

# Robson Forensic

Engineers, Architects, Scientists & Fire Investigators

## DAVID COOKE, P.E. Marine and Mechanical Engineer

Thirty-two years of comprehensive experience as a marine and mechanical engineer. Experienced in the construction, operation and maintenance of marine power plants including steam generation, slow speed, medium speed and high speed diesel engines, distribution and utilization systems and equipment, fuel systems, lubrication equipment and systems, pumping and piping equipment and systems, primary and secondary refrigeration and air conditioning equipment and systems, chilled water generation, distribution and utilization systems and equipment. Expertise in the design, analysis and application of power generation, distribution and utilization systems and equipment, controls, protective relaying, load management, motor control and energy conservation aboard ship and power plant performance analysis; engineering and ship construction, project contracting, management, coordination and design, and the investigation, analysis and determination of the origin and cause of equipment and system failures and the investigation and analysis of mechanical and electrical equipment and system failures that resulted in personal injury, expense or schedule delays.

**Ship standards:** Engineering operation, maintenance and repair of United States government ships to commercial standards, and American Bureau of Shipping and U. S. Coast Guard requirements.

**Mechanical:** The construction, operation and maintenance of marine power plants including steam generation, distribution systems and equipment, chilled water, distribution systems and equipment, system and equipment commissioning, reduction gears, shafting, bearings and propellers (fixed and variable/reversible pitch), refueling at sea and underway replenishment equipment and systems.

**Piping:** The design and analysis of shipboard steam, salt water, waste management, HVAC, fresh water potable water systems including selection of components such as heaters, converters, pumps, valves, controls and fuel systems.

**Air Conditioning/Heating:** The installation, operation and maintenance of reciprocating and centrifugal marine air-conditioning/heating machinery, systems and equipment, compressors, condensers, receivers, evaporators, air handlers, fan coils, radiators, humidifiers, dehumidifiers, control systems, primary and secondary air-conditioning/heating systems, system and equipment commissioning.

**Refrigeration:** The installation, operation and maintenance of shipboard refrigeration machinery, systems and equipment compressors, condensers, receivers, evaporators, refrigeration systems controls, system and equipment commissioning.

**Electrical:** The design, analysis and application of shipboard power generation, distribution and utilization systems and equipment, protective relaying, load management, motor control and energy conservation, system and equipment commissioning.

**Fire Protection:** The design, installation, operation, and maintenance of marine fire protection systems including water spray, water mist, CO<sub>2</sub>, dry chemical and halon.

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**Fire Alarm:** The specification, installation, operation and maintenance of marine fire alarm systems.

**Marine Coatings:** Researched and specified marine antifouling, anti corrosive and protective low maintenance coatings.

**Habitability:** Specified space arrangements and furniture for crew quarters and heads.

**Maintenance:** Performance and management of maintenance on shipboard systems, equipment failure based maintenance, periodic maintenance, predictive maintenance of fluid systems, rotating equipment, electrical equipment to ascertain equipment and systems condition and predict maintenance requirements and maintenance and repair budgets.

**Ship Repair and Construction:** Contracts and schedules for overhauls and dry dockings of ships.

**Operation:** The safe efficient operation of marine systems and equipment, electrical service, electrical distribution, electrical generation, air-conditioning, chillers, air handlers, boilers, heat exchangers, fluid systems, fuel oil, hydraulic systems, steam turbines, gas turbines, reciprocating steam engines and machinery, diesel engines, system and equipment commissioning.

**Small boat and recreational vessels:** Experienced in small boat and kayak design, construction, operation, maintenance and repair as well as inboard and outboard (modern and antique) motor design, construction, operation, maintenance and repair.

### PROFESSIONAL EXPERIENCE

2006 to present **Robson Forensic, Inc.**  
*Associate*  
Provide technical investigations, analysis, reports, and testimony toward the resolution of litigation involving marine, manufacturing and other mechanical engineering issues.

2006 to present **Fairfax County, Virginia**  
*Substitute Teacher*  
Algebra II and Physics at the secondary school level.

2004 to present **United States Government, Military Sealift Command**  
*Retired*

1976 to 2004 **Military Sealift Command**  
*Fleet Life Cycle Manager* 1999-2004  
Life Cycle Manager for 34 ships including fleet oilers, fleet tugs, ammunition ships, dry cargo ships and hospital ships. Responsible for maintenance, repair, modifications, alterations and engineering operations to assure ships continued to

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operate well beyond their design life. Also responsible for scheduling maintenance and dry docking intervals periods to meet ABS requirements and customer schedules.

### *Head Engineering Officer* 1996-1999

Senior manager of engineering for the new Naval Fleet Auxiliary Force (NFAF) office responsible for all maintenance and repair of the NFAF ships. Investigated main propulsion diesel engine failures on the AO 187 class ships and developed operating policies to reduce the probability of piston seizures. Investigated a connecting rod failure on the AO 187 medium speed diesel engines.

### *Engineering Type Desk Officer* 1989-1996

Type Desk head for the new AO 187 Class Oilers, AE Ammunition Ships, and AFS Stores ships. Solved a steering controls issue on a stores ship that had caused concern for years and not solved by the ships engineers, the steering gear manufacturer or the steering controls supplier. Developed the specification and procurement contract for generator changeout on the AFS class ships: six 580 KW to six KW diesel generators to reduce life cycle maintenance down time and costs.

### *Deputy Head Engineering Officer* 1983-1989

Deputy Engineering Office Head for Engineering Operations for all government owned, contractor owned and contractor operated ships. Reviewed General Average claims for the contracting office for contract compliance and government liability. Was responsible for the ship life extension program for the 1950's vintage AO-143 class oilers to keep them operating for another ten years. Developed plans and upgraded habitability and steam underway replenishment winches. Investigated tank coatings, applications and coatings failures. Performed numerous A-76 Cost Comparison studies for the contract operation of Navy scientific support ships.

### *Marine Engineer* 1976-1983

Marine Engineer for the Engineering Operations auxiliaries' type desk. Worked on the replacement of reciprocating steam engines and boilers with main propulsion diesels for two ARC cable laying ships. Selected replacement engines, developed specifications for stripping the ship to the bare hull and replacing all systems with new equipment, including habitability spaces. Worked with the Air Force on the activation of the *USNS Observation Island* for the installation of S and X band radar missile tracking systems. Worked on the transfer of the AO 143 Class oilers (tankers) for civilian operation from the Navy. Researched ice conditions and hazards (stability, heating, etc.) and ice removal techniques from ships operating in northern climates. Investigated two collisions between ships resulting from steering gear failures of reciprocating steam steering engines.

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1974 to **U. S. Maritime Administration**

1976 *Marine Engineer*

Responsible for developing detailed cost estimates for new ship construction for all material and labor required for Title V Construction Differential Subsidy and Title XI Loan Guarantee programs. Estimates included costs for steel, piping, machinery, habitability, electronics, and outfitting, direct and indirect labor plus profit.

1972 to **Gibbs and Cox, Naval Architects**

1974 *Design Engineer*

Gas turbine and steam plant machinery arrangements for a variety of naval vessels, including SWATH (small water plane area twin hull) arrangements, electrical systems, piping systems, firefighting systems, ducting and exhaust systems and insulation.

### PROFESSIONAL CREDENTIALS

Professional Engineer: District of Columbia

U.S.C.G Engineering License - Third Assistant Engineer, Unlimited Horsepower,  
1972

U. S. Coast Guard Auxiliary - Safe Boating Course Certificate

Instructor in secondary school Algebra II and Physics

### EDUCATION

Bachelor of Engineering, State University of New York Maritime College

*Additional Courses:*

Maritime Accident Investigation Analysis and Reconstruction – 40 Hours – World  
Maritime University

### PROFESSIONAL MEMBERSHIPS

Society of Naval Architects and Marine Engineers

American Society of Naval Engineers