been implemented and this has increased GASCO production by stripping C_3/C_4 components from crude by lean gas.

F) August '89 to May '93:--

Worked as a ***Production Engineer (Technical)*** with M/s **QATAR GENERAL PETROLEUM CORPORATION** (QGPC), Dukhan, Qatar.

Dukhan is an onshore oil field on the western coast of Qatar, producing some 320,000 bbld crude. It consists of three main degassing stations with two remote stations for oil production, pumping station, eight well head treatment plants, one low-temperature C_3/C_4 separation plant, seven powered water injection stations, and associated transmission lines.

I was involved in the following activities while working in QGPC:--

-detailed design and follow-up of **Diyab Development Project**, which calls for installation of an Oil/ Gas Separation Facility of 100,000 bbl per day capacity.

-commissioning of **Powered Water Injection** (PWI) pump stations (6 pump stations for a total of 210,000 bbl/day capacity).

-operation trouble-shooting of a **low-temperature separation plant at Fahahil** for recovering C_3/C_4 components from associated gas streams (capacity 1800 t/day approx.).

-conceptual planning of a **centralized data acquisition center** for entire Dukhan field including PWI facilities.

-providing technical support to maintain daily production and to carry out minor modifications and upgrades in all installations in Dukhan field.

G) Dec. 88 -- July 89:

Worked as *Senior Process Engineer* with M/s **PROTEK ENGINEERS** Sdn. Bhd., Kuala Lumpur, Malaysia.

Was involved in design of topside facilities for offshore process platforms of Shell, Malaysia.

Was engaged in conceptual design of gas re-injection facility for an offshore field [St. Joseph] for Shell.

Carried out a study to debottleneck Emulsion Treatment Plant of Shell at Miri Crude Oil Terminal.

H) Feb. 76 -- Nov. 88:

Worked in the Process Design & Development Department of M/s **ENGINEERS INDIA LTD.** (EIL), New Delhi.

EIL is one of the premier chemical and petrochemical consultancy organization operating in India. As one of the lead process design engineers, I was involved in quite a few varied assignments from conceptual design to commissioning. A brief career history and details of my assignments in EIL are given in subsequent pages.

1987-88 : *Deputy Manager*

Carried out Pre-investment Feasibility Studies for putting up ethylene-based Petrochemical Complexes on behalf of ENIP, Algeria and United Breweries.

This assignment was mainly related to process consultancy work consisting in planning and conceptualization of petrochemical complexes, carrying out feasibility studies and preparing project reports.

1985-87 : *Senior Process Engineer*

Formulated basis of design and prepared basic engineering package for **cryogenic Ethane/Propane and Ethylene Storage** facility of Maharashtra Gas Cracker Complex (MGCC), India.

1984-87 : *Process Engineer/ Sr. Process Engineer*

Participated in technology selection and evaluation of various Licensers for Gas Cracker Unit of Maharashtra Gas Cracker Complex (MGCC), Nagothane (Maharashtra), India. Later on participated in process design activities and in preparation of Basic Process package for the Unit in Licensor's office (Stone & Webster, USA).

Also participated later in detailed implementation of this and the Cryogenic Storage units. This includes detailed specifications followed by selection of equipment, instruments, lines; subsequent integration of purchased equipment/instruments in the flow scheme; engineering support; and document updating.

1982-84 : *Process Engineer*

Carried out process studies and test runs to debottleneck two (2) **naphtha cracker plants** (NOCIL and IPCL) in India. The job also involved evaluation of existing equipment and instrument adequacy and preparation of process design package for revamp.

Managed development and testing of in-house computer **flowsheeting software for ethylene separation** downstream of the cracking furnaces in an ethylene plant.

Worked on economic evaluation of ethylene production technology from gaseous and liquid feedstocks.

1981-84 : *Asst. Process Engineer*

Carried out all activities from process engineering to precommissioning &

start-up of the following integrated ethylene-based **petrochemical units** using Stauffer process:

- 55000 TPA Vinyl Chloride Monomer plant of IPCL

- Oxychlorination plant of NOCIL (to use 2.86 Tons per hour of HCl)

Later carried out plant test run and assessment of modifications to debottleneck IPCL VCM Plant.

Prepared **Bid Package** for SK, NV & NX well platforms in Bombay High (Offshore) area. Later, carried out **design review** of Contractor's (Hitachi Zosen's) engineering package for these facilities.

1976-81 : *Jr. Process Engineer*

Worked on Caprolactam, Phenol, DMT and LAB plants (design and start-up activities).

Participated in the start-up and test run activities of **LAB** plant of IPCL and of **LNG-II** plant of SONATRACH, Algeria.

I) Sept. 75 -- Jan. 76

Worked as Shift Supervisor in a viscose producing complex of GRASIM, Nagda (India).

Responsible for CS_2/H_2SO_4 sections of the plant.

OTHER INFORMATION

i) I am very well familiar with process flowsheeting software like HYSYS/ HYSIM, SimSci's PRO II, ChemShare's DESIGN II for Windows, etc. Besides these, I regularly use application software such as MS Office, PHAWorks, PHA Pro, MS Project, etc., for every day work.

ii) Personal Information:-

Passport Number	**: Z-3029283**
Issued at	**: Pune**
Date of Issue	**: 28th October 2014**
Valid till	**: 27 October 2024**
Marital Status	**: Married, with two children**
Height	**: 166 cm**
Weight	**: 70 kg**

iii) Educational Background:--

1970 -- 1975	: B. Tech. (Chemical Engineering) at IIT, Bombay; Passed out with CPI* = 8.93
	(* CPI = Cumulative Performance Index, out of 10)
1969 – 1970	: Pre University Course(PUC) Science from Govt. College at Aurangabad
1969	: SSC from Saraswati Bhuvan High School, Aurangabad

iv) Contact Address

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