RUPAK DAS

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Process / Chemical / Fuel Cell / Hydrogen / Operations / Alternative Energy

I am an accomplished, innovative, and result-driven management professional with 20+ years of experience in progressive / diversified hands-on, proactive leadership in Alternative Energy resources, Fuel Cells, Hydrogen realm (Production, Storage, Dispensing), Electrolyzer, Metallurgical analysis and corrosion / erosion. Advanced expertise recognized in Alternative / Conventional Energy, Renewables, Materials / electro-chemical processes, Ceramic Matrix Composite (CMC), Constructions, project / program management, process / simulations, and plant operations. Demonstrated mastery of the Computational Fluid Dynamics (CFD) modeling (FEA, FDM & FVM) in predicting optimized performance, designs of solid-fluid (multi-phase) / fluid-flow / thermal regimes. Outstanding expertise recognized in Project / Program management, NDI / NII validations in composites and metals, process / simulations and plant operations and reviewing Piping & Instrumentation Diagrams (P&IDs), Process Flow Diagrams (PFDs), plant optimizations, mass / momentum / heat balance, process controls, equipment layouts, equipment specifications, isometrics, pipeline constructions, electro-chemical processes, corrosion monitoring and control, process simulations, plant operations saving more than 20% downtime on an average. Demonstrated mastery in oilfield data analytics in predicting optimized performance, uncompromised security, designs of solid-fluid (multi-phase) / fluid-flow / thermal regimes. Compliance and confidence established with API, ASME, NACE, ASTM, OSHA, EPA etc. Additional expertise includes financial planning, strategy development, budgeting, defining the scopes of work (SOW), coordinating projects, bidding processes, asset management, decision making, risk assessment, leadership, communication, negotiation, resource allocation, task delegation, supporting cross-functional project teams, and ensuring compliance with laws, standard / best practices, and safe company policies.

Areas of Domain Expertise include:

Alternative Energy | Conventional Energy | Fuel Cells | Battery | Nano Materials | Composites / Metallic Structures | Procurement | Performance Standards | Safety and Compliance | Hydrogen | Contract Negotiations | SAP | RFPs | SCADA | Metals / Casting | Constructions |Resource Allocation | Ceramics | Process Safety | Critical Thinking | Project Analysis | Engineering Analysis | Energy Storage

Technical Competencies:

Energy | Materials | Chemical | Consulting | Hydrogen | Fuel Cells | Ceramics | Coatings | Alternative / Conventional Energy | Turbines | Power | Patents

Accomplishments

- ✓ Patented more than 34 ideas on the Green / Alternative / Renewable Energy, Displays & Materials (all filed).
- ✓ Guided and led the Ceramic / Metallic Airfoils group with a robust path of Environmental Barrier Coatings (EBC) for continuous improvements of Ceramic Matrix Composite (CMC) substrates; served as the spokesperson, Constructions Program Manager, and leader of the whole GE Energy (~ more than $25M annually) for a profit of $8M.
- ✓ Led / coordinated the GE EBC system of four cross-functional diverse EBC subgroups (total groups had 16 experienced EBC personnel from Aviation, GRC, and Energy); Program Manager (Lean Six-Sigma Green Belt certified), controlling ~ $ 25M annually with a profit margin of ~ 35%.
- ✓ Developed a Novel Anode (functional material) with high electrical conductivity (~20% more than the prevalent competition) and superior mechanical / chemical properties used in the high-temp fuel cell / power generation industry.
- ✓ Designed thin-film depositions in nano-scales with thermal / thermo-electric modeling / simulation, for example conjugate heat transfer, including radiation (SS, DOM, Monte Carlo), convection, and conduction modes used in semiconductor, sensor applications (saving $2M per year).

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- ✓ Designed a high-performance chemical reactor for studying complex vapor phase and surface chemistries in a Metal Organic Chemical Vapor Deposition (MOVPE / MOCVD) system used in planetary electronics / semiconductor processing systems, reducing the cost by ~ 35%.

Software Expertise:

ANSYS, Procore, Maximo, Webcorr, Honeywell, HYSYS, NX Unigraphics, PRO II, CFD-ACE+, SAP, COMSOL, Fluent, ArcGIS, ArcMap, ASPEN Plus, AutoCAD, Microsoft BI, Rhios, Visio, Daqview, LabVIEW, Biowin, GPS-X, EFOR, WatPro, Orchestrator, Infowater, FARO, Microsoft Office, MS Project, ChemCAD, Primavera P6, Excel, PowerPoint, Word, Solidworks, Catia, Wonderware.

PROFESSIONAL EXPERIENCE

CALIFCO GROUP / OJI-CALIFCO CONSORTIUM INC. (OJI) | (June - 2014 – Present), ***VP Engineering***

Califco is a full-fledged consulting firm helping clients in utilities, alternative energy, hydrogen economy, fuel cells, power, petroleum, petrochemical, civil, water, construction, chemical and in oil & gas industries. I have executed multiple projects through Califco and developed domain knowledge and confident in implementing ASTM, ASME, NACE, API, AQMD, OSHA codes.

I implemented, modified and maintained materials and corrosion / erosion support and monitoring, alternative energy resources, hydrogen systems, digital chemical processes (digital oilfield and refining development), chemicals, materials selection, commissioning, damage mechanism reviews, digital technologies, designing refinery process facilities that include Hydrotreating / Hydro-processing / Hydrocracking, Wet H2S, Sulfidation, HTHA, alkylation etc., petrochemicals, LNG, FEED, corrosion monitoring and control, addressing more than $ 15 M and saving $ 1.1 M from allocated budgets. Assignments involved process improvements, front end process design, corrosion monitoring systems, field operations, scaling operations, plant layouts, failure analysis, erosion mitigations, interpretation of inspection data, welding and fabrication troubleshooting, equipment repair strategies, shutdown planning and execution, compliance, developing piping and instrumentation diagrams (P&ID), isometrics, process flow diagrams (PFD) to define heat and mass / material balance, JSA, PHA process, Modeling Corrosion / Erosion mechanisms, Metallurgical Reviews, Risk-Based Inspection plans, mitigations, process control and maintenance. Managed and supervised 7 ~ 26 personnel on an average.

- ✓ I participated in the detailed design of process units, fuel cell technologies, hydrogen storage / production / dispensing world, repair strategies, including establishing process design basis, sensor technologies, development of process options and optimization of selected designs.
- ✓ Supervised over a group of 7 engineers formulating and developing advanced concepts, techniques, implementations and standards.
- ✓ Responsibilities included assuring effective utilization of 9 engineering personnel, resources and technical quality.
- ✓ Implemented, modified, and maintained chemical processes thoroughly as per the need of projects.
- ✓ Calculated, analyzed and organized data for process flow sheets including instrumentation and control considerations for different projects.
- ✓ Modeled unique processes, corrosion mechanisms and mitigations, flow diagrams and unit operations in details and interacted with clients directly to their satisfaction over and beyond.
- ✓ Ensured proper sequence of unit operations and maintenance of different plants in details.
- ✓ Prepared specifications and operating instructions for processing equipment.

- ✓ Developed process specifications for equipment like distillation columns, pressure vessels, pumps, catalytic reformers, compressors, heat exchangers, storage tanks, strippers, separators, fired heaters, thermal treators and pipelines etc.
- ✓ Participated in planning, cost development and management, and scheduling for assigned projects from start to end in project development life cycles (i.e. SDLC).
- ✓ Directed activities to ensure construction, installation, and operational testing conform to functional specifications, recognized codes and standards, and customer requirements to fulfil the needs.

Multiple Projects executed simultaneously:

- ✓ Power Plant Modernisation in CA, Honor Rancho: 345 M - Alternative energy, Hydrogen production, Electrolyzer, Gas Turbines, Natural Gas combustion, Fuel Cells, Hydrogen Blending
- ✓ Alternative Energy Project in CA: 55 M – Hydrogen production, Electrolyzer, Hydrogen dispensing, Hydrogen Storage, Fuel Cells, Power production, Renewable power, Bio-Gas
- ✓ Power Plant Modernisation in CA, Moreno Valley: 295 M - Alternative energy, Hydrogen production, Electrolyzer, Gas Turbines, Natural Gas combustion, Fuel Cells, Hydrogen Blending
- ✓ Power Project for Utilities Company in NE USA: 22 M – Power, Oil, Water, Energy, Risk Management, Failure analysis. (Heat exchanger problem due to super-heated steam). 11 people were involved in the project. I acted as one of the prime Project Managers in scheduling, writing scope of work (SOW), estimating the cost of equipment replacement (i.e. New or Used), budgeting, failure analysis, resource allocation and timeline management. I saved 1.9 M for the client and got 2 additional similar projects due to proper timely (i.e. ~ 7 months) execution.
- ✓ Petro-chemical / Refinery complex in TX USA: 14 M – Risk Management, Failure analysis, Cost Estimation, Project Management, Materials analysis. (Fire explosion in the Petroleum Storage Tank). 7 people were involved in the project (i.e. ~ 6 months). I acted as the Project Manager in scheduling workflow, writing SOW, estimating the cost of equipment replacement, materials' analysis, failure analysis and cost tracking. I saved about 0.7 M for the client and got 1 additional project.
- ✓ Petro-chemical / Refinery complex in FL: 28 M – Project Management, Estimation, Cost and Failure analysis. (Asphalt Storage Tank leakage). 9 people were involved in the project and I acted as the Project Manager in scheduling workflow, allocating resources, building SOW, budgeting, cost tracking, failure analysis and timeline management. I saved 3.6 M for the client and got 2 additional projects due to execution in a shorter time frame (i.e. ~ 5 months).
- ✓ Water Treatment Project: 755 k – Potable Water, Wastewater, Risk Mitigations. 3 people were involved in the project. I acted as the Project Manager in building scheduling, writing SOW, budgeting and timeline management. I was able to save 55 K for the client.
- ✓ Chemical plant: 3.1 M - Cryogenics (LNG), FEED, Natural Gas Transportation, Pipeline design, Pipeline construction, Equipment design, costing and installation. 8 people were involved in the project. I acted as the Project Manager in delivering timeline, scheduling charts, updating SOW, budgeting and reporting to stakeholders. I could save 355 K for the client (i.e. ~ 19 months).

SOUTHERN CALIFORNIA EDISON (SCE) / SVG CONSULTING / ROSE INTERNATIONAL | 3 / 2015 – 6 / 2018 | Sr. ***Project Manager***

SCE is a privately held utilities company transmitting and distributing power, gas and water to southern california residents. I have executed multiple projects through SCE and developed solid domain knowledge.

I demonstrated expertise in operational planning of the natural gas / propane sector, water utilities and emissions. Formulated strategies that involved process control strategies, corrosion / erosion studies and mitigations, sensor applications, cathodic protection implementations, hydraulic calculations, lock-out / tag-

out (LOTO), process safety management (PSM). Deliverables include strategic executions addressing more than $ 5.2 M and saving $ 0.5 M from allocated budget. Managed and supervised 7 personnel.

- Strategically involved in continuous process improvements of Business Resiliency, Disaster Recovery Plans, Incident Response Plans, Planning, Business Continuity Plans (BCP), Assessments and Mitigations, Training and Exercise, Business Impact Analysis / Assessment (BIA), Disaster Recovery (DR), Risk Management, Criticality Analysis, Vulnerability / Impact analysis, Hazard / Threat Identification, Mitigation Plans. Further activities involving Operating Unit (OU) Procedures, scheduling and classifying Black / Grey / Blue Sky, Critical Infrastructure and writing Job Aids, Strategic / Operational / Tactical Plans, manage and implement integrated and cross functional projects. Assignment specifically involves the responsibility for executing the Business Impact Assessment (BIA) and manage associated mitigations that works within the company's Hazard Assessment and Mitigation Program within the Business Resiliency Department. BIA involvement includes elements like working with internal subject matter experts to identify critical business processes, dependencies, conduct impact assessments and determine and prioritize appropriate mitigations and monitor execution of those activities. Assignment includes bringing together all critical company functions including electric operations, generation, IT, finance, facilities, communications, external relations, and security which are responsible for managing the development and implementation of projects by directing the design, analysis, strategies and execution of tasks needed to meet program and project requirements.
- Expert in Transmission, Distribution, Constructions, Operational Planning and Strategies of the Gas (i.e. Natural Gas / Propane) and Water Utilities. Systems include Water and Gas utilities including Power Generation, distribution for the Catalina Island, SCADA, GIS, SAP, DCS, SIS, Gen. Station, automation and Emissions.
- Strategies involved continuous process improvements, vendor / cost / energy management, providing research-based insights, EM&V analysis, corrosion studies and mitigations, gas system planning, compliance, hydraulic calculations, mitigations, research planning, emergency response, examining technology, lock out tag out (LOTO), system integration, workforce planning, control systems, sensor implementations, onshore & offshore team management, environmental compliance, analytics, maintenance and construction, operational safety (i.e. fall protection, confined space, hazardous energy control etc.), risk analysis, process safety management (PSM), asset management (DAM), budgeting and execution of different projects simultaneously in utilities arena and mass balance, heat balance, materials' balance.
- Established technical and commercial milestones for Capital and O&M Projects which include scheduling with Gantt charts, providing functional directions to higher ups, reliability roadmap, energy management, forecasting, costing, cost control and negotiations of contracts. Other responsibilities encompass writing scope of work (SOW), acting as Project Management Subject Matter Expert, authoring business cases, estimating, scheduling, creating change orders (FCO), writing business plans, reporting to internal / external stakeholders, working in SAP, maintaining SCADA and safety protocols and operating budget.
- Deliverables include RFPs (Request for Proposal), working with RFIs / RFQs, Hydraulic analysis and modeling, SCADA implementation / maintenance, vendor interactions, bidding processes, MOCs, business proposals and strategic executions.

Multiple Projects executed simultaneously:

- ✓ Deluge and Firewall: 1.26 M – Industrial Water, Automation, structural construction
- ✓ Pole remediation & Asset Management: 760 k – GIS, SCADA, Land Surveying, GPS, Asset Management, structural construction
- ✓ Desal Project: 2.3 M – Potable Water, Corrosion mitigations, Sensor implementations, SCADA, Automation

- ✓ SCADA Project: 2.63 M – Water, Gas, Power, Automation
- ✓ Water Treatment of Wrigley Reservoir: 1.62 M – Potable Water, Automation, GIS, Project Management
- ✓ Middle Ranch Reservoir Project: 774 k – Surface Water, Automation, Land Surveying, GPS, GIS and Modelling
- ✓ Gas pipeline project: 1.6 M - Piping construction, Metallurgical Reviews, Surveying, Pipeline integrity, Pipeline design, Gas Transportation Validation.

DTS / ALISTO / SEMPRA UTILITIES / SOCAL GAS (SOCALGAS). | 1 / 2014 – 5 / 2015 | ***Process Manager / Engineer***

I served as a SME in gas processing, executed design / engineering projects, and maintaining datasheets. Provided MOCs and control philosophies. Managed and supervised 4 personnel.

Expert in Gas processing, SCADA, oil / gas production / process facilities optimization(i.e. Playa Del Rey & Aliso Canyon), execution of design and engineering projects, constructions, hydraulics, pressure relief analysis, safety analysis and mitigation, generate design deliverables like PFDs, P&IDs, BDs, PSVs, PRVs, engineering calculations and maintaining datasheets, constructions, environmental compliance, process simulations, equipment sizing & specification, providing research-based insights, facilities troubleshooting, developing operating procedure (COPs, SOPs, OPs), COD (Consequence of Deviation Table), MOCs & control philosophies etc.

- Experience with oil, natural gas, EPC Projects and NGL / LNG facilities including cryogenic gas processing facilities, gas treating and drying facilities, procurements, NGL fractionation facilities, workforce planning, constructions, reciprocating and centrifugal compressors, oil gathering facilities including pump stations, heat exchangers, storage tanks, tank farms, separators, pressure vessels, pipeline P&IDs, gas piping systems, PFDs, structural, mechanical and control systems etc.
- Direct and create the P&IDs and PFDs, mass balance, heat balance, materials' balance, SCADA equipment specifications and selections (i.e. OSHA, ANSI and API), process design / safety reviews / issues at contractor site. Prepare data sheets and specifications for equipment like pumps, vessels, tanks, coalescers, air accumulator, compressors, separators, heaters, heat exchangers etc.

Multiple Projects executed simultaneously:

- ✓ Placentia Project: 525 k - Industrial Water, corrosion studies, sensor implementations
- ✓ Gas Pipeline Project: 2.5 M – PSEP Piping construction (Valencia, Orange County)
- ✓ Private Project (Applied LNG): 3.5 M – LNG Plant commissioning, Cryogenics (LNG), Pipeline Design, Pipeline Integrity, Plant Process Design, Validation of P&IDs.
- ✓ Playa Del Rey Project: 790 k – Plant Modernisation, pipeline integrity, pipeline design.
- ✓ Directed / created P&IDs and PFDs, JSA, equipment specifications / selections (ANSI and API), and process design / safety reviews / issues at contractor sites saving $550k.
- ✓ Prepared datasheets and specifications for equipment including pumps, SCADA equipment, vessels, tanks, coalescers, air accumulators, compressors, separators, heaters, and heat exchangers saving $280k.

PROCESSES UNLIMITED INTERNATIONAL, INC. | 2 / 2013 – 12 / 2013 | ***Sr. Process / Project Engineer***

I demonstrated expertise in gas processing and materials management for Chevron operator in 17Z McKittrick gas processing plant. Assignments included: oil / gas production / process facilities optimization, corrosion studies, sensor implementations, pressure relief analysis, refinery environment, process simulations, designing refinery process facilities, developing COD (Consequence of Deviation Table), and PHA (PSM requirements). Identified as a key player in P&ID reviews, HAZOP analyses and onsite process design / safety issues. Completed data sheets and developing specifications for equipment including distillation columns, pressure

vessels, pumps, compressors, heat exchangers, fired heaters, separators, tanks etc. addressing more than $ 1.2 M and saving $ 220 k from allocated budget. Managed and supervised 2 personnel.
Expert in Gas processing and Materials' management and choice for Chevron operator in 17Z McKittrick gas processing plant. The assignments include oil / gas production / process facilities optimization, corrosion studies, fluid fractionations, execution of design and engineering projects, hydraulics, sensor implementations, erosion studies, pressure relief analysis, generate design deliverables like PFD, PSEP, P&IDs, BDs, engineering calculations on and maintaining datasheets, process simulations, reliability roadmap, Equipment sizing & specifications, facilities troubleshooting, developing operating procedure (COPs, SOPs, OPs), COD (Consequence of Deviation Table), MOCs & PHA (PSM requirements) etc.
Experience with materials, oil, gas and NGL facilities including cryogenic gas processing facilities, gas treating and drying facilities, NGL fractionation facilities, reciprocating and centrifugal compressors, oil gathering facilities including pump stations, storage tanks, separators, vessels.
Direct and create the P&IDs and PFDs for the SAFIRE (San Ardo Facilities Replacement) project from AERA Energy. Intimately involved in the P&ID reviews, HAZOP analysis, HSA and process design / safety issues at contractor site, OSHA. Prepare data sheets and specifications for equipment like pumps, compressors, separators, heaters, heat exchangers etc.
Directly involved in the total THIOPAQ (i.e. Bio-desulfurization / catalysis) batch / continuous process plant system design, SCADA operations, separation, Materials' management and choice, heat tracing, mass balance, heat balance, materials' balance, mixing and other unit operations, hydraulic calculations, biological resources, process cycle simulations / modeling and equipment configuration / design in the San Ardo project. Simulating relief and depressurizing for equipment. Developed control philosophy.
Closely involved in the 31X facilities monitoring at Cymric location and production operational plant of Chevron operator and its design, Materials' management, environmental compliance, optimization and production / process improvements. Participating in performance tests and troubleshooting effort in heavy oil plant facilities and thermal operations in the plant and refinery environment.
Working closely with other functional groups including commercial, project, mechanical, manufacturing, machinery and electrical.
Managing the project work, materials, constructions, plant installation, equipment bidding, layout involvement, specialty instruments for the Belridge water softening plant of Aera Energy.
Assisted in the total THIOPAQ (bio-desulfurization / catalysis) batch / continuous process plant system design, separation, heat tracing, materials balance, mixing, plant layouts, other unit operations, pump head sheets, biological resources in the San Ardo project.
Closely involved in the 31X facilities monitoring at Cymric location and production operational plant of Chevron operator and its design, environmental compliance, JSA and optimization and production / process improvements.
Multiple Projects executed simultaneously:

- ✓ Belridge water softening Project: 794 k – Wastewater
- ✓ Process Optimisation (Chevron): 560 k – Automation, Cryogenics, Refinery, Ethylene-Amine Plant Cryo-Process, Surveying, Gas pipeline construction

EXCEL GREEN TECHNOLOGY | 7 / 2012 – 05 / 2013 |***Principal Engr. / Consultant***

- ✓ I managed to write critical proposals / contracts for acquiring grants and execution of the proposed pathway culminating in effective and assured products on Materials', Alternative Energy Resources.

SHINE SYSTEMS & TECHNOLOGIES | 4 / 2013 – Present |***Consultant***

- ✓ Designated as "Subject Matter Expert" or SME Consultant for the company for different Fuel Cell systems.

- ✓ Promoting new ideas and Intellectual Properties (IP).
- ✓ Energy Density Assessment.
- ✓ Green Business Development and Energy Education.
- ✓ Program Design, Evaluation, Validation and Verification.

GENERAL ELECTRIC (GE) | 7 / 2010 – 08 / 2012 | ***Lead Engineer (Program Manager, Materials)***

- ✓ Led and co-ordinate the SEGR corrosion and erosion efforts from the beginning along with SCADA initiatives. Portrayed the corrosion problems and their solutions through different analysis and processes by saving $ 7.5 M for the SEGR project.
- ✓ Achieved the Green Belt certification (DMAIC, DTC and DFSS). Proficient in Failure mode & effects analysis (FMEA), Root cause analysis (RCA), Data interpretation, DOE, Fishbone tools etc.
- ✓ Led the whole project of designing, new product development, launching and implementations, R&D efforts, metal / materials' selections, manufacturing / production and field-running of the EBC coated CMC substrates as the Project Manager and fructify the CTQs with sourcing, SCADA operations team and Supply chain co-ordination (~ more than $25 M / yr.).
- ✓ Analyzing wide variety of materials' failures using field inspections, engineering analysis and experimental testing.
- ✓ Managed to guide the New product development (NPD / NPI), Non-destructive examination (NDE / NII), Destructive examination (DE / DI), Identifying, Materials' management and choice, Developing and Securing new business opportunities, strategic planning and robust technology reliability roadmap of Environmental Barrier Coatings (EBC) for protecting and continuous improvements of CMC substrates / surface technologies as the spokesperson, Program Manager / consultant and leader of the whole GE Energy (~ more than $25 M / yr.).
- ✓ Led and co-ordinate the SEGR corrosion, construction and erosion efforts from the beginning along with SCADA initiatives. Portrayed the corrosion problems, mass balance, heat balance, materials' balance and their solutions through different analysis and processes by saving $ 7.5 M for the SEGR project.
- ✓ Led and co-ordinate the GE EBC synergy system of 4 cross-functional diverse EBC sub-groups (16 experienced EBC personnel from Aviation, GRC or Energy) as Program Manager (Lean Six Sigma Green Belt certified), controlling ~ $ 60 M / Ann.
- ✓ Initiates the demand change authorization form (DCAF) for all new demand load or changes to the existing schedule within the guidelines of the Closed Loop Planning Process and manages the sales order process.
- ✓ Translated CTQ's to operating recipes and analytical targets at the design / manufacturing stages of new product implementation (NPI) / New product development (NPD) proactively saving ~ $16M.
- ✓ Owned the strategic planning, technology transfer / roadmap, scope of execution, process design, analysis and planning of Materials' testing, optimized materials' selection / choice for critical technological roadmap of Ceramic Matrix Composite (CMC) airfoils, shrouds and nozzles (~$7M / Ann.).
- ✓ Designed the first CMC airfoil / metal bucket of GE Energy as one of the prime group contributors as per the Best Practice starting from initial design, new product development to manufacturing validations (efficiency saving ~$16M).
- ✓ Achieved the Green Belt certification (DMAIC, DTC and DFSS). Proficient in Failure mode & effects analysis (FMEA), Root cause analysis (RCA), Data interpretation, DOE, Fishbone tools etc.
- ✓ Led the whole project of designing, metal / materials' selections, manufacturing / production and field-running of the EBC coated CMC substrates as the Project Manager and fructify the CTQs with sourcing, DCS, SIS, SCADA operations team and Supply chain co-ordination (~ more than $25 M / yr.). Analyzing wide variety of materials' failures using field inspections, engineering analysis and experimental testing.

STRATEGIC INTERNATIONAL CONCEPTS (SIC) | 6 / 2006 – 10 / 2010 | ***Project Manager / Consultant***

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- ✓ Managed the completions of different industrial projects (E&P), visited client' sites and stressed on optimized systems integration in Oil / Petroleum sector. The projects included: Plant modifications / design, Artificial lift, Multi-Phase flow, Porous Media Transport, Enhanced Oil Recovery (EOR) in heavy belts, well evaluation / performance / production capabilities, inflow data analysis, artificial lift (plunger lift, beam pump and gas lift), chemical injections, integrity needs for production / injection wells. Managed and supervised 3 personnel.
- ✓ Managed the completions of different industrial projects (E&P), Materials' management and choice, visited client' sites and stressed on optimized systems integration in Oil / Petroleum sector. The projects include: Petroleum Reservoir Simulations, Rig operations, Plant modifications / design, corrosion studies, sensor design, Pipeline modeling, constructions, Artificial lift, Multi-Phase flow, Oil Reservoir Simulations and analysis, Shale Oil, Porous Media Transport, Enhanced Oil Recovery (EOR) in heavy belts, well evaluation / performance / production capabilities, forecasting, mass balance, heat balance, materials' balance, inflow data analysis, artificial lift (plunger lift, beam pump and gas lift), chemical injections, integrity needs for production / injection wells.
- ✓ Prepared technical reports for engineering and management personnel.
- ✓ Managed and overseen the life cycle of Sand Control products and services including desalting, corrosion, fouling, stimulation and other field services.
- ✓ Perfected and optimized Insitu-combustion Fire, SCADA operations and Carbon-Dioxide (CO_2) / Water flooding EOR projects from pilot-transformed-turnkey systems.

CFD RESEARCH CORPORATION (CFDRC) | 7 / 2000 – 12 / 2002 | ***Applications Engineer***

- ✓ I designed, fabricated and improved the capabilities of the CFD-ACE+ package.
- ✓ Improved simulation-manager to satisfy the clients' needs in defense and NASA projects.
- ✓ Developed proficiency in operating, scaling engineering functions, upgrading, and implementing CFD Research Corporation's commercial simulation package CFD-ACE+.
- ✓ Performed successful applications development of the prevalent types of contract electronics development and manufacturing, fuel cells, mechanical structural design and thermal optimizations.
- ✓ Co-developed customized simulation and modeling packages to support design efforts and improve the efficiency / power density of semiconductors, in the accelerated aging testing conditions.
- ✓ Solved and troubleshot the real-life problems of the industrial customers utilizing strong communication skills.

OIL AND NATURAL GAS CORPORATION LIMITED (ONGC) | 8 / 1993 – 8 / 1998 | ***Senior Production Engineer***

- ✓ I led the installation of a Total-Upstream-Crude-Process-System as Installation Manager from pilot / startup / conception to construction / smooth / turnkey operating conditions. The system encompassed heater treators, cooling towers, flocculators, dozing pumps, bath heaters, settling tanks, separators, dispatch pumps, other production facilities and unit operations.
- ✓ Designed, supervised and troubleshot wet and dry injections of the Enhanced Oil Recovery (EOR, capital project) processes, fluid flow / phase system of heavy crude reservoir for continuous process improvements.
- ✓ Managed, scaled-up and designed Hydrogen-Sulfide (H_2S) Absorption Plant, as the primary decision-maker, saving ~ $50,000 eqv. (Scientific benchmarking design study).
- ✓ Led the installation of a Total-Upstream-Crude-Process-System as Project / Installation Manager from pilot / startup / conception to construction / smooth / turnkey operating conditions. The system encompassed heater treators, cooling towers, flocculators, dozing pumps, bath heaters, settling tanks, separators, dispatch pumps, other production surface facilities and unit operations.

- ✓ Established and performed scale up, mass balance, heat balance, materials' balance, corrosion problems, optimization and monitoring processes for high-pressure compressors / wells and reservoirs in the Insitu Combustion Processes (ICP), DCS, SIS and Effluent Treatment Plant (ETP).
- ✓ Managed $300,000 eqv. / yr. and supervised 26 personnel in the Petroleum process plant environment as the Project / Plant manager and refinery.

*Additional experience gained as a **Project Engineer** with Hindustan Motors Limited; and as **Process Engineer** with Phillips Carbon Black Limited.*

EDUCATION & CREDENTIALS

- ✓ **Wharton Business Foundation Capstone Course** | University of Pennsylvania | 2016
- ✓ **Ph.D., Metallurgical & Materials Engineering** | The University of Alabama | 2013
  - Research Project: Experimental scope of novel materials for a better design of solid oxide fuel cell (SOFC) anodes and its validation via numerical simulations.
    Research includes: Energy storage, fracture analysis, sensor applications, hydrogen storage, hydrogen production and alternative energy.
    Materials characterization techniques include: Metallography, XRD, EIS, XPS, SEM, TEM, FTIR etc.
    Special emphasis given on advanced materials' synthesis/production, metals/casting, thermal processing of advanced Ceramics and nano materials, corrosion coupons, sintering, defect structures and solid-state properties/solid state ionics.
- ✓ **Master of Science in Materials Science & Engineering** | Georgia Institute of Technology | 2006
  - Research Project: Numerical steady/transient state modeling of the cathode of a solid oxide fuel cell (SOFC) system with the emphasis on defect chemistry and solid-state transport.
- ✓ **Master of Science in Chemical Engineering** | The University of Alabama in Huntsville | 2000
  - Research Project: A study of physico-chemical properties of slurries and their effect on imbibition in porous materials (Catalytic converter).
- ✓ **Bachelor of Science in Chemical Engineering** | Jadavpur University, Calcutta, India
  - Research Project: Stochastic analysis of the dynamics of a sieve shaker.
- ✓ **34 Patents**, **16 Journal Publications**
- ✓ **Marquis' Who's Who of America, 2018**

VOLUNTEER EXPERIENCE

- ✓ Mentor, **Materials Science & Engineering Department (MSE), Georgia Institute of Technology (GaTech)**, (7 / 2010 – Present)
- ✓ Co-Chair, **General Electric (GE) Leaders for Tomorrow (GELOT)**, (7 / 2010 – 8 / 2012)
- ✓ Member, **North America Shirdi Sai Temple of Atlanta (NASSTA)**, (12 / 2002 – Present)
- ✓ Member, **Shri Shirdi Sai Baba Sansthan LA (Shirdi Sai LA)**, (2 / 2013 – Present)
- ✓ Member, **Homeless Feeding for Vedanta International Cultural Center (VICC)**, (1 / 2016 – Present)
- ✓ Member, **Bengali Association of Southern California (BASC)**, (2 / 2013 – Present)
- ✓ President, **Rotary Club of Arcadia, CA - Red Badger's Group** (8 / 2017 – 2018).