RESUME FOR
WILLIAM P. STEWART

POSITION:
CEO, Stewart Technology Associates, Houston, TX. Founded 1986.

EDUCATION:
BSc (Hons) Civil Engineering, University of Aston, Birmingham, England, 1972. Awarded two of out three possible final year prizes for course work and final year project.
MSc, Offshore Structures, Cranfield Institute of Technology, Bedfordshire, England, 1975. (Thesis: Dynamic Analysis Of Single Point Mooring Systems)

PROFESSIONAL QUALIFICATIONS AND AFFILIATIONS:
Professional Engineer, Registered in State of Texas, retired 2006.
Chartered Engineer, Registered in the UK and Europe.
Member of Royal Institution of Naval Architects.
Member of Society of Naval Architects and Marine Engineers (SNAME).
Member of IMarEST, Institute of Marine Engineering, Science and Technology.
Member of American Society of Mechanical Engineers (ASME).
Member of American Society of Civil Engineers.
Past Member of Society of Petroleum Engineers.
Past Member of Marine Technology Society.
Associate Member of the United States Naval Institute
Technical Editor for Society of Petroleum Engineers (1982-1987).
Secretary & Past Chairman, Houston Chapter, Offshore Mechanics & Arctic Engineering (ASME).
Member, SNAME Offshore Committee, Chairman 1993.
Member, SNAME Technical and Research Committee, 1993
Member, SNAME Panel OC-1, Stability and Motions, Chairman, Liftboat Task Group.
Member, 1990 to 1993 OTC Program Committees.
Member, 2002 to date NOSAC (USCG National Safety Advisory Committee).

AWARDS:
Award of Merit, Petroleum Mechanical Engineering Achievement Competition, OTC, May, 1989, from ASME, Petroleum Division.
OMAE Achievement Award, from ASME, Offshore Mechanics and Arctic Engineering Division, 1990.
OMAE Service Award, from ASME, for Diligent Service to the Houston Chapter
ASME South Texas Section Commendation in Recognition of Diligent Service and Unselfish Devotion in the Advancement of the Engineering Profession, TLP Committee, 1991
OMAE Appreciation Award for organizing TLP Design Short Courses, 1992.
American Bureau of Shipping Certificate of Appreciation, 1993
SNAME Top Section (South Texas) Membership Recruiter, 1993 and 1994

PROFESSIONAL EXPERIENCE:

1986-present	President and then CEO, STA.
1983-1986	Vice President, Veritas Technical Services, Inc. (DnV), Houston, TX.
1979-1983	W. S. Atkins, Inc., Houston, TX (Vice President from 1982).
1975-1979	Senior Engineer, Atkins Research and Development, Epsom, England.
1973-1974	Design Engineer, M. McDowell and Partners, Plymouth, England.

1972-1973 Design Engineer, John Taylor and Sons, Plymouth, England.
1971 Steelwork Designer, Clarke Nicholls and Marcell, Birmingham, England.
1970 Bridge Engineer, Costain Civil Engineering, Kent, England.
1969 Site Engineer, Costain Civil Engineering, Drax Power Station, England.

CAREER SUMMARY:

Early experience with excavation and massive reinforced concrete foundations for power stations was followed by a period as a bridge engineer, in charge of the construction of several pre-stressed concrete freeway bridges. This was followed by design and construction of an industrial building on a floating concrete raft foundation, plus geotechnical site survey responsibility for a large hospital project.

Next came design of large flood prevention and storm drainage schemes, and water supply schemes. Additionally, work in the Royal Naval Dockyard, at Plymouth, led to a unique ship and submarine effluent-to-shore drainage system design.

Following the above experience, there was a return to university to obtain, in one year, an MSc in offshore structures, with thesis on Dynamic Analysis Of Single Point Mooring Systems.

Experience with Atkins R&D, in the UK, included extensive research into the hydrodynamic analysis of marine vessels, with many model tests, and full-scale measurement programs. Analysis of many fixed and floating structures, single point moorings, and marine risers, was undertaken before coming to the USA. Also with Atkins, a period of two years was spent in setting up an Anglo-French joint venture company, marketing and applying hydrodynamic and structural software in the offshore industry.

During the four years spent with Atkins in the UK, Mr. Stewart set up a scheme in London called “OPENING WINDOWS ON ENGINEERING”. This scheme involved training other young and exceptionally talented engineering graduates to go into middle and high schools in London. They would explain their work in a carefully planned manner to school children, ***Sewing the Seeds of Engineering Ambition*** to these children, thereby encouraging more engineering applicants at Universities and generally raising the standards of engineering graduates.

In Houston, application and marketing of advanced computer software for structural, hydrodynamic, and hydrostatic analysis of marine structures and systems were undertaken for Atkins and their clients. Further full-scale data acquisition projects for oil companies and government agencies were designed, implemented, and managed. Additionally, complete management, personnel, and marketing responsibility for the Houston office of Atkins was vested in Mr. Stewart.

DnV approached Mr. Stewart in 1983 and requested that he head up their technical services in the Americas. He agreed, and became responsible for all technical work performed in the USA, as well as for marketing and for company development.

DnV, or Veritas, is the parent company of Veritec, formed in Houston in 1985. Mr. Stewart was vice president of both Veritas and Veritec in the USA. DnV clients were oil companies, drilling contractors, government agencies, offshore engineering and fabrication companies, naval architects, and other DnV regions in the Americas.

Mr. Stewart set up a Training School for the Marine Crews of Floating Offshore Vessels, which has now trained over 5000 personnel, giving them knowledge of buoyancy, stability, mooring, and ballast control, using a full-size

control room simulator, which Mr. Stewart designed and built with Atkins in Houston. It is not known how many lives at sea this training has saved.

STA was formed at the request of DnV, when they decided to suspend offshore engineering consultancy in the US, after the sudden decline in oil prices in 1986. Since that time STA and DnV have worked together on several projects, with STA acting both as contractor and as client.

STA is now well established in structural marine and offshore engineering consultancy. STA specializes in engineering design and analysis studies with emphasis on technical risk analysis, dynamic analysis, and cost forecasting. STA has a wide international client base and excellent analytical resources, including static and dynamic stress analysis, mooring analysis, time series data analysis, accident data bases, capital and operating cost databases, finite element analysis software, mathematical software, and CAD packages. STA has numerous modern PCs that are continuously updated as PC technology moves forward. Other computer equipment includes color laser printers, color plotters and one 36" carriage inkjet plotter.

In 1988, STA completed delivery of the world's first Jack-Up Stability Training Simulator for DnV in Houston. Copyright to all software and to the extensive documentation resides with STA. A second Jack-Up Simulator was installed in the Aberdeen Technical College, Scotland, in 1989. STA's jack-up stability/training software is used on the three training simulators built in the UK in the last 10 years, the latest being for Petrobras in Brazil. STA has upgraded the Diamond Offshore training simulator in Houston with new software, new state-of-the-art displays and new electronics hardware.

STA designed the Irish Sea Pioneer, a $60 million jack-up vessel, the world's largest liftboat and the first liftboat for UK waters. This vessel has operated successfully with more than 140 location moves and jackings in the last ten years. There has been almost no wear in the guide system.

STA owns a patent for an Arctic drilling and production platform (ADAPS).
STA has a patent application for a new bend stiffener.

STA is involved with several areas of fundamental research on interest to the offshore industry, including:

- dielectrophoretic strengthening of marine sediments
- drag anchor embedment geotechnics and geokinetics
- jack-up spud can - soil structure interaction
- degradation of marine flexible pipes, umbilicals, and cables
- new risk assessment methodologies for marine risers and oil/gas/water separators on FPSOs.
- collision and failure analysis of marine flexible and "rigid" risers
- improvement of afloat and elevated stability of liftboats (and jack-ups)
- mitigation of sloshing in separators with physical modeling in our Houston laboratory, and:
- slosh mitigation collaborative research with Argonne National Laboratory, and:
- slosh mitigation collaborative research with Zeta-pdm, England
- Suction caisson-type anchors for offshore structures

STA has developed and owns unique computer programs for design and analysis of jack-ups, liftboats, drag embedment anchors, pile anchors, submerged and buoyant cables, and many other structures. STA markets and supports a wide range of computer software.

SUMMARY OF MARINE PROJECT EXPERIENCE:

Contributing author to "Dynamics of Marine Structures," an industry standard reference book produced by Atkins Research and Development in 1977. (Worked examples in text.)

Development of oscillatory mass device for research into roll damping by forced oscillation of barges in still water, 1978/1979.

Design and management of a series of model tests and theoretical studies to investigate non-linear roll damping of marine barges for a consortium of companies led by Nobel Denton and Associates. Thirteen commercially available computer programs were compared in a sub-project, 1978/1979.

Analysis of motion response of numerous floating and moored vessels, and comparison of results with model tests, 1978/1979.

Design, fabrication, and testing of model barge with integrated deck for Shell/Esso, for Cormorant A platform in the North Sea. Tests were undertaken at Admiralty Ship Maneuvering Tank, Gosport, 1977.

Full-scale measurement of North Sea barge (Jasmine's Turtle) transport for UK DOE, including inclining of barge in Norwegian fjord, 1979.

Design of 3,000-ft. water depth articulated tower for McAlpine/Rolls Royce/Humphreys and Glasgow. Project included development of unique sea bed rigid/flexible joint and self-installation and removal of multiple flowlines and power cables to sea bed facility, while support 3,000-ton power generation equipment at surface, and restraining a shuttle tanker for product export, 1978.

Static and dynamic stress analysis of several shallow and deep water jacket structures using Atkins finite element software, 1979/1983.

Launch and upending analysis of jackets using Atkins 3-D launch software, 1979/1983.

Design and development of world's first mooring and ballast control training simulator for training marine crews of offshore floating vessels. This simulator is now maintained by STA and is used for training all marine crews for Sonat, Zapata, Global Marine, Beaudrill, Canadian Marine Drilling Company, as well as numerous other drilling contractors and oil company personnel (Shell, Exxon, Sohio, Chevron), 1982/1983.

Design and development of a remote data acquisition system for monitoring structural response and environmental conditions at a remote caisson in the Gulf of Mexico. Installation and maintenance of all equipment for a project duration of over one year, 1982.

Manager for projects where software for stability and mooring analysis was developed on PCs for use on board semi-submersible vessels. Clients were Diamond-M and Western Oceanic, 1982.

Dynamic analysis of novel riser system for Mobil's Hibernia Field, 1981.

Design and management of the world's most comprehensive jacket transport full-scale measurement project for Exxon Production Research Co, 1981.

Sales of Atkins and DnV software to companies in the US, Mexico (including a training course given in Mexico), the UK, and Indonesia (involved over one million dollars in engineering support provided in Indonesia), 1980/1983.

Structural analysis of a novel jack-up production platform for 500-ft. water depth in the North Sea for Marathon Marine. This project included a recalibration of Marathon's methods for wave force computation, and methods of predicting wave induced dynamic magnification of forces, using DnV's latest information, 1983.

Review of McDermott LB200 cranebarge for conversion to floating accommodation unit for North Sea, for compliance with UK DOE, NMD, NPD, and DnV rules, 1984.

Development of joint industry project to evaluate jack-up foundation stiffness characteristics, under static and dynamic loading conditions, 1985

Design and implementation of a project to measure ship motions and wave/wind environment at an exposed pier on the Pacific Coast of Panama. (Work performed partly when with DnV, and completed in the field as STA.) Three months in Panama, installing equipment and taking measurements. The data was partially processed in Panama, and partly at the STA offices in Houston. Second order wave drift effects caused unusual dynamic responses, 1986/1987.

Design of improved mooring system to minimize second order responses for ships moored at pier in Panama, 1987.

Commercial evaluation of the worth of Baker Marine Engineering launch on the Singapore stock exchange, 1986.

Weight estimate and stability analysis of new semi-submersible design (Trendsetter) for Santa Fe, 1985/1986.

Design review of semi-submersible for ODECO, to ensure compliance with DnV Classification Rules. Fatigue problem resolved at one critical joint, 1985.

Design review of jack-up for Friede and Goldman, to ensure compliance with DnV Classification Rules, 1985.

Design review of jack-up for Baker Marine, to ensure compliance with DnV Classification Rules, 1985.

Management of numerous analyses of catenary mooring systems for Sonat, Zapata, and other drilling contractors, to satisfy DnV, Norwegian government, and other code requirements. Analyses undertaken using DnV's software for quasi-static analysis, and using a Norwegian research institute's program for evaluation of extreme transient response of the vessel, when a heavily loaded line is broken in a storm, 1983/1986.

Comparison of all major international requirements for mooring design and analysis for Canadian government, 1986.

Development of methodology for dynamic analysis of spread mooring systems for very deep (over 1,000 feet) waters. Investigation of previous work on fatigue and other failures of wire and chain mooring lines, including finite element analysis, full-scale testing and field results, 1986.

Management of detailed finite element stress analysis of CIDS, the world's first concrete drilling structure for the arctic, for Global Marine Development and Exxon, 1984.

Management of detailed finite element stress analysis of world's largest jacket launch barge for Barnett and Casbarian/Kaiser Steel. Results allowed design to have smaller midships section modulus than specified by either DnV or ABS normal rules, 1984/1985.

Management of most detailed finite element stress analysis ever undertaken on a semi-submersible drilling rig (The Henry Goodrich) for Sonat/Mitsui, 1984/1985.

Comparison of hydrodynamic and structural analysis methods for semis, for Exxon Production Research Co, 1985.

Provision of expert testimony to Lloyds, in their case against Zapata, when a semi-submersible heavy lift vessel, the Super Servant, was holed and subsequently sank in the Congo River during the unloading of a drilling rig. I provided calculations, which showed the rate at which flooding occurred, and the sequence of events that followed, 1984.

Geotechnical analysis of mat-supported jack-ups that had experienced foundation failures, for Seattle First National Bank, 1985/1986.

Site survey and detailed weight take-off of jack-up rigs for evaluation of operable range within on-bottom stability limitations, 1985.

Supervision of model tests of North Sea jacket for Phillips Petroleum, at OTC test facility in California, 1982.

Analysis of non-linear motion response of a storage and production tanker for Nordrill, 1984.

Development and management of a series of one-day technical seminars, presenting state-of-the-art analytical techniques for analysis and design of semis, jack-ups, finite element stress analysis, ice mechanics, and one seminar on marine training. The engineering seminars also described how to achieve compliance with DnV Rules, 1983/1986.

Fatigue analysis of a submerged buoyant pipeline bundle during installation and tow-out, for Mobil R and D. Pipeline was several thousand feet long and suspended 50 feet below the surface by buoys, spaced 500 feet apart, 1985.

Provision of expert testimony services to Unicorn Lines in the Supreme Court in South Africa. Gave evidence as to the most probable course of events that would have occurred if a collision between a drifting freighter and an oil rig had not been diverted, 1985.

Engineering and cost analysis of a tanker conversion to continuously collect oil from an open ocean blowout, for the Minerals Management Service, 1985/1986.

Stability analysis of several semi-submersibles for drilling contractors, to ensure compliance with DnV, and NMD requirements, 1983/1986.

Development of deepwater fixed tower (1,500-ft. water depth) using composite steel/concrete/steel legs with D/t ratios less than 5, requiring extruded steel for upper leg sections. This work was performed jointly with the

fabrication department of both Brown & Root and McDermott, to ensure that a minimum cost design was achieved, 1986.

Extensive investigation into catastrophic damage to a jack-up rig during a transportation from Singapore to the Arabian Gulf for Pool Co. Work included evaluation of criteria for safe towage, evaluation of actual tow conditions, calculation of fatigue damage, evaluation of fabrication defects, 1985/1988.

Development of guidelines for industry, for avoidance of fatigue damage to rigs and other structures during ocean tows, 1985/1988.

Engineering study in cooperation with marine warranty survey, for the dry transport of the semi-submersible, Zapata Concord, on the heavy lift vessel the Ferncarrier, from the west coast of California, via the Magellan Straight, to the Gulf of Mexico. Attendance at loading and unloading, redesign of cribbing, design of additional seafastenings, 1985.

Design and development of unique arctic drilling and production structure (ADAPS). Patent applied for the tension anchoring system, which actively controls the structure's ability to stay on very soft bottom sediments when subjected to very large ice loads. Design of composite steel/concrete/steel ice walls, 6-ft. thick, together with internal steel walls, resulted in an overall weight density of only half that of competing structures, 1985/1987.

Development of a marine towing manual for Exxon, providing guidance in towing vessel and gear selection, procedures for towing rigs, weather routing, and many other aspects of offshore and nearshore towing of rigs, 1985.

Failure mode and effect analysis planning and investigation for ballast system for a Reading and Bates semi-submersible, 1986.

Development of methodology for riser analysis for the first US tension leg platform in the Gulf of Mexico for Conoco, 1986.

Provision of expert testimony to Shearson American Express in case of jack-up rigs with claimed design defects. Work included extensive structural review of the rigs, as well as comparison with capabilities of other similar rigs, 1986.

Production of recent blowout statistics in the Gulf of Mexico, for Anadarko Petroleum Co. Project involved use of the MMS and the WOAD accident databases run on STA's computers, 1986.

Marine surveys of numerous private sailing and small motor vessels, for insurance purposes, and for potential purchasers, 1986/1989.

Survey of wellhead equipment manufacturer's market in the US for a UK company (name is confidential), 1986.

Procurement in US, by STA, on behalf of Veritec, Norway, of a large amount of oceanographic transducers for use in the North Sea, 1986.

Investigation of the reliability of inspection results for a wide range of marine structures, for the USCG. Project included derivation of curves showing probability of detection of defects for different inspection techniques during regular in-service inspections, 1986/1987.

Design and development of the world's first jack-up training simulator, to train marine personnel in jack-up operations, including both geotechnical (on bottom) stability simulation and floating stability. DnV in Houston now operates this simulator. Copyright to all software and documentation resides with STA, 1987.

Developed simplified TLP analysis program for Inmar, Houston, for design of novel TLP, 1987.

Expert testimony for Houston law firm in case involving barges breaking away from moorings, 1987.

Consultant to Noble Denton and Associates for work related to blowout risk analysis for offshore drilling projects, 1987/1988.

Design of large laterally loaded sea bed anchor piles in limestone for mooring of US Navy Nuclear Submarine Tender in King's Bay, Georgia, 1987.

Design of 7-ft. x 8-ft. plate embedment anchors for US Navy in Pearl Harbor, Hawaii. Installation is by use of unique tubular steel pile/follower, up to 140 feet below seabed level. All design and analysis including dynamic analysis of driving conditions was performed by STA. Development of program to predict buried anchor chain profiles beneath the seabed, 1987/1988.

Failure analysis involving dynamic analysis and finite element stress analysis of articulated column navigation aids for US Coast Guard. Model testing the NAVAIDs in wave tank, 1988.

Accident statistics investigation into dropped object incidents offshore, 1988.

Design of data measurement, acquisition, and reduction system for North Sea Jack-up for Noble Denton, 1989.

Design methodology and production of design report for thruster sizing for a dynamically positioned salvage vessel. Developed program to size thrusters for DP vessels, 1988.

Hull thickness survey for North Sea dive support vessel, 1988.

Expert testimony in two collision cases involving anchor marker buoys in the Gulf of Mexico. Mooring analysis for crane barge, 1988.

Development of suite of jack-up wind, wave, and current loading and dynamic response analysis programs, 1988/1992.

Development of buried anchor chain program predicting non-linear soil/chain interaction, chain profile, and tensions, 1988.

Cost estimation for numerous oil production platforms worldwide, 1988/1992.

Design of deep water buoy and mooring system (1,500 feet) for power cable support buoy for nuclear submarine installation in Alaska for US Navy. Developed wave loading and response analysis program for buoy, 1989.

Developed fatigue analysis program for jack-ups and applied it to jack-ups in transit, 1989.

Research into jack-up instabilities during pre-loading, development of program to analyze pre-loading leaning instabilities, and development of guidelines to avoid leaning instabilities during pre-loading, 1988/1989.

Developed program for dynamic shock loading analysis for jack-up legs in transit, subject to loss of shims, 1988/1989.

Consulting advice to US Army Cold Region Research Laboratory regarding oil spill clean up after Exxon Valdez accident, 1989.

Investigation into chain fracture on semi-submersible drilling rig while deploying moorings in 1600-foot water depth for Diamond M Drilling Company, 1989.

Rationalization of costs of gas wells in Gulf of Mexico for Booz-Allen and Hamilton, Inc., 1989.

Liftboat leg structural analysis for U. S. Coast Guard. Work is major component of new USCG requirements for liftboat design and construction, 1990/1991.

Investigation into buckling failure of tank barge for Commercial Marine Services, 1990.

Comparison of conditions limiting survivability of 4 different jack-up drilling rigs in Gulf of Mexico for Texaco, Inc. on 3 different fields, using STA JACKWAVE, 1990.

Mooring design assistance to Lambert Eggink Transport Consultants in Holland, 1990.

Design, fabrication, installation, and testing of second jack-up training simulator in Aberdeen, Scotland, for Aberdeen Technical College, 1990.

Consulting advice to Chase Manhattan Bank, London, regarding reliability of floating production concept proposed by Norwegian Consortium for Conoco for early production on Heidrun Field in Norwegian Sector of N.S. Summary technical audit of Astano Shipyard, Spain, 1989/1990.

Expert testimony regarding stability of two mat-supported rigs, 1989.

Design, fabrication, installation of world's first liftboat simulator for training marine crews, 1991.

Feasibility design and costing of LNG export marine facility in Indonesia for ARCO, 1991.

Mooring design and analysis of 3 groups of 10 inactive nuclear submarines in PSNS, 1991/1993.

Structural analysis of Freedom Space Station Mockup for Astronaut on Earth Training, for NASA, 1991.

Capital cost estimate preparation for 400,000 bbl/day offshore oilfield in the Gulf of Mexico for major US oil company, 1991.

Technical Review and Risk Analysis of Floating Production Facility for Cossack Field for Woodside Petroleum, Australia, 1991.

Design and analysis of flexible risers and underwater power cables for floating production system for Occidental in South China Sea, 1991.

Certification approval for DnV for hydraulic winch gearboxes, including mechanical engineering analysis of gear train, 1991.

Production of computer program for a consortium of oil companies to predict the drag-embedment performance of large marine anchors, 1991.

Measurement of forces in rollers for industrial production of graphite gaskets for Flexitallic Group, Pasadena, Texas, 1991.

Mooring analysis of semi-submersible flotel for Foramer, France, 1991.

Expert testimony involving drilling vessel capsize and multiple loss of life, 1991.

Expert testimony involving liftboat capsize and loss. Developed method for predicting energy loss during liftboat rolling transient motion, 1991/1992

Jack-up analysis including site specific location analysis for South America for Diamond M Drilling Company, 1992.

Detailed finite element analysis and global performance analysis of CFEM rigs for Global Marine Drilling Company, 1991/1992.

Design and analysis of flexible flowlines and dynamic risers for Amoco Gabon FPSO project, 1991.

Design of aircraft carrier berthing systems at Puget Sound Naval Shipyard for US Navy, 1990/1992.

Design of multi-purpose spread mooring systems to accommodate aircraft carriers or up to 20 fast frigates, Bremerton, for US Navy, 1990/1992.

Performance analysis and comparison in the elevated and transit conditions for four liftboats for Shell Oil Company, 1992.

Development of various computer programs for design and analysis of laterally loaded piles and pile anchors, 1991/1992.

Development of suction anchor design software for group of oil companies organized by Aker Omega, 1992/1993.

Expert testimony in multi-million dollar lawsuit in UK involving failure of marine anchors to trip and rig grounding, 1992.

Design and analysis of dynamic risers for West Linapacan FPSO in Philippines for Alcorn International, 1992.

Analysis of bulkhead failure, recommendations for repair, supervision of site investigation and repair, Clear Lake, 1992/1993.

Reverse engineering, in excess of $100,000, and repair of Diamond-M ODECO ballast control and mooring simulator, 1992/1993.

Design of Two-Point Mooring System with propellant embedment anchors for US Navy, Punta Raton, Honduras, 1992.

Analysis of impact forces caused by dropped drill collars on offshore rigs for Sundowner, Houston, 1992/1993.

Design of leg stiffening for 170 foot leg liftboat for Power Offshore Services, 1992/1993.

Lateral and torsional vibration analysis of numerous pumps and engines for Louisiana Power Systems, 1991/1993.

Fatigue analysis of two jack-up production units for Kupe Gas Field, New Zealand for Western Mining Company, Australia, 1992/1993.

Static and dynamic mooring analysis of numerous semi-submersible drilling vessels in the North Sea for Global Marine.

Development of stability analysis software for jack-up drilling rig for Japan Drilling, 1992.

Design and analysis of dynamic risers for West Linapacan (second phase) Philippines for APPI, 1991/1992.

Failure investigation (forensic) and analysis of risers for APPI, 1993.

Development of software for Huthnance International for prediction of jack-up leg stresses during punch through, 1992.

Technical support and consultancy for users of the Atkins AQWA suite of hydrodynamic programs for diffraction radiation analysis of floating offshore structures.

Dynamic analysis and design assistance for umbilicals for Petrobras. Work performed for Multiflex, Houston, including bend stiffener design and wire wear computer program, 1993.

Afloat and elevated stability analysis for liftboat, the Marcel Danos, for Danos & Curole, 1993.

Static and dynamic design and analysis of steel catenary risers for Mars TLP for Shell Offshore, Inc., 1993.

Non-linear dynamic analysis with emphasis on footing stability for liftboat proposed by Halliburton for North Sea, 1994.

Non-linear foundation analysis, in compliance with DnV rules, implemented in computer program for jack-up site specific assessment for Global Marine and for Forasol, 1993.

Design and analysis of dynamic umbilicals for Woodside Cossack/Wanaea project for Multiflex, 1993.

Analysis and re-design of novel drag embedment anchor for Costley Associates, 1994.

Design of hydraulic A-frame towing assembly for research vessel for work in 15,000 feet water depth, 1994.

Analysis and re-design of lifting frames for marine service for Patco, 1994.

Design and analysis of control umbilicals in 3,000 feet of water for Multiflex, 1994.

Design of novel umbilical system for harsh environment 3,300 feet water depth for Multiflex, 1994.

All structural design and naval architecture for the Irish Sea Pioneer, a $60 million liftboat for UK operations. This project included the most detailed structural analysis ever undertaken on a liftboat or jack-up vessel. The work included unique optimization of the gap widths in the leg guide structures performed using non-linear FE techniques with hundreds of gap/friction elements. Unique ratchet chocks were also designed as part of the leg fixation system. The work was performed for Bollinger Shipyard/Halliburton, 1994/1995.

Risk analysis of downtime for subsea gas development project. Work performed for London underwriters on behalf of CNG interests. Approximately 2,700 feet water depth in the Gulf of Mexico, 1994.

Mooring design and analysis for drillship with tandem moored barge in Gulf of Mexico, 1994.

Expert witness report for on-bottom stability and capsize analysis of barge in Lake Pontchartrain, 1994.

Afloat and elevated stability analysis, including finite element structural analysis for liftboat, the Andre Danos, for Danos & Curole. Work performed for Bollinger Shipyard, Inc., 1994/1995.

On-board stability and load monitoring software for Liuhua production vessel for Reading & Bates/Amoco, 1994/1995.

Provision of mooring analysis software to Engineering Corporation of Louisiana, 1994.

Under buoy hose design for single point mooring for IMODCO, 1994.

Mooring analysis for Global Marine for Marlim Field, Brazil, 1994.

Design and analysis of single point mooring buoy for West Africa for Sage Engineering, 1995.

Design and analysis of umbilical with vortex induced vibration problems for Kvaerner FSSL Inc, 1995.

Mooring and riser analysis for Santa Fe for Pompano Phase II Development, 1995.

Review of Chinese ports, including seismic design criteria for Merlin Associates, 1995.

Provision of mooring analysis software for IMODCO, 1995.

Mooring and riser design for Santa Fe for semi-submersible rig Kaspmorneft in Caspian Sea, 1995.

Development of specification for Mobil Oil Company for software to provide high level capital cost estimates for onshore oil and gas field production facilities, 1995.

Mooring and riser analysis for Santa Fe for semi-submersible Aleutian Key, 1995.

Investigation into failure of mooring systems for drilling barges in Lake Maricaibo, Venezuela, for Paul Munroe/Venezuelan oil companies, 1995.

In-service degradation prediction of umbilicals for BP for Foinaven project, west of Shetland Islands, 1995.

Design of mooring system, including winches and emergency release hooks, for Care Offshore, Switzerland, for supply vessel operation off West Africa, 1995.

Cost estimate for platform replacements in Gulf of Mexico for Matthews-Daniel Company, 1995.

Design review of new “Global” liftboat for Bollinger Shipyard, Inc., 1995.

Redesign of flexible risers for Conoco Belida field (West Africa) for IMODCO, 1995.

Preliminary design of flexible risers for Pogo Producing Tantawan field (Thailand), 1995.

Special fatigue evaluation associated with CTOD (crack tip opening displacement) tests for butt welds in the chords of the Irish Sea Pioneer for Bollinger Shipyard, 1995.

Technical and commercial risk evaluation for Rutherford-Moran Tantawan field (Thailand). Work performed for Chase Manhattan Bank in cooperation with Merlin Associates, 1995.

Development of data acquisition system, detailed methodology and planning for at sea measurement program for the liftboat the Irish Sea Pioneer, internally funded, 1995.

Capital and operating cost estimates for oil and gas field in Gulf of Suez for Apache Corporation, 1995.

Risk analysis for delay in start-up insurance performed for London Underwriters for the world’s first spar production facility, Neptune field, Gulf of Mexico (insurance for Oryx and CNG). Work commissioned by insurance agents Willis-Corroon and Jenner Fenton Slade, 1995.

Development of guidelines for location moves for the Irish Sea Pioneer, a four-legged jack-up unit, including afloat stability requirements, specification of limiting conditions for leg jacking, special requirements for operating the elevating system and engaging the ratchet chocks, preloading, special planning to accommodate scour at the sea bed, and limiting variable loads while elevated, 1995.

Mobil, Equatorial Guinea, detailed cross-section analysis of Coflexip pipes providing pipe ultimate capacity and stiffness properties, 1995.

Provision of training in riser and mooring design and analysis for Chinese engineers on behalf of Well Completion Technology, 1995.

Investigation into offshore production platform toppling during installation in Gulf of Mexico for confidential client, 1995/1996. STA developed simulation software enabling recreation of the toppling event and providing engineering insight as to actual cause.

Design of jack-up riser conductor in English Channel with heavy current (6 knots) for France Hunt Oil Company, 1996. This project also involved STA designing and having fabricated aluminum fairings which were installed on the conductor to eliminate vortex induced vibrations. This installation was in the English Channel in 1996.

Design of mooring system for FPSO on the Kiame Field off Angola, Africa. A spread-moored system was designed and installed in 1996/1997. The client was Care Offshore Systems/Sage Engineering, Switzerland.

Provision of Expert Testimony relating to lakefront bulkhead problems in Clear Lake, Texas. The client was attorney, Kenneth Kay, 1997.

Detailed design and analysis of the Troika mooring and riser systems for BP. The Troika field well completions were made by the Glomar Arctic 1, which operated for two years in the Gulf of Mexico in 3,000 ft. water depth. The mooring system was a chain wire chain system and involved placing 4,000 ft. of wire inserts into each of the existing 3" chain mooring lines. The riser design involved extensive investigation into vortex induced vibration (VIV). The final design had staggered buoyancy on the upper 500 ft. of the riser (bare and buoyant joints) to mitigate VIV induced by surface eddy currents. The remainder of the riser was buoyant throughout with the upper 1,000 ft. fitted with strakes fitted to reduce potential VIV caused by submerged eddy currents. The strakes were designed so that they would pass through the rotary table by deflection of their rubber bodies. Work completed by STA in 1996/1997.

Investigation into the loss of legs on the Linn Richardson jack-up drilling unit while under transport from the Gulf Coast to West Africa. This rig lost two of its legs while under tow and STA determined the cause of the loss for Steege Kingston Associates on behalf of underwriters in 1996.

FPSO mooring design and analysis on behalf of Care Offshore, Switzerland, for ELF for the N'Kossa Field offshore Nigeria. A wire and chain system was designed for a 60,000 DWT tanker for the N'Kossa Field with water depth of 800 meters, 1996.

Verification of ASME Code compliance for steel pressure vessels (riser tensioner accumulators). STA provided calculations showing compliance with ASME requirements to Patco Machine Shop, 1996.

Development of mooring design and installation analysis software for Delmar Offshore Systems. STA developed the world's most comprehensive offshore mooring installation software for this project, beginning in 1996, completed in 1998.

Design and dynamic analysis of a pair of fiber optic riser cables for AT&T. These risers are deployed in water depths to 3,000 ft. for Petrobras and are the world's first dynamic riser cables. These are also thought to be the first Lazy wave geometry risers adopted by Petrobras. Work completed in 1997.

Investigation into loss of a leg on a Falcon jack-up under tow coming around South Africa (similar to the Linn Richardson). STA performed forensic analysis investigating the cause of the loss of leg for Steege Kingston Associates on behalf of London underwriters. 1996.

Investigation of ultra high velocity ballistic underwater projectiles for offshore mooring applications. This work, sponsored by the U. S. Navy was performed by STA in 1996 under contract to Stanley Associates, Washington, DC.

Assistance to Imodco with their bid for the Terra Nova project. STA helped with the detailed design and dynamic analysis of the turret, risers, and mooring system for the Terra Nova project. 3-D Autocad drawings and computer graphic animations were produced. 1996.

Design and analysis of flexible risers for Petrobras performed in 1996 on behalf of Wellstream.

Development of software in cooperation with Mobil Oil Company for the design and analysis of tension leg riser systems (TLRs). In these systems a submerged buoy supports multiple steel catenary risers (SCRs). Flexible jumpers link the submerged buoy to a floating production system. The system is patented by Mobil and STA is producing software for preliminary design and cost estimation of these systems. 1997/1999.

Design and analysis of alternative mooring systems for an FPSO in the South China Sea, offshore Malaysia for Care Offshore, Switzerland, working through Sage Engineering. STA designed alternative systems, one for a spread-moored and one for a single point moored tanker in 55 meters water depth, 1996.

Production of inspection manual for owners of the Irish Sea Pioneer, UK, in order to comply with HSE requirements. 1996.

Stability analysis and design, including propulsion requirements for small U.S. Navy catamaran. 1997.

Design and analysis of riser and mooring combinations for the Kaspmorneft semi-submersible drilling rig in the Caspian Sea for Santa Fe International. STA investigated water depths from around 30 meters to 700 meters. Project completed in 1996.

Verification of liftboat leg design for Bollinger Machine Shop and Shipyard, 1997.

Development of Rig Manager Software (RMS) for BP. Work began in 1997. Completed 1999. The Rig Manager Software is designed to minimize rig downtime in deep water by analyzing the riser and mooring systems together, then making adjustments to the mooring system in advance of severe weather when winch capacity may be exceeded. A concept of drilling watch circles was introduced. The software is to run on all deep water moored drilling vessels, chartered by BP.

Risk analysis of Main Pass Platform for CNG. Work performed for CNG's risk managers and involved both the production platform and its facilities as well as the pipelines tying into the structure. 1997.

Dynamic analysis of Troll B flexible risers in the North Sea for Wellstream, 1997.

Development of sizing and cost algorithms for SPARs for MAI Consultants, U.K., to be incorporated into the QUE$TOR suite of programs. 1997.

Experimental and theoretical dynamic analysis work with physical tests on impact forces generated by colliding risers. Work performed for Shell Oil Company, 1997.

Expert Testimony Report to lawyers (confidential) on adequacy of safety equipment inside semi-submersible ballast tank, 1997.

Dynamic analysis of Troll C flexible risers in the North Sea on behalf of Wellstream, 1997/1998.

Feasibility study for Global Marine Drilling Company concerning running dual risers from drill ship in water depths up to 10,000 ft. STA provided dynamic riser analysis, 1997.

Dynamic analysis and detailed design at feasibility stage for Aker, on behalf of Amoco for King's Project in deep water in the Gulf of Mexico, 1997/1998.

Interference analysis on the Troika project with temporary control umbilical. STA performed dynamic analysis of numerous possible rig positions on the Troika Field using a temporary umbilical looking at interference possibilities between the umbilical and the riser. 1997 for BP.

Investigation into causes for riser failure in relatively deep water for Marathon Oil Company, 1997/1998.

Preliminary design and detailed investigation into riser handling system on Transocean semi-submersible, 1997.

Development of software to compare downtime on alternative floating drilling vessel for Chevron. The software enables the user to compare downtime of well drilling operations based upon vessel motion restrictions. 1998.

Provision of cost estimates for pipeline in Kazakstan for Oryx, 1997. Various options were considered.

Modifications to STA JACKWAVE for Global Marine Drilling Company to suit new requirements for spud cans on hard soil bottom conditions, 1997.

Cost estimates for replacing AGIP's Gulf of Mexico structures for insurance purposes. Work performed in 1998 for Steege Kingston Associates.

Investigation into causes for riser key seating failure for Kerr McGee in Gulf of Mexico, 1997/1998.

Analysis of riser and mooring system proposed by drilling contractor for deep water location in Gulf of Mexico was performed for Kerr McGee in 1998.

Detailed design of significant modifications to large liftboat operated by Halliburton in Nigeria. STA designed leg internal strengthening details, designed an aluminum helideck for the vessel and designed width extension to the vessel to provide adequate hydrostatic stability. Work was completed in 1998.

Dynamic analysis assistance to Aker Marine for design of SPAR structures in the Gulf of Mexico, 1998.

Dynamic analysis assistance to Aker Marine on behalf of Texaco for the Fugi Field preliminary riser design, 1998.

Finite element structural/stress analysis of mooring bitts on aircraft carriers for VSE Corporation on behalf of the U.S. Navy, 1998.

Expert Witness services to Sussman Godfrey for a jack-up punch-through problem in Australia. Work commenced in 1998.

Participation, together with Orcina, in highly compliant rigid-type riser study (HCR study) organized by PMB-Bechtel, on behalf of joint industry project participants. 1998/1999. This work involves detailed dynamic analysis of various steel riser configurations and comparison with 1:5 scale model tests performed in Lake Pen D'Orielle.

Detailed design and dynamic analysis of flexible riser for Mustang Engineering on behalf of Canadian Occidental, on the Ukpokiti Field, Nigeria. 1998.

Cost estimates for Oryx on Yuralpa Field development, Ecuador, 1998.

Design and analysis of flexible risers and buoyant arch system for Wellstream, on behalf of Tanker Pacific, for Benchamas Field, Thailand, 1998/1999.

Riser and mooring analysis for BP on Diamond Ocean America during eddy current event in Gulf of Mexico, 1998.

Investigation of liftboat collapse for lawyers (confidential) 1998.

Re-commissioning STA jack-up simulator for Gulf Coast Electric, Lafayette, Louisiana, 1998. The prototype jack-up simulator originally developed for DNV was re-commissioned by STA.

Development of riser analysis specifications for Reading & Bates/Falcon Drilling, 1998.

Evaluation of new patented mooring winch system for semi-submersibles for Skagit Smatco, 1998/1999.

Assistance with dynamic analysis of flexible riser systems for deep water, Brazil (Petrobras) for Imodco, 1998.

Mooring design for MV Whitethorn for Geotechnical Drilling off West Africa. Project performed for Sage Engineering, owners of the vessel, 1998.

Investigation into cause of leg failures on Shoreline liftboat off West Africa. Work performed for Shoreline Liftboats, 1998/1999.

Dynamic analysis of hung-off risers, 10,000 ft. long for Global Marine Drilling Company, 1998/1999.

Provision of Expert Testimony and investigation into causes for mooring line failures for confidential client, 1999.

Investigated deep water fabrication/shipyard/engineering design capabilities worldwide for confidential client. Investigations covered manpower and facilities capabilities projected over the next five years for deep water field developments (3,000 – 10,000 ft.). 1998/1999. Work performed in co-operation with MAI.

Collision analysis of supply boat with one leg of the Irish Sea Pioneer jack-up vessel. Direct non-linear transient dynamic analysis and soil dynamics. 2000.

Design review and dynamic analysis of BOP restraint system for Patco/Transocean, 1999/2000

Design and construction of STA Laboratory and separate workshop for Slosh-Testing of separators on FPSOs. Includes motion controls, A/d and D/a data acquisition system, data processing and networking with STA LAN system.

Design of pier-side moorings and analysis of loads on piers caused by two large Military Sealift Command Ships FPSOs or FSSs). Designed fender systems with elastic properties that protected pier from overload., 2000.

Kerr-McGee riser failure investigation, 1999/2000.

Unocal Macasar Straights, Mooring verification, in Borneo, 1999.

Sage/Delmar suction caisson design verification, Gulf of Mexico, 2000. Finite element structural model to interface to Sage soil model in ABAQUS. Sanity checks with STA PILE.

ISP 10,000-year return-period safety case for HSE. Overturning and water-in-deck analysis, helped by MMI.

PCS (Project Consulting Services) LA, a sea-bed sweep of mooring lines in order to determine the area disturbed by the mooring lines, using AutoCad, MathCad, Visio, Excel and Orcaflex, fully dynamic moving of barge forwards, while laying pipe.

Expert testimony to lawyers of Halliburton regarding the ISP (Irish Sea Pioneer) in claims against BHP. Evidence given in London, UK.

Design (with Zeta Dynamics Ltd.), U.K. of special internals to suit large separators in Siberia, complete fabrication and installation, and on-site testing by Mr. W.P. Stewart.

Assistance to Merlin Associates as an expert in marine affairs associated with Arctic Environments for Sakhalin Island and offshore cold waters, helping Shell decide to invest or not in Sakhalin.

Provision of training course with MMI to Stolt/Paragon for Orcaflex for flexible pipe/riser/umbilical analysis. Main input from STA was cross-section behavior understanding. 2001

Rapid response to global Marine mooring analysis, semi in GoM, 6 hours to complete analysis on a Friday evening.

WW Products, flexible pipe cross-section analysis and derivation of fundamental properties from experience and fundamental principals, corroborated with two reliable (at least credible) sources. 2001

Dual string riser analysis for Global Marine in up to 10,000 ft water depth, re-review., 2002

Global Industries, together with MMI, Shell Manatee, linking of pipes, pipe-in-pipe installation. 2002

Hartford Management, 2002, big opening cut-out, designed, built and installed in Houston industrial building.

Ocean Works/Hard suits: support to MMI in getting credible solutions to pipe/umbilical problems using Orcaflex. 2002

Trip to Peru in order to select best site for LNG export terminal. Coastal survey in accompaniment with MMI engineering. 2001/2. Selected three best possible (economical) sites for potential terminal in conjunction with Gooseneck investigator, considering marine, coastal and seismic concerns

Shell Oil company, verification of Delmar design of “taught-leg” mooring system dynamics in deep water using Orcaflex. Helping client understand slow-drift dynamics. Writing technical paper on subject. 2002/2003.

MPM, special cathodic protection for BP Pompano, using Orcaflex, 2002/3, special consideration of cable interference with platform members.

Bollinger shipyard, design verification and design help with new Liftboat design, 2002/2003

Cabett SubSea – cable cross section design stiffness etc., 2003.

Alderley- White Rose project, BP Alaska, hydrocyclones, sales assistance and success, 2003.

ITA Industrial, the Port Canaveral. Port security barrier design and analysis, 2003.

Keppel Fels, Purchase and support of STA LIFTBOAT software, 2003.

Sea Engineering, Purchase and support of STA PILE3, and STA CHAIN plus support, 2003.

Bollinger Training in the use of STA LIFTBOAT, 2003.

Bollinger Shipyard, development of new Liftboat design, 2003.

Aqua Survey, New Liftboat design philosophy and modifications to original design, safety improvements and final design 2002/2003

ITA Industrial, Anti-terrorist security barriers around offshore platforms of INDIA. Hydrodynamic analysis and detailed structural analysis of trimaran hulls supporting security nets in 300' water depth around several platforms at feasibility stage, 2003.

PCCI, Evaluation of OPIC (Overseas Private Investment Corporation) risks in large loan to develop Albacore Leste field offshore Brazil (Petrobras p-50). Provided independent consulting engineering services in areas of structural, marine, mooring and riser evaluations as to fit-for-purpose, 2003.

Amerada Hess, Independent valuation of reasons for failure of dynamic sub-sea hoses and recommended solutions to enable system operation. Ceiba Field, Nigeria, 2003.

Zeta-pdm Ltd, Mechanical design and analysis of oil/water/gas separator internals for ChevronTexaco BBT field, West Africa, 2003.

AC McClure Associates, Design of flexible risers for ConocoPhillips Corocoro field FPSO, off Venezuela in shallow water with large FPSO excursions, 2003.

Larsen and Toubro, Due Diligence services for Indian client seeking to acquire American deepwater engineering company. Provided guidance as to companies engineering competence, likely future market share, management structure, etc., 2003.

ExxonMobil, working as subcontractor to MMI engineering, installation and retrieval of subsea equipment package with structural mass of 200 tonnes in 6000 ft water depth. Dynamic analysis of complete system using Orcaflex, 2004.

Design of new (patent pending) riser clamps for Flotation Technologies using novel hinge-spring design, 2004.

Dynamic analysis and mooring design of ship nests in the James River Reserve Fleet for Oceaneering on behalf of US Navy, 2004.

Analysis and design assistance to Patco, Houston for several large powered reels for up to 15,000-ft umbilical and hose storage/deployment/retrieval. Work included physical model testing of pressures induced on the reel flanges by reeling/spooling loads as well as detailed FEA of the frames and reels, 2004.

Technical and commercial consultancy to ABB, Houston, for the sale of their Deepwater Group Intellectual Property, comprising patents, software and other IP. 2004/2005.

Design of risers for FPS, Houston for OPE Field, West Africa, including design of buoyancy modules and clamps. Dynamic analysis performed with Orcaflex. 2004.

Hydrodynamic analysis and design of a wave energy device for use in a near-shore Defense System for Raytheon Company, 2005.

Design and dynamic analysis of a near-shore support system for 5MW wind turbines in US waters for Concept Marine Associates, CA. 2005.

Technical and marketing support for large offshore production separators and scrubbers for various oil and gas fields around the world, working with the European Zeta Group, ongoing from 1996 to present (2005).

Design and analysis support to Swire Group for a MOPU conversion from a Bethlehem jack-up to work off West Africa, 2005.

Technical and marketing support for hypochlorinators for Electrichlor, ongoing from 2000 to present (2006).

Analysis of limiting conditions for leg extraction of stuck leg of Irish Sea Pioneer for Halliburton, including development of emergency extraction procedures. 2005.

Structural assessment of Bethlehem Mat Rig CD10 for Swire Production Solutions, Dubai, for conversion to a MOPU for 12 year production contract in Indonesia. Work includes all structural and naval architectural issues (partly subcontracted to MMI Engineering). 2005.

Structural assessment of Bethlehem Mat Rig Odin Liberty for Swire Production Solutions, Dubai, for conversion to a MOPU for 10 year production contract. Work includes all structural and naval architectural issues (partly subcontracted to MMI Engineering). 2005

Design of novel mooring system for Raytheon Integrated Defense Systems for rapid deployment in hostile waters to moor a new generation of buoys designed by Ocean Power Technology. Continuing consultancy and design work, 2005.

HAZOP study in UK for Swire Production Solutions for FPS in Malaysia, 2006.

200’ Flare boom design for FPS for Swire Production Solutions, Malaysia, 2006.

Design of barge mooring system for Suncor Energy, Canada. 2005.

Investigation of capsize of Liftboat Miss Nevelyn off Trinidad (expert testimony for lawyers) 2006.

Design of anti-sloshing baffles for separators for Zeta group for separators on FPS, 2000-present.

Orcaflex dynamic analysis training classes for moorings and risers, 1988-present.

Investigation of pier damage in Sabine River caused by passing ships (expert testimony for lawyers) 2005/2006).

Safety analysis and HAZOP for powered reel for Patco, on behalf of Cameron, 2006.

Mooring design for Hood Canal Bridge Draw Span pontoons during construction and outfitting stage in Washington state at Todd Pacific Shipyards for Spearman Engineering, 2006.

Development of Open Ocean Stabilized Live Fire Platform (OOSLFP) for PCCI, on behalf of the US Air Force, 2005/2006. Concept is a 450' square concrete floating platform, 40 feet draft, displacement (175,000 tons) in Gulf of Mexico used for weapons targeting and testing program.

Ops Manual and Stability Booklet for Maleo Producer Jack-Up MOPU for Swire, 2006.

Preliminary design of net support towers for PCCI, on behalf of US Navy. These guyed towers are for raising and lowering port security barrier nets in water depths from 45 feet to 130 feet, supporting large lateral loads, 2006.

Detailed design and analysis of drilling rig mast strengthening (guy-wire) system for Halliburton Energy Services, Dallas, 2006.

Detailed foundation failure analysis for MOPU. Maleo Producer, Indonesia, for Swire Offshore Production Systems, 2006.

Non-linear and linear hydrodynamic analysis of OOSLFP in Cat5 hurricane conditions in Gulf of Mexico, using AQWA, OrcaFlex and other internal STA software. Novel hybrid synthetic/steel mooring design also developed, for PCCI (USAF) 2006.

Independent assessment of Patco Macine&Fab.Inc, Houston, large reel design and fabrication procedures. Ensure compliance with EU Machinery Directive and application of CE Mark. Consultant to Patco for CE Marking.

Forensic investigation into loss of legs of Odin Liberty, a jack-up rig under tow from Texas to Malaysia. Fatigue and marine conditions analysis for Global Process Systems, 2006.

3rd Party Review of riser installation (pick-up) analysis for Blind Faith project in GoM for Aker Kvaerner Marine, 6000 ft water depth.

Mat-supported jack-up foundation evaluations on soft soils for GPS, and contentious arguments with ABS regarding nature of foundation behavior in storm load conditions, 2007.

Planned and supervised extensive soil field investigation and advanced laboratory dynamic testing leading to time domain non-linear dynamic analysis of Maleo Producer, a gas production platform in Indonesia, in earthquake conditions. Extensive contentious arguments about seismic issues with ABS. Client: GPS, 2007.

Consultancy advice to MMI Engineering on the design and analysis of the Bass Lite SCR in the GoM (5600 ft water depth) involving VIV, VIM and storm loads, fatigue assessment and compliance with MMS regulations.

Independent review of failed suction caisson anchors in GoM at the Devil's Tower SPAR in 5600 ft water depth. Provided expert professional opinions as to causes of failure to Jones Walker. Review of soil properties for suction pile design and pile buckling strengths, 2007.

Organized rapid fatigue assessment of 18-year old tanker for Swire, for potential use as FPSO in Vietnam. Worked with ABS and Safehull. 2007.

Independent rapid engineering review of novel self-installing fixed structure for oil production in marginal field off Tunisia for Swire, 2007.

Provide expert professional opinions to Ince & Co. as to new and replacement costs for a rig mooring system for a Pemex contract in Mexico and for the same accommodation unit in a Shell contract in the UK. Provide testimony at London Arbitration, 2007.

Develop software for crane barge in Venezuela for installation of Conoco Corocoro moorings and risers. Barge stability and crane de-rating calculations combined into interactive crane barge lift analysis software. Client: Truston, 2006/2007.

Debugging jack-up simulator software for Pisys, 2007.

Independent review of mooring system pre-tensioning methods proposed by Noble Denton for Conar, 2007.

SUMMARY OF CAPABILITIES:

Multi-disciplinary engineering evaluation of offshore and marine projects with emphasis on technical, commercial, and other insurable risks.

Engineering and analytical expertise with fixed and floating marine structures, including static and dynamic finite element stress analysis, mooring analysis, stability analysis, hydrodynamic analysis, geotechnical design and analysis.

Ensuring compliance with a wide range of US and European codes and standards especially pertaining to offshore structures, working with Ship Classification Societies and the US Coast Guard.

Forensic evaluation of failed offshore systems especially including complicated cross-sections, such as Risers, umbilicals, lattice-legs and simple sections such as pure cylinders.

Oceanography, hydrodynamics, and the applied dynamics of ocean surface waves.

Structural and naval architectural design and design review of offshore and marine structures.

Model, and full-scale, testing of offshore and marine structures, including results interpretation, with practical application of time series data analysis, in the time domain (including probability density functions) and in the frequency domain.

Simulation of marine systems and structures with use of simulation and full-scale training simulators to aid in the training of marine personnel, including the use of psychology and stress in training.

In-house development and application of wide range of computational tools, including engineering analysis software, commercial evaluation software, and risk assessment software.

Provision of expert testimony in coastal, offshore, near-shore and marine litigation.

Development of CE Certification Methodology for Machinery Manufacturers.

Project management, scheduling, cost control, control of subcontractors and direct labor.

Company management, office administration, financial and budget planning, strategic planning, and personnel management. STA has agents in the UK, Holland, Brazil, Singapore, India, Sri Lanka and Australia.

PUBLICATIONS

"Construction and Operation of an Electrical Groundwater Analog Computer," Prize-winning Undergraduate Thesis, University of Aston in Birmingham, 1972.

"The Dynamic Analysis of a Single Buoy Mooring System," MSc Thesis, Cranfield Institute of Technology, 1975.

Contributing Author to "Dynamics of Marine Structures," by Atkins Research and Development for UEG, 1977.

"Single Point Mooring - An Evolving Science," Dock and Harbour Authority, Part 1, May 1977; Part 2, June 1977.

"Basic Wave Theory," presented to the UK Institution of Civil Engineers, Philipps House Course, September 1977.

"Full Scale Tug-Barge Experiments," Europort International Maritime Conference, Amsterdam, November 1978.

"The Role of the Marine Transport Barge in the Middle East," Seatrade Kuwait Conference, Kuwait, January 1979.

"Wave Induced Motions of Marine Deck Cargo Barges with Particular Reference to Roll Damping," BOSS Conference, London, August 1979.

"Non-Linear Marine Barge Motion Response," Joint Institution of Structural Engineers and Building Research Station Seminar, "The Use of Physical Scale Models in the Design of Offshore Structures," London, November 1979.

"Direct Measurement of Fatigue Damage in Jacket Transportation" (with G. Halliday), International Tug Convention, Amsterdam, 1980.

"Single Point Mooring Terminals: A Summary of Selection and Design Methods" (with A. E. Bliault), Royal Institution of Naval Architects, London, April 1980.

"Articulated Tower for 1000m Water Depth with Rigid Sea Bed Connection," Society of Petroleum Engineers, Dallas, September 1980.

"The Non-Linear Effects of Midship Flare on Motion Response of Drillships" (with S. Hsu), SNAME Texas Section Annual Meeting, Houston, October 1983.

"Non-Linear Heave and Pitch Motions of a Modified Tanker for Offshore Production" (with R. Borresen), SNAME Texas Section Annual Meeting, Houston, October 1984.

"On-Bottom Stability of Jack-Ups," OTC 5820 (with R. M. White, V. Rapoport, and D. Devoy), Offshore Technology Conference, Houston, May 1989.

"Deep Embedment Plate Anchors," OTC 5732 (with D. True and T. Jones), Offshore Technology Conference, Houston, May 1989.

"Liftboat Elevated Structural Analysis" Paper presented to Texas Section of The Society of Naval Architects and Marine Engineers, August 1990.

"Observed Storm Stability of Jackup Boats (Liftboats)," OTC 6611 (with V.G. Rapoport and M. Oser), Offshore Technology Conference, Houston, May 1991.

"Liftboat Leg Strength Structural Analysis Final Report" Available to the US public through the National Technical Information Service, Springfield, VA 22161, July 1991.

"Drag Embedment Anchor Performance Prediction in Soft Soils", OTC 6970, Offshore Technology Conference, Houston, May 1992.

“Liftboats – Unique Versatile Vessels”, Proceedings of the Marine Safety Council, Vol. 49, No. 6, US Department of Transportation, US Coast Guard, November-December 1992.

"Analytical Model of Wear in Umbilical Armor Wires" (co-authored with Dr. W. Jones) OMAE 1994, Houston, Texas.

“Vertical Loads on Drag Embedment Anchors” (co-authored with T.M. Fulton) OTC 7491, Offshore Technology Conference, Houston, May 1994.

“Structural Design of a Harsh Environment - 4 Legged Jack-Up Boat,” (co-authored with R.E. Spong, B.A. Stone, and R. Leonard) presented at 5th International Conference, The Jack-Up Platform, City University, London, in September, 1995.

“Spudcan Fixity: Lessons Learned from the Liftboat Industry”, (co-authored with B.A. Stone and J.N. Brekke) presented at 5th International Conference, The Jack-Up Platform, City University, London, in September, 1997.

“Enhancing Value In Deepwater Developments”, presented at SNAME February 1999 Symposium, Houston, TX.

"Dynamics of Taught-Leg Synthetic Mooring Systems in Very Deep Water (with Emphasis on Mooring Dynamics and Slow Drift Motions" presented at OTRC Conference, 2003 International Symposium, Deepwater Mooring Systems: Concepts, Design, Analysis and Materials, Texas, October, 2003.

"Caisson Anchor Pile Behavior" presented at OTRC Conference, 2003 International Symposium, Deepwater Mooring Systems: Concepts, Design, Analysis and Materials, Texas, October, 2003.

"Mat-Supported Jack-Up Foundation On Soft Clay - Overturning Storm Stability", 11th International Conference, The Jack-Up Platform, City University, London, in September, 2007

"Mat-Supported Jack-Up On Soft Clay – Seismic Response Determination", 11th International Conference, The Jack-Up Platform, City University, London, in September, 2007

Author and co-author of numerous DnV reports, Atkins reports, and STA reports for external clients, and for internal projects. Also author of several magazine articles including "Practical Aspects of Platform Inspection," Ocean Industry, March 1987; and "First Jack-Up Simulator Will Train Rig Crews," Ocean Industry, May 1988.

Developer and Principal Author of STA OFFSHORE DYNAMICS WORKSHOP SERIES, to commence in Houston, 2006.

PATENTS:

"Arctic Drilling and Production System and Method of Anchoring the Same," application filed February 1987, approved 1988.

Riser Buoyancy Clamp, pending (Assigned to Floatation Technologies) see http://www.flotec.com/flo32.html.