NUNGSOO "NATHAN" KIM

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HIGHLY-MOTIVATED MECHANICAL ENGINEER WITH INTEGRITY

RESOLVE DESIGN ISSUES WHILE IMPROVING QUALITY AND CONTROLLING COSTS

Several years of experience contributing to various phases of front-end engineering design (FEED) and detailed design in the oil & gas industry including mechanical engineering, subsea pipeline design/ analysis/ installation and floating structure global motion analysis.

Extensive knowledge of fluid mechanics, heat transfer, and ocean wave mechanics. Excellent analytical skills in assessing subsea pipeline problems and developing models for further analysis and troubleshooting. Good working knowledge of design code ASME, DNV, and API code.

Proven success in coordinating with other disciplines to accomplish project tasks and ability to liaise with clients and vendors during all phases of FEED and detailed design engineering. Areas of expertise include:

- **Design for various phases of FEED**
- **Installation Engineering**
- **Pipeline and Mechanical Design**
- **Orcaflex and FEA Program**
- **Subsea Equipment Design**
- **Heat Exchanger**
- **Ocean Thermal Energy Conversion**
- **Design & Process Documentation**
- **Cost Analysis and Control**

PROFESSIONAL EXPERIENCE

GENESIS, (TECHNIP USA) Houston, TX

Senior Specialist **2012 to 2015**

Provided engineering and installation support in major subsea pipeline projects in both shallow and deep water. Specialized experience in all aspects of pipeline design including advanced FEA simulation.

- Performed subsea pipeline mechanical design and analysis: wall thickness, buckle arrestor, on-bottom stability, allowable span, pipe curve pullout, pipe end expansion, fatigue, anode design, and pipe cost estimation.
- Performed FEA analysis to check global buckling, fatigue damage calculation, and thermal expansion/walking analysis of flowline.
- Performed installation analysis: subsea structure installation, SCR pre-lay route selection, and SCR transfer analysis during client urgent schedule and successfully delivered analysis results.
- Created design basis, analysis methodology, technical specifications, and permit application.
- Reviewed constructability of design options/plans and provided feasible option/solution to client.
- Interfaced with other departments to produce drawings (alignment sheets, drill center layouts, etc.).
- Performed extreme wave and current prediction for hydrodynamic stability of pipeline.
- Performed evaluation and interpretation of the effects of field subsidence on the structural integrity on gas export line using mathematical model.

PEGASUS INTERNATIONAL, Inc., Houston, TX

Senior Engineer **2011 to 2012**

- Performed subsea pipeline mechanical design and analysis: wall thickness, buckle arrestor, on-bottom stability, allowable span, pipe end expansion, bottom roughness, PLEM structure piping stress analysis.

- Performed flexible riser and umbilical interference analysis to find the location of riser porch & optimal size of umbilical.
- Collected project data and compiled subsea design deliverables for permit application to government, meeting client budget and schedule.

Wood Group Kenny, Houston, TX

Senior Engineer **2008 to 2011**

- Prepared a budgetary proposal for a detailed engineering of mooring line configurations to expand project according to environmental input changed.
- Performed hydrodynamic analysis of riser system and determined buoyancy can size to increase fatigue life in shallow water harsh environment.
- Developed pipeline design basis, specifications of the subsea structure, and subsea pipeline during aggressive schedule by client. All documents delivered in time and budget, exceeding client's requirement.
- Performed subsea pipeline mechanical design and analysis: wall thickness, buckle arrestor, on-bottom stability, allowable span, pipe curve pullout, pipe end expansion, route curvature, and SCR pull-out protection.
- Performed SCR clamp spacing on fixed platform structure to reduce clamp fabrication and installation cost.

Technip USA, Inc., Houston, TX

Staff Specialist **2006 to 2008**

- Performed dynamic installation analysis for oil export pipeline and free standing hybrid riser (FSHR) pull-down.
- Assessed installability of flowline on steep slope and tight curve during pipeline installation.
- Performed installation analysis: dynamics of subsea structures during pipe lay, dynamics of offtake spool during free standing hybrid riser (FSHR) pull-down installation, and rigid pipe-rocking on the C-plate clamp in the vessel during installation.
- Performed clashing check between A&R, mooring lines, and flexible riser during PLET laydown.
- Performed topside floatover analysis and floating structure global motion analysis for newly patented installation system.

SEA Engineering, Inc., Houston, TX

Naval Architect **2005 to 2006**

- Analyzed the global motions of SCR, mooring lines, and buoys using hydrodynamic softwares.
- Calculated wind and current load on TLP in various sea states, and analyzed long and short term responses (loads) on TLP, analyzed and performed statistical comparison of TLP model test data, and analyzed interaction between LNG FPSO and LNG Carrier.
- Analyzed ballast tank control schedule during topside installation.
- Conducted operability and stability of vessel.
- Participated in review of TLP designs and wrote detail analysis for improvements.

ADDITIONAL RELEVANT EXPERIENCE

Texas A&M University - **Research Assistant** (1998 to 2004)

- Analyzed offshore structures through system identification techniques and statistical approach. Research was focused on extraction of 2nd order nonlinear response from model test in random seas and response of structures subjected to highly nonlinear random waves.

- Analyzed dynamic properties of Draupner Freak Wave simulated in laboratory and investigated impact force on vertical truncated cylinder during research.

Inha University **- Research Assistant** (1996 to 1997)

- Wrote winning proposal and participated in the Ocean Thermal Energy Conversion (OTEC) project funded by South Korean government. Through this project, OTEC was first introduced and researched in South Korea.
- Performed drag reduction research for a plate type heat exchanger in OTEC power plant applications. The purpose of this research is to increase efficiency in small temperature difference.

EDUCATION

Ph.D, in Ocean Engineering, Texas A&M University, College Station, TX 2004
M.S., in Mechanical Engineering, Inha University, Inchon, Korea, 1997
B.S., in Naval Architecture & Ocean Engineering, Anyplace, Inha University, Inchon, Korea, 1993

COMPUTER SKILLS

- Hydrodynamic software: Orcaflex, AGA, OFFPIPE, WAMIT
- Program: MathCad, MATLAB

PUBLICATIONS

- Kim, N.S., and Kim, C.H., “Surge Motion of Mini TLP in Random Seas–Comparison between Experiment and Theory,” Proc 15th ISOPE 2005.
- Kim, N.S., and Kim, C.H., "Gaussian and Non-Gaussian-Input Method for Extraction of QTFs from Test Data of Offshore Structures," Proc 14th ISOPE 2004.
- Kim, T.H., Shin Y.J., Powers E.J., Kim N.S, and Kim C.H., "Joint Time-Frequency Properties of Freak Waves," Proc 14th ISOPE 2004.
- Kim, N.S., and Kim, C.H., "The Effect of Sea Severity on the Cross-Bi-Spectral Estimate of Quadratic Response Function for Surge Exciting Forces," Proc 13th ISOPE 2003.
- Kim, N.S., and Kim, C.H., "Cross-Bi-Spectral Estimate of Nonlinear Force on Fixed Structure in Nonlinear Waves," Proc 12th ISOPE 2002.
- Kim, N.S., and Kim, C.H., "Investigation of a Dynamic Property of Draupner Freak Wave," IJOPE (Int. J of Offshore and Polar Engineering), Vol. 13, No.1, Mar. 2003, pp. 38-42.
- Kim, N.S., and Kim, C.H., "Simulation of Draupner Freak Wave Impact Force on a Vertical Truncated Cylinder," IJOPE (Int. J of Offshore and Polar Engineering), Vol. 13, No.4, Dec. 2003, pp.260-265.
- Kim, N.S., "Extraction of the 2nd order nonlinear response from model test data in random seas and comparison of the Gaussian and non-Gaussian models," Dissertation, Texas A&M University, Dec. 2004.
- Kim, N.S., "The effect of polymer additives on drag reduction for a plate type heat exchanger in OTEC (Ocean Thermal Energy Conversion) applications," Inha University, 1997.