

# Vivek Ravi Shanker

Senior Engineer

## Curriculum Vitae:

### Personal Statistics:

Citizenship: India

(Last revision: 2018-03-20)

### Language Capabilities:

| Language | Level  |
|----------|--------|
| Hindi    | Native |
| English  | high   |



### Academic and Professional Attainment:

Bachelor of Engineering, BITS Pilani, Electronics & Instrumentation

### Summary of Professional Experience:

Ten (10) years INTERNATIONAL ONSHORE & OFFSHORE experience in the Oil & Gas Industry E&I Engineer but have experience in working on projects in various disciplines such as Technical & Process Safety etc.

Have Onshore and offshore experience mainly in Independent Verification Body (IVB) Services, SCE Verification projects E&I Design Verification of Refinery and Offshore Platform Projects, Preparation of Performance Standards & WSE for Greenfield Projects as well as for Inservice Verification, classification of Mobile Offshore Units, Certification of offshore containers, CALM Buoys, E&I surveillance of top sides, developing performance standards & gap analysis.

Knowledge of International Codes & Standards (IEC, BS, Shell DEPs, BP GPs, DNV Offshore Codes, API, ADNOC COP.

Have good understanding & knowledge of Hazardous Area Equipment, Transformers, Diesel Engines, Generators, Switchgear, Cable Selection, UPS, Motors, Wiring Regulations, Grounding & Bonding, ESD, F&G Systems, Process Instrumentation, PLC, Field Instruments, HAZOP.

Managed Small/ Medium Projects effectively as Project Manager

Worked as project coordinator/ Deputy PM in Large IVB projects

### Present Position:

Senior Engineer

Verification & Certification

### Professional Training

2014: Project Management in Oil & Gas – Intro to our Common Way of Working

2014: Project Management in Oil & Gas - Affinitas Training

2014: CRM Affinitas - Sales Process Oil & Gas

2013: Offshore service Module 2.7-2 – Survey

2013: Offshore service Module 2.7-2 – Plan Approval

2013: Safety CMC - Workshop Module

2012: Offshore containers - survey

2012: Is Leadership for Me?

2012: Project Management the DNV Way

2010: Electrical Installations in Hazardous Areas

2010: Electrical Installations

2009: Intercultural Communication

2008: Project Management 1

### Other Information:

PROFESSIONAL QUALIFICATIONS & AFFILIATIONS

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- COMPEX Certified for working on Equipment in Explosive areas (Cert no. 50131)
- Member of ISA (Membership no. 33249278)

### Detailed Professional Experience:

***DNV GL, Abu Dhabi***

***2008, 2018***

#### Independent Verification Body Projects

ADMA-OPCO SARB Full Field Development Project  
ADMA-OPCO Das Flare Modifications / Revamp Project  
ADMA-OPCO Umm Lulu Full Field Development Project  
ADMA-OPCO IVB Services for 4 New Gas Injectors and 3 Barren Towers in Zakum Field and WP-3A Project  
ADMA-OPCO Umm Lulu and Nasr Phase 1 Development Project  
ADMA-OPCO Das Flare Modifications / Revamp Project  
ADMA-OPCO 100MBD DAS Facilities Upgrade Project  
ADMA-OPCO IVB Service for ADMA OPCO- Electrical Power Upgrade System Project  
ADMA-OPCO IVB Service for Bu-Hasser Project  
ADMA-OPCO NASR Full Field Development Project  
NEXEN IVB Services for Nexen Golden Eagle Project  
RAK GAS IVB Services for the Bukha Treatment Plant  
Qatar Petroleum Bul Hanine FEED project  
ZADCO Belleli Tank Project

#### Major Duties Included:

- Review of HSECEC List, Performance Std & Written Scheme of Examination in accordance with ADNOC CoP and Offshore Safety Case Regulations.
- Develop Verification Plan
- Review of Electrical, Instrumentation, Telecommunication and Safety design documents in accordance with ADMA, national and international standards
- Review of critical equipments- design documents ,data sheets , calculations ,drawings.
- Verification of activities as per Performance Standard and Verification Plan for the identified HSECEs in the Design, Procurement, Construction and Commissioning Phase for the following SCE's such as Electrical Items, Ignition prevention, F&G Detection Systems, Active Fire Fighting Systems, Passive Fire Protection, Emergency Escape Routes, UPS, ESD systems, HVAC, UPS, etc.
- Carrying out E&I surveillance activities onshore and offshore.
- Monitoring the Pre- Commissioning and Commissioning tests on Safety Critical Systems according to verification plan for F&G System, ESD, Fire fighting system as per the Cause & Effect Chart.
- Carry out COMPANY/ EPC HSECEs Audit for Design, procurement & Construction phase.
- Project management, coordination.

#### GASCO – Development of Performance Standards & Gap Analysis

The scope of work was to develop performance standard and perform GAP Analysis for the Habshan & Bab, Buhasa, Asab & Ruwais Plants.

The following HSE Critical Equipment & Systems (HSE-CES) were considered for developing Performance Standards :

1. Emergency Shut Down System (ESD)
2. Emergency Depressurization System (EDP)
3. Fire & gas detection system (F& G)
4. Pressure Safety Valves (PSVs)
5. Fire fighting System, comprising: a) Deluge water systems b) Fire pumps c) Gaseous Extinguishing Systems d) Manual call points or Break Glass Units

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### Design Appraisal Projects

ADMA-OPCO SARB Full Field Development Project  
ADMA-OPCO NASR Full Field Development Project  
ADMA-OPCO Umm Lulu Full Field Development Project  
ADMA-OPCO Umm Lulu and Nasr Phase 1 Development Project  
ADMA-OPCO IVB Service for Bu-Hasser Project  
ADMA-OPCO Design Appraisal Service for ADMA OPCO- Electrical Power Upgrade System Project  
RAK Petroleum Provision of Engineering Verification Design Services for Saleh Field Development

### Major Duties Included:

- Review of Electrical, Instrumentation, Telecommunication and Safety design documents in accordance with ADMA, national and international standards
- Review of critical equipments- design documents ,data sheets , calculations ,drawings.

### PDO Central Project Delivery – Technical Integrity Verification Projects

Worked on various PDO TIV projects as listed below

RHIP Project  
RHPP Project  
Kauther Development Project  
Yibalkhuff Project  
Birba Project  
Khulud Project  
Mabrouk Project  
Marmoul Project  
Al Noor 4<sup>th</sup> Ring Project  
Al Noor Condensate Project  
Al Noor Unloading Project  
SNCP and SNGP Project

### Major Duties Included:

- Review of Electrical, Instrumentation, Telecommunication and Safety design documents in accordance with ADMA, national and international standards
- Review of critical equipments- design documents ,data sheets , calculations ,drawings.
- Verification of activities as per Performance Standard and Verification Plan for the identified HSECEs in the Design, Procurement, Construction and Commissioning Phase for the following SCE's such as Electrical Items, Ignition prevention, F&G Detection Systems, Active Fire Fighting Systems, Passive Fire Protection, Emergency Escape Routes, UPS, ESD systems, HVAC, UPS, etc.
- Carrying out E&I surveillance activities onshore and offshore.
- Monitoring the Pre- Commissioning and Commissioning tests on Safety Critical Systems according to verification plan for F&G System, ESD, Fire fighting system as per the Cause & Effect Chart.

### Dubai Supply Authority (DUSUP) FMEA Study of Process Area of Margham Plant

Conducted a study on Failure Mode Effect Criticality Assessment (FMECA) on Area 10 Process unit of Margham plant, located at Margham field, Dubai. The study is undertaken for E&I items identified by DUSUP and are selected from items which are neither safety critical or production critical.

The study is undertaken by using a structured FMECA (Failure Mode Effect Criticality Analysis) that is typically employed by DNV for RCM exercises. The methodology comprises of the following major steps :

- Identify the Function Failures, the Failure modes and its causes
- Assess COF ( Consequence of failure) , POF ( probability of failure ) and DOF ( Detectability of Failure).

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- Calculate RPN ( Risk priority number) by multiplying COD, POF and DOF and accordingly categorise its criticality from Very Low to Extreme.
- Identify relevant RCM task for managing (preventing/ detecting/ eliminating) the respective failure mode and define its interval depending on its criticality. Identify other supplementary/ complementary tasks

### **ENI SAIPEM Condition Assessment of Perro Negro 3 Jack up Rig**

Perro Negro 3 was built in 1983. As part of the condition assessment, visited the rig in April 2017 to carry out visual inspection and functional tests as well as review of previous maintenance records and inspection reports. The purpose of the survey was to verify the status of the following:

- The jack-up units (General).
- Living Quarters.
- Jacking System.
- Power generation system.
- Electrical System.
- Helideck and ancillaries.
- Fire Detection / Fire Fighting Systems.
- Safety and emergency devices.
- Crane & Lifting Equipment.
- Plant Maintenance System.

### **GASCO Cathodic Protection Assessment Study for Ruwais Jetty Berth#1**

The objective of the CP Assessment study were as follows:

- Review of available CP Monitoring records for Berth#1 Structures.
- Assess the adequacy of Cathodic Protection System and identify recommendations for continued operation throughout its design life.

The assessment study had been performed by review of Design documentation, Site Survey report and Monitoring reports.

### **Flowserve SIL Calculation for ESD/ BDV valves**

The objectives of the study were to perform the PFD calculation of Valves manufactured by Flowserve. The present report contains the calculation of reliability figures of actuated valves for the project subjected to IEC 61508 guidelines.

### **BUNDUQ Lifetime Extension of Switchracks**

The scope of work was to carry out offshore survey of 3 no. Switchracks installed in BUNDUQ field to verify integrity of equipment to be suitable to be functioning in hazardous area.

### **BUNDUQ Verification of WIP Emergency Diesel Generator**

- Review of existing design of WIP-EDG against the earlier versions of the appropriate international standards.
- Verification of design for WIP-EDG with respect to the applicable latest international codes and standards.
- Offshore site survey to verify the Process & Electrical Interface.
- Provide recommendations in order for the EDG to comply with latest international codes and standards.
- Carried out Risk Assessment of the Emergency Diesel Generator package

### **BUNDUQ Risk Assessment of Un-availability of WIP Emergency Diesel Generator**

- Carried out Risk Assessment of Un-availability of WIP Emergency Diesel Generator

### **Development of Methodology for Life Time Extension of Fixed Offshore Assets (DNVGL Innovation Project)**

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The purpose of the document is to give a comprehensive methodology for life extension of ageing Electrical & Instrumentation equipment on fixed offshore platforms (FoPs) facilities. The methodology detailed has been derived from best practices within DNV and other available resources detailed in the Reference (Ref.).

The broad objective of the comprehensive methodology is to lay down process for assessment of fitness for purpose of ageing Electrical & Instrumentation equipment on fixed offshore platforms (FoPs) facilities over the extended service life with regards to the consequences in terms of risk to Safety, Environment, Economy, Reliability.

### **Development of Material Inspection Standard for Electrical, Instrumentation, Mechanical and Chemical Product Categories for ZADCO**

- Developed comprehensive material inspection standards (80 nos) for Offshore mechanical, electrical, instrumentation and chemical product categories. The Material inspection standards were developed in accordance with company specifications, applicable IEC, ISO and API and other relevant International Standards. The main objective of the project was to ensure the following:
  - Compliance of procured products to company specifications, applicable international standards and purchase order requirements
  - Provision of Verification Plan for each product category
  - Identification of Product risk category
  - Identification of stages to be witnessed by ZADCO and / or ZADCO appointed Third Party Inspection agencies during manufacturing process (es).
  - Verification during the phases of pre purchase order and post purchase order conditions

### **CE Audit of Petrofac for Borwin-3 Project**

Carry out CE Audit for Borwin-3 project for Procurement phase. The intent of the audit was to check compliance to all directives (ATEX, LV, EMC, Machinery, MED etc.) applicable for various equipment.

### **Provide Training to various clients in Hazardous Areas and DNV 2.7-2 Standard**

- Hazardous area Training for Proserve
- Hazardous Area Training for Manifold Systems International
- DNV 2.7-2 training for Spacemaker

### **MOPUSTOR Talisman YME Re- Development Project**

Classification of Mobile Production and Storage Unit ( MOPUSTOR) as per DNV Electrical Rules and also confirm its compliance with various other international Electrical standard such as IEC, NORSOK, PSA etc. at Contractor's location in Musaffah .

Major Duties Include :

- Inspection of E&I Equipments installed on the Process Deck, Accommodation Modules, Hull Machinery Area, Helideck and Helideck Control Room.
- Review of E&I Single Line Drawings of Power Distribution , Cabling Installation and Termination Drawings, PAGA Drawings, Earthing Details Drawings, MCT Drawings, F&G System Drawings etc.
- Review of ATEX Certificates of Equipments installed in Hazardous Areas.
- Line Walk Inspection as per Isometrics.

### **Certification of Offshore Service Containers and Freight Containers ( DNV 2.7-1 and DNV 2.7-2)**

Carrying out certification ( Design Review + Survey) to DNV 2.7-2 standard for various clients such as Specialist Services, Oilwell Middle East, MFC, Coruweld Engineering, Weatherford, Fugro, Servetech, Indata Oilfield, Schlumberger etc.

-Have certified more than 300 modules in the UAE and Singapore.

Review of Electrical Diagrams, Checking Load & Intrinsic Safety Calculations, Review ATEX Certificates.

Witness Functional Testing , Checking cables as per DNV 2.7-2 Standard

Perform Load Test, Pull Test , Weather Proofness Test as per DNV 2.7-1 .

Certification of slings as per DNV 2.7-1

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Visual, Final, Periodic Inspection as per DNV 2.7-1 Standard  
Review NDT, Paint Inspection Reports, structural design review, material certificates etc.  
Review and survey to NORSOK standard  
Give DNV 2.7-2 training to various clients in the UAE.

### **Fabrication surveillance of FPSO Modules of OLOWI-1 to DNV Offshore Rules and Class Rules for Lamprell Energy Limited (LEL).**

Perform Electrical and Instrumentation Fabrication Surveillance inspections of offshore modules.

### **Certification of several Buoys for ZADCO, GPC, OGASCO**

Electrical Installation Surveillance  
Final Inspection, Fabrication and Paint Surveillance  
Hydro testing of spools, chambers

## ***Det Norske Veritas, Norway***

***Jan 2011-Sep 2011***

### **Performance Standard and work instructions for BP Valhall QP, DP, PCP, WP, IP and PH Platforms**

- Developed Performance Standard for Fire & Gas Detection, Passive Fire Protection, Active Fire Protection, Emergency Power & Lighting, Emergency Shutdown and Ignition Source Control.
- Developed Validating Instructions for Fire & Gas Detection, Passive Fire Protection, Active Fire Protection,

### **Performance Standard Development (Service Development Project)**

- Developed a set of Performance Standards along with a set of examination activities for PAGA and Emergency Lighting and UPS systems that will serve as DNV's best practise in terms of expected safety barrier performance.

### **Risk Assessment in Complex Power Systems**

- involved in developing the RAM model along with other team members for a conceptual onshore grid.
- involved in Brainstorming sessions for developing methodologies for risk assessment in complex power system including but not limited to combining RAM simulation with Power flow analysis.

### **Risk Management Overview of P12 Pipeline Tie-in Project at Troll A for Statoil**

- Closed out actions relating to HAZIDS, HAZOP's, Peer reviews, exchange seminars and closed out the actions by interviewing the responsible Statoil P12 Project team personnel.
- Identified areas not adequately covered by risk management activities.
- Acted as Scribe for Grouting HAZID for P12 tie-in at Troll A, Statoil.

### **Nordstream Verification of Availability Report for Siemens**

Verification in accordance with Standards ISA TR 84.00.02-2002 and NORSOK Z/016 of Production Availability report for Pipeline from Russia to Germany. The main aim of this report was to evaluate all systems which will have a negative impact on the gas transportation by an unwanted closure of the shutdown valves. These systems are the PSS, ESD, PCS, FGS, communication link, electrical and hydraulic power supply system; all of which contribute to spurious trip of shutdown valves.

## ***Det Norske Veritas, Singapore***

***Feb 2010- Nov 2010***

### **Dragon Tortoise Compression Platform module at GPS yard for Petro Vietnam**

- Witnessed HVAC testing as per Cause & Effect Diagram
- Performed Electrical Inspection of the whole platform including the equipments located in the LER such as Control Equipment, Switch board, UPS, Battery Room, Cable Tray & Ladder arrangement, Grounding, F&G & Smoke detector installation, General Cabling, Hazardous Area Equipment Location & Installation.
- Reviewed Mechanical Completion documents for the Compression Module Packages.
- Reviewed E&I Documents for the Compression Module
- Design Verification of FM 200 System



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### **IVB Service for Feed/ Basic Engineering Design For Pearl Oil Ruby Field Development Project**

Design Verification of F&G layout in accordance with Client Specification and International Standards for the Pearl Oil WHP and PQP Project.

- Reviewed Electrical Design Drawings, Calculations and specifications for the WHP and PQP Project.
- Verification of activities as per Performance Standard and Verification Plan for the identified HSECEs in the Design, Procurement, Fabrication & Commissioning Phase for the following SCE's such as Electrical Items, Ignition prevention, F&G Detection Systems, Active Fire Fighting Systems, Passive Fire Protection, Emergency Escape Routes, UPS, ESD systems, Firewater distribution, HVAC, UPS, Telecommunication Equipment, Emergency Lighting, TEMPSC, Escape & Breathing Apparatus, Nav aids, Temporary Equipment etc.

### **IVB Service for Validation for Apache Devil Creek Platform Project**

- Prepared Verification Scheme for E&I Safety Critical Elements according to the Performance Standards provided by Apache Energy.
- Verification of activities as per Performance Standard and Verification Plan for the identified HSECEs in the Design, Procurement, Fabrication & Commissioning Phase for the following SCE's such as Electrical Items, Ignition prevention, F&G Detection Systems, Active Fire Fighting Systems, Passive Fire Protection, Emergency Escape Routes, UPS, ESD systems, Firewater distribution, HVAC, UPS, Telecommunication Equipment, Emergency Lighting, TEMPSC, Escape & Breathing Apparatus, Nav aids, Temporary Equipment etc.

### **Zone 2 Certification of PAS, SIS & F&G cabinets for BP Angola PSVM FPSO Project**

- Carried out Design review and visual inspection for the above equipment at Yokogawa Engineering Asia Ltd. Design Verification & certification of IPS/ FGS- System Marshalling Cabinet for Champion Water Flood Project
- Performed design review, visual inspection, testing of Purging system for the above equipment at Emerson Process Management premises to the extent described in the E&I documents submitted by the client.

### **Design Review of LV Main and Emergency Switchboard for Vietsovpetro RC3RC1 Project**

Conducted Design Review of Main and Emergency LV Switchboard in accordance with Client's Specification, IEC Standards. Prepared comments sheets and forwarded it to client.

### **Witness F&G Detectors function test and inspection as per ITP provided by Draeger Safety**

### **IVB & Design Appraisal Service for ADMA OPCO- Electrical Power Upgrade System Project - Design Review of High Voltage (HV) Systems**

- Electrical design verification was carried out from the Singapore office for the ADMA OPCO EPSU project. My task was to close out the verification comments made by DNV Singapore based on the response of the client.
- Verified Bus Bar strength Calculations for HV Switchgear.
- Verified Cable sizing calculations, Current Transformer Calculations.

### **IVB Service for Montara Field WHP Development Project.**

- Carried out Design review and visual inspection of 6no. ESD/F&G/PCS Cabinet at STAHL, Malaysia. The equipment has been designed and fabricated to comply with the requirements of the project specifications and relevant international codes and standards to meet Zone 2 IIA T3 requirements.
- Prepared Verification Scheme for E&I Safety Critical Elements according to the Performance Standards provided by PTTEP.

The SCE'S were Fire & Gas detection, Emergency Shutdown, Emergency Communication and Alarm, Emergency power & Lighting, Equipment Hazardous Area Zoning & Navigational Aids.

- Audit of Vendor for the WHP Control Panel cabinet for the WHP Project.
- Reviewed E&I Design documents for the Project.

Zone 2 Area certification of Diesel Engine at TangSeng Engineering

Witnessed Function Acceptance Testing, Inspection of Diesel Engine as per Client's Procedure. Reviewed Pyroban Kit Certificates.

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### **Witness FAT for Drilling Top Drive System for Aker Solutions AH.**

Witnessed FAT for Top Drive System Eqpt. in accordance with client's factory acceptance test procedure.

### **Witness FAT For 2 nos. UPS (Uninterruptible Power Supply) units at Socomec.**

Witness FAT of UPS Units -2 nos. The UPS (2 Units) was visually inspected and tested in according to the SOCOMECEC procedure.

### **Petrotech Enterprises, Dubai**

**2007, 2008**

International Sales Coordinator

#### Key Activities:

- Promoted industrial products and services catering to the Oil & Gas, Marine Industry: Onshore and Offshore, Process Industries, Power Generation, Desalination Plants, Manufacturing & many other general Industrial Sectors.
- Coordinated and managed multiple projects such as South East Asia Marine And Construction Ltd., The Great Offshore Shipping Company, HAL Offshore, Total E&P- Yemen, & many more.
- Set prices, developed quotes and coordinated bids for projects.
- Trained in Process Instrumentation products such as Parker Valves, fittings, Nuova Fima Gauges, Sandvik Tubings etc.
- Coordinated, planned and contributed at the 2007 Arab Oil & Gas show.
- Generated leads and initiated sales in the assigned areas of Yemen & Syria.
- Established and improved client communications; maintained ongoing relationships.
- Addressed customer inquiries; interpreted and delivered information; proposed suggestions; provided guidance; identified, investigated and negotiated conflicts.
- Performed client follow-up, designed to ensure client satisfaction and gain repeat business.
- Performed market research surveys on customer needs and requirements.
- Prepared monthly sales reports for senior management.
- Performed administrative functions for Business Development Manager and the sales team.
- Maintained detailed, accurate and up-to-date client files.