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## Lokesh Anandaiah

### Piping Senior Engineer| Lead

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#### Profile (22 Years Experience)

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22 years' experience in oil and gas industry ranges from engineering design, brownfield engineering supported fabrication engineering, Operation & Maintenance in field of piping engineering and Piping Stress Analysis for projects related to Oil & Gas FPSO/Offshore platforms /Petrochemical/Refinery Industry.

Experienced in leading engineering team and managing all piping design, piping stress analysis Mechanical related issues including planning, monitoring, reporting, man-hour estimation & identifying Stress Analysis Scope of Work / interface with related structures, brownfield tie-ins and other package contractors.

#### Core Skills

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- FPSO and semi sub piping layout .
- Refinery, Petrochemical Piping design
- Stress analysis and piping support selections.
- Mechanical vendor drawing review.
- Worked, coordinated, assisted brownfield vendor packages & site activities.
- Vibration analysis
- Proficiency in PTS, ANSI, API, DNV, ASME, SHELL, TOTAL
- Caesar-II, 3D Model Review (SPR, Navisworks), PDMS, PV-Elite, Nozzle Pro
- Materials selection for piping applications.

#### Qualifications / Institutions / Publications

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<b>Degree</b>	<b>Bachelor of Engineering - MECHANICAL</b>
BANGALORE UNIVERSITY, 2000	(First class with distinction)

#### Career History

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**Oct 2022 – Present |Working – OPERATOR, INPEX Australia Pty Ltd | Piping Senior Engineer**

**Semi-Submersible CPF PHASE 2B MODULE Booster Compressor Module (BCM)| BCM CONTRACTOR - MCDERMOTT (KUALALUMPUR) |**

#### Responsible for Piping Engineering activities in KL & Chennai.

##### Key Responsibilities

- Single-point responsibility for all Piping engineering deliverables and piping coordination activities.
- Involved Model review comments & close out.
- Experience in Materials selection, specifications and supported procurement system.
- Prepare deliverables register and identifies progress milestones.
- Involved in Piping stress reports review & pipe support selections.
- Coordination and monitoring of work status and drawings completion.
- Review & checking General Arrangement drawings, Piping Model and isometric based on updated equipment layout, latest PID, piping specification, vendor drawing and design standard.
- Piping weight distribution and COG Monitoring.
- Piping Isometric and general arrangement drawing production.
- Engineering checks of drawings, specifications and schedules.
- Involved Piping MTO requisition and specification.
- Understanding of construction, Plant commissioning, operations and Resolve Field piping-related issues that arise between the EPC Contractor .
- Have strong experience performing Lay-out studies (Brownfield and Greenfield)

- Work with subject Piping subject matter experts (SME) and are expected to be able to perform the role of technical authority when delegated and experience in interacting with Senior TA's when required and extend support.

**Oct 2021 to September 2022 | Aker Solutions, Kuala Lumpur, Malaysia | Principal Piping stress Engineer**

**Detail Design of MERO3 FPSO (Petrobras / MISC) |**

*Key Responsibilities*

- Area Lead responsible for area P10 & F10 (KO Drum & Flare tower ) , pipe rack & other Process Modules.
- Review the layout integrity to ensure that issues on safety, operational access, mechanical maintenance, material handling, supports, hook-ups and offshore installation, are carefully considered in engineering stage.
- Coordinate and involved in various inter-disciplines interface and interface with 3rd parties / client.
- Preliminary layout study feasible to piping support & optimization.
- Preparation piping stress report and piping loadings for structural design.
- Perform static analysis using CAESAR II for the load cases such as dead weight, sustained loads, Thermal expansion/contraction, Wave acceleration, Hog/sag Deflections, occasional and environmental loads, blast load, fatigue, slug, transportation, module lift and vibration analysis
- Provide effective stress solution for the Topping modules critical Piping and Deck Piping which involves critical equipment's.
- Attended HAZID, HAZOP & model review for piping design engineering.

**Dec2012 to Sep-2021 / Technip Geoproduction(M) Sdn Bhd, KL/ Senior Piping Engineer**

**a)Long Son Project – Olefins Plant, Vietnam | Area Lead Piping stress | Jan 2021 to Sep 2021**

*Key Responsibilities*

- Area Lead responsible for area OSBL
- Checking of General Arrangement drawings, Piping Model, and isometric based on updated equipment layout, latest PID, piping specification, vendor drawing and design standard
- Directing stress engineers in analysis / reports.
- Analysis of critical lines connected to Compressors, Pumps, exchangers, reboilers, turbine lines etc.
- Coordinating with other disciplines.
- Review and finalize vendor drawing and datasheets of spring hangers and rigid struts.
- Stress report format preparation, review / comment analysis and preparation of stress reports.
- Selection of spring hangers, expansion joints and special supports and preparation of data sheets for the same
- Producing, checking, and approving piping deliverables (Piping Fabrication isometrics, Piping support details) that conform to all applicable industry engineering codes and standards as well as the client's policies and procedure
- Extensive experience in piping, vessel and valve engineering with relevant experience within the offshore oil and gas production industry.

**b) Jan 2020 – Dec-2020 / bAnc2 Project /BlueStar Adisseo Nanjing Co., Ltd. / Piping Area lead**

*Key Responsibilities*

- Checking of General Arrangement drawings, Piping Model, and isometric based on updated equipment layout, latest PID, piping specification, vendor drawing and design standard.
- Performed critical line analysis like column reboiler, Pumps, air fin coolers & Heat exchanger lines & review stress activities, equipment vendor drawings.
- Prepared datasheets, structural loadings, stress analysis reports.
- Checked stress analysis done by team members.
- Optimization of pipe routing design & support coordination's.

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**c)Jul-2018 – Dec-2019 / Barossa FPSO FEED Project /ConocoPhillips/ Pipe Stress Area Lead**

**• Key Responsibilities**

- Performed piping stress calculations and piping layout for all critical lines like compressor, pipe rack lines, flare, process lines...etc
- Stress analysis carried for detail load case analysis like Transit, Green water, slug & Blast analysis.
- Review stress analysis reports, Model review & weekly meetings.
- Model review / weekly meetings.
- Offshore piping stress analysis considering all variables including hull and structural deflections, environmental conditions, safety reports, structural & process considerations and material handling requirements

**d)Jan 2016 – June-2018 / Refinery and Petrochemicals Integrated Development (RAPID) Project, Malaysia) | Piping Area lead |**

**Key Responsibilities**

- Responsible for the supervision of the piping design and Design team assigned to the project.
- Conformance design meeting to its design specification.
- Reviewing of critical stress report of the lines connected to Compressors, Pumps, Reactors, Refractory, Flare, Tanks, Reboilers etc.
- Reviewing / commenting contractor's stress reports, Preparation of weekly review meetings and punch list, meet the monthly schedule, advising / suggesting optimistic solutions.
- Involved with Contractors such as TRS, PETROFAC, CTCI, PUNJ LOYDS, SAMSUNG etc.
- Coordinating with other disciplines.
- Attending model review / Vendor review meetings.
- Coordination with clients, vendors and subcontractors as a part of GRE package contractor coordination, engineering discussion, weekly project meetings.
- Participate in HAZOP Studies, FEED review and Detailed Engineering.

**e)Dec 2014 – Dec 2015 / FPSO Pioneiro De Libra | Jurong Shipyard Pte Ltd , Petrobras| Senior Engineer – Area Lead**

**Key Responsibilities**

- Participation in piping model review / stress / vendor / project meetings.
- Effect of structural deflection due to module movements and Fatigue analysis.
- Responsible and involved in Equipment layout and piping detail engineering for FPSO.
- Review the layout integrity to ensure that issues on safety, operational access, mechanical maintenance, material handling, supports, hook-ups and offshore installation, are carefully considered in engineering stage.
- Coordinate and involved in various inter-disciplines interface and interface with 3rd parties / client.
- Prepare, review and check Issued drawings / deliverables prior to issuance to Project Management Team (PMT).
- Fully participate and assist in 3D model review internally and externally with clients.
- Performs static analysis using CAESAR II for the load cases such as dead weight, sustained loads, Thermal expansion/contraction, Wave acceleration, Hag/sag Deflections, occasional and environmental loads, blast load, fatigue, slug, transportation, module lift and vibration analysis
- Coordination with other engineering disciplines including Process, Mechanical (static / rotary), Structures, Instrumentation, Safety, Materials / Corrosion & Material handling for all activities related to piping stress analysis
- Involved in preparations of work Instructions for piping layout.
- Model review / weekly meetings & IFC iso checking.

**f)Apr 2014 – Dec 2015 / Nghi Son Refinery and Petrochemical Complex Project / Nghi Son Refinery / Piping Stress Engineer – Area Lead**

- Participate in inter-disciplines, project, client and vendor meetings.
- Performed critical line analysis like column reboiler, compressors, Pumps, air fin coolers & Heat exchanger lines & review stress activities, vendor drawings.

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**g) Dec 2012 – Apr 2014| Ichthys FPSO Topside Detailed Engineering/Daewoo Shipbuilding & Marine Engineering Co Ltd , INPEX,Total | Piping Stress Engineer – Area Lead**

**Key Responsibilities**

- Review the layout integrity to ensure that issues on safety, operational access, mechanical maintenance, material handling, supports, hook-ups and offshore installation, are carefully considered in engineering stage.
  - Checking of General Arrangement drawings, Piping Model, and isometric based on updated equipment layout, latest PID, piping specification, vendor drawing and design standard.
  - Coordinate and involved in various inter-disciplines interface and interface with 3<sup>rd</sup> parties / client.
  - Static analysis for heating medium, pumps, compressors and exchangers.
  - Fatigue and blast analysis.
  - Coordinating with other discipline.
  - Issues 3D model review close out reports for 30%, 60% & 90% reviews.
  - Expedites issuance of 3D clash reports & resolution of clashes, including interfaces with other areas.
  - Directing stress engineer in analysis / reports.
  - Preparation & checking of piping stress analysis & stress reports.
- Responsible and involved in equipment layout and piping detail engineering for FPSO.

**Nov 2009 to Nov 2012 / Petrofac Engineering Services India Pvt Ltd. ,Chennai / Piping Senior Engineer**

**a) KOC Project (Provision of pipelines under the new water injection project for the Raudhatain & Sabriyah fields in North Kuwait)**

**b) UPPER ZAKUM 750K (ZADCO) Feed jobs.**

**Key Responsibilities**

- Develop piping designs through all design stages, including conceptual, preliminary, detailed engineering and construction.
- Conducting and attending 3D model review with client at various stages of the plant design
- Supervising the team of Engineers and Designers for executing piping work. Reviewing piping engineering deliverable from technically and quality point of view.
- Performing, coordinating & reviewing piping Material Take Offs (MTO) activities.
- Executing and supervising the Piping Layout Design and the drafting activities in 3D (PDS, PDMS & SP3D) / 2D (Auto-Cad, Micro station, SmartSketch) environment.
- Resolving site problems and preparing instructions of piping design change request, site revision Isometrics, site support modifications
- Vendor drawing review for the static Equipment's/ Rotating Equipment's/Packages.
- Review the Client's technical requirements for Piping stress Engineering and establish the stress Design Basis/philosophy for various load cases , specification , Standards and guidelines for stress engineering execution
- Preparation of stress critical line list as per the critical line selection criteria Plan, schedule and progress control for the critical computer Stress calculations and visual reviews
- Provide effective stress solution for the Topside modules critical Piping and Deck Piping which involves equipment's such as Compressor, Turbines, Pumps, vessels, separator, Heat exchangers and Pipe rack Piping etc

**Simon carves,UK**

**June 2008 to June 2009/ PT Thai Polyethylene Project 300 ktpa LDPE plant, Thailand/ PTT/ Piping Senior Engineer**

**Key Responsibilities:**

- Coordinate and involved in various inter-disciplines interface and interface with 3rd parties / client.
- Prepare, review and check Issued drawings / deliverables prior to issuance to Project Management Team (PMT).

- Fully participate and assist in 3D model review.
  - Executions of pipe stress analysis by static analysis on HP & LP critical lines.
  - Dynamic analysis of piping subjected to pulsating forces (modal / spectrum / time history analysis) .
  - Responsible for piping layout & analysis of critical piping systems connected to heat exchangers, Reciprocating Compressors, Drums, Pumps, and Reactors etc.
  - Knowledge of pipe supports, trunnion calculations, assessment of loads on equipment's.
  - Prepare piping stress analysis reports.
  - Check and review vendor documents for piping mechanical supports.
  - Pipe support design & Stress work coordination with clients, vendors and other discipline engineers.

### **SNC Lavalin, India**

**Dec 2007 to June 2008 / Shaybah CPF Project/ Aramco, KSA/ Piping Stress -Senior Engineer/**

#### *Key Responsibilities*

- Performance of Piping Stress Analysis including static and dynamic analysis of piping systems for Refineries, Chemical Plants.
- Stress analysis of piping systems connected to pumps, Columns, Air Fin coolers, compressors, turbines, and large storage tanks, fired heaters, Reboilers and pressure vessels.
- Coordination of work and stress analysis results with Mechanical and Civil / Structural Engineer.
- Mentor pipe stress to junior engineers.
- Developing piping layouts, preparation of piping 3D models, piping isometrics.
- Developing P&ID as per process requirement.
- Design of oil and gas piping and process piping.
- Stress analysis isometric drawings.
- A background / knowledge in piping layouts and piping design procedures.

### **VALDEL ENGINEERS & CONSTRUCTORS (VEC), INDIA**

**Apr 2007 to Nov 2007/ DELEK Refinery Project / DELEK Refinery Ltd, US/ Piping -Senior Engineer**

#### *Key Responsibilities*

- Utilizing engineering software such as Review Reality, PDMS and Navisworks, checking of all design drawings to ensure all drawings and documents are issued in conformance with project specifications, design codes and industry standards.
- Participate in project inter-discipline design reviews and studies to ensure that project design philosophy are properly executed at all times to meet client requirements.
- Fully participate and assist in 3D model review internally and externally with clients.
- Performance of Piping Stress Analysis including static and dynamic analysis of piping systems for Refineries, Chemical Plants.
- Stress analysis of piping systems connected to pumps, Columns, Air Fin coolers, compressors, turbines, and large storage tanks, fired heaters, Reboilers and pressure vessels.
- Coordination of work and stress analysis results with Mechanical and Civil / Structural Engineer.

### **Foster Wheeler India Pvt Ltd., Chennai**

**Sep 2005 to Mar 2007 / SHARQ 3 Expansion utilities and offsites project/ KSA /Piping Engineer**

#### *Key Responsibilities*

- Utilizing engineering software such as Review Reality, PDMS and Navisworks, checking of all design drawings to ensure all drawings and documents are issued in conformance with project specifications, design codes and industry standards.
- Participate in project inter-discipline design reviews and studies to ensure that project design philosophy are properly executed at all times to meet client requirements.
- Fully participate and assist in 3D model review internally and externally with clients.
- Preparation of material requisition for buy- outs like filters, plate heat exchangers, miscellaneous tanks, process internals and sub- contract of painting, insulation etc.
- Preparation of Loads to Steel.
- Conversant with modeling of all Piping Hardware for pipe Stress Analysis like Spring Hangers & Bellow elements.
- Performed critical pipe stress calculation & Flange leak checks.

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- Responsible for the design of Special Pipe supports, Standard Pipe Supports and Steel Structural Supports.
  - Good exposure in to the Skid / Module Package like Fuel gas conditioning skid, Refrigeration module, Sea water treatment module, Fire water pump package & Generator package.

**Larsen & Toubro, Oil & Gas special Projects(OGSP) ,India.**

**April 2002 - July 2005 / QP Project , Maydhan Mahzam & Bul-Hanin (PS-2/3 Project)  
Offshore Projects /Mechanical\_Piping -Project Engineer**

*Key Responsibilities:*

- Checking of General Arrangement drawings, Piping Model, and isometric based on updated equipment layout, latest PID, piping specification, vendor drawing and design standard
- Stress analysis of critical lines in Offshore piping, bridge piping, compressor modules & platform piping.
- Preparation plot plan , review & implementation client comments.
- Performed variety of Analysis like Slug flow regimes, Flange leakage check
- Review piping isos and progress.
- Response to technical queries & assistance to construction team.
- Man-hour estimation & control, planning, scheduling, proposals, kick-off meeting, progress monitoring & control, progress reporting, participated in project progress review meetings & vendor meetings.
- Performed Piping stress/flexibility analysis basis. Managing interfaces with Pipe stress team for stress critical line. Be able to interpret pipe Stress deliverables to produce a cost effective and safe lay-out /arrangement.
- Liaise closely with other disciplines to ensure all piping (Supplier and all other disciplines i.e. Process, instrument, Mechanical as well as safety) requirements are addressed in the design, lay-out, fabrication, construction and commissioning.
- Provide value adding knowledge to constructability reviews and take consideration of layout restrictions, ergonomics, safety, utilities, and maintainability.
- Nozzle load calculations and interpretation of design drawings and specifications for static equipment e.g. tanks, pressure vessels, exchangers, and piping.
- Experienced in the Material requisition and TBE preparation and evaluation

**Training**

BEML-KGF (02/2001 – 03/2002)

**Passport : INDIA**

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RESIDENT PASS -TALENT( MALAYSIA)

DATE OF BIRTH : 10/03/1978