

# JAMES CAIN, P.E.

## Vice President



### Summary

James joined Thornton Tomasetti in 2026 and specializes in marine forensic analysis. He is a licensed naval architect with over 27 years of experience in offshore vessel design, hydrodynamics, structural engineering, and project management, with the majority of his career dedicated to offshore oil and gas exploration. His background includes a long tenure with a leading naval architecture firm and years as Naval Architecture SME for a major offshore drilling contractor. His experience also includes serving as Director of Engineering for a maritime engineering firm and managing systems design and production engineering for commercial and government vessels at a Tier 2 shipyard. He brings a deep technical foundation—including ship structural design, seakeeping, mooring, dynamic positioning, and application of classification society rules, as well as hands-on shipyard and offshore operations experience across a broad spectrum of marine assets. He offers engineering consulting and litigation support, providing technical guidance and expert analysis for shipowners, insurers, and legal proceedings.

### Areas of Technical Expertise

- Naval Architecture and Marine Engineering
- Offshore O&G Operations
- Shipyard Operations
- Structural Engineering
- Transportation Analysis
- Project Management
- Salvage Operations
- Forensic Engineering

### Education

- Bachelor of Science, Mechanical Engineering, Tulane University
- Master of Science, Naval Architecture and Marine Engineering, University of New Orleans

### Registrations

- Registered Professional Engineer - Naval Architecture and Marine Engineering, LA, License No. 37124

### Professional Activities

- Member, Society of Naval Architects and Marine Engineers (SNAME)
- Member, American Society of Naval Engineers (ASNE)
- Member, Marine Technology Society (MTS)

### Awards

- Awarded U.S. patent for jack-up draft-reduction system that enables passage to previously inaccessible locations.

### Select Project Experience

#### Naval Architecture and Marine Engineering

ATP Titan, Production Spar\* Designed the novel hull geometry for the industry's first multi-column production and drilling spar facility. Balanced competing geometrical, hydrodynamic, stability, and payload constraints to finalize the configuration. The Titan is currently operating in Mirage Field, Mississippi Canyon Block 941.

#### Offshore O&G Operations

Naval Architecture SME (Valaris Fleet) \* Provided high-level technical oversight and engineering analyses for a global portfolio of 50+ jack-ups, 8 semisubmersibles, and 12 drillships. Delivered critical operability, seakeeping, and DP capability assessments, site-specific mooring and towing arrangements, jack-up SSAs, wet/dry transport engineering, and worldwide onsite inclining and deadweight surveys.

#### Shipyard Operations

Valaris DS-17 Drillship (GustoMSC P10000)\* Oversaw high-density ballast installation at Astican Shipyard to optimize vessel roll motions. Performed pre-installation mass-moment calculations for optimal ballast placement and directly supervised the post-installation inclining test.

#### Structural Engineering

ENSCO 101, KFELS MOD V-A Punch-Through\* Conducted solid-element finite element analysis of chord damage on the ENSCO 101 to evaluate structural integrity and load-carrying capacity following a rapid penetration punch-through incident.

#### Project Management

Can Do II, Mobile Drydock\* Project manager and chief engineer for functional engineering of the \$250M Can Do II mobile drydock for Keppel Fels.

\*Denotes work performed with previous employer.

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### **Transportation Analysis**

ENSCO 123, Super A Class Jack-up Unit\* Performed vessel transportation analysis for ENSCO 123 for dry transport on a heavy lift vessel from Singapore to the North Sea, verifying maximum leg bending loads, support blocking, sea fastening, and sea route environmental criteria against industry standards.

### **Salvage Operations**

Kulluk, Cylindrical Semisubmersible\* Performed structural assessment for onsite repair at Keppel Fels following the Alaskan grounding. Developed structural design solutions and heavy-lift schemes for replacing the lower section of the cylindrical hull.

### **Forensic Engineering**

Noble Amos Runner, Semisubmersible\* Conducted forensic reconstruction of a semisubmersible mooring system failure during hurricane conditions, integrating ocean buoy wave data with time-domain simulations and full-line dynamics to determine peak line loads and failure mechanics.

### **Litigation**

Hyundai Heavy Industries (HHI) vs A.P. Moller - Maersk A/S, regarding a construction dispute, cost and schedule overruns for two GustoMSC CJ70 jack-up rigs built at the offshore yard in Ulsan, South Korea. Investigated the origin of change orders and variations for mechanical systems onsite and advised solicitors.

Keppel Verolme, (a subsidiary of Keppel FELS) vs Blackford Dolphin Pte Ltd (a subsidiary of Fred Olsen Energy ASA) - regarding a contract dispute for the refurbishing of the Blackford Dolphin semisubmersible drilling rig. Advised solicitors on technical matters and provided engineering insight for settlement negotiations.

Bridon International Ltd vs Noble Corporation plc - regarding a mooring system failure on the Noble Amos Runner during Hurricane Rita. Using actual wave height data from ocean buoys, created a physics-based time domain simulation using full line dynamics to assess the loads on the mooring lines during the storm and provided guidance on potential failure modes.

### **CONTACT**

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