



MARINE SERVICES (ASIA) PTE. LTD.

TECHNICAL CONSULTING



ENGINEERING, SURVEYING

COMPANY PROFILE AND SERVICES

REF. ACS/MSK3

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REGISTERED UNDER THE LAWS OF THE REPUBLIC OF SINGAPORE
REG. ADDRESS: 100 TRAS STR., AMARA CORPORATE TOWER, UNIT #16-01, AM100, SINGAPORE 079027

Email: mail@acsmarine.net Web: www.acsmarine.net

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COMPANY PROFILE

ACS Marine Services (Asia) Pte. Ltd. is a Company incorporated in January 2010 in Singapore with its principal operations based in Singapore with corresponding office in Malaysia. Since 2012 the Company is represented in London UK by PDC Maritime S.A.

Between years 2000 and 2010 the Company had operated under its Registered name in Marshall Islands "ACS Marine Services Ltd." After 1/1/2010 the Company ceased its operations which were transferred to ACS Marine Services (Asia) Pte. Ltd.

ACS Marine Services (Asia) Pte. Ltd is a Company limited by Shares.

COMPANY REGISTRATION

The Company is Registered in Singapore (UEN: 201000351C) with Reg. Address: Tras Street, #16-01, AM100, Amara Corporate Tower, Singapore 079027. The Company retains corresponding office in Malaysia, address: 2-4 Jalan Impian Emas 64, Johor Bahru, 81300 .

MANAGEMENT

Anastassios (Tassos) Copitsas (Greek): Managing Director.

Leonidas Kopitsas (Greek): Chief Financial Officer.

M. Faeiz Ramley (Singaporean): Director.

James Osborn (British) Manager Operations

Peter Contraros (Greek) Associate Manager Engineering.

PRINCIPAL ACTIVITIES

- 1. Services (Technical Consultancy and Engineering) for Marine, Industrial and Offshore concerns*
- 2. Shipping and Shipmanagement*
- 3. Trading*

MARINE AND OFFSHORE SERVICES

ACS has established Technical Consultancy and Engineering Services specializing in capital intensive projects of multidisciplinary engineering or complex demands of the Marine and Offshore Industry.

By virtue of ACS expertise and experience of its resources ACS can offer to our Clients a wide range of specialist technical advice and engineering and a strategic due diligence services in projects worldwide.

ACS applies a rigorous and pro-active approach to solutions concerning a wide variety of Marine and Offshore Industrial projects.

An increasing legislation and setting of new standards and objectives in the Marine and Offshore Industry, pose additional challenges to Ship Managers, Ship Operators and to Marine Asset Management with an ever greater attention paid to safety and environmental issues. ACS and its Associates are responding to the new challenges with high caliber technical due diligence, expertise and efficiency in ensuring our Client's best interest.

AA) MULTI-TASK AND SPECIALIZED SERVICES

Following services are offered in managing or elaborating solutions in capital intensive or complex technical issues of a wide range of multi-task projects and diverse objectives of the Shipping and Offshore Industry:

- *Technical Due Diligence in support of Marine and Industrial concerns*
- *New Project and Financial risk assessment*
- *Evaluation of Ship Builder and Ship Design*
- *Shipbuilding Project Management, Design review, Engineering and Supervision*
- *Shipbuilding Construction risk management*
- *Structural risk and operational risk assessment*
- *Shipyards Valuation.*
- *Feasibility and Regulatory Implementation of Green Technology (WBMS, Ship-born Emissions reduction technologies, cold ironing) for new and existing Ships*
- *Life extension (longevity) evaluation of Marine and Offshore assets*
- *Expert evaluation of Coating applications and Paint material for special applications in the Marine and Offshore projects*
- *New installations in Ships: Feasibility, design assessment. Onboard Refitting applications and supervision*
- *Vessel Pre-Purchase Condition Assessment Surveys*
- *Warranty Surveys*
- *Commercial Surveys*
- *Expert Witness and Inspection Services*
- *Verification of Compliance*

BB) SHIP ADVANCE ANALYSIS AND ENGINEERING SERVICES OF EXPERTISE

Review of Advance Structural Analysis and Engineering, or Independent Analysis using advance analytical and engineering methods:

- FEM
- Spectral Fatigue Analysis, Fatigue Life
- Dynamic Load Approach analysis (DLA)
- 2-D, 3-D Structural zooming Analysis
- Loading analysis
- Buckling Analysis
- Sloshing Analysis
- Ship Powering and Speed Analysis
- Tank Test and Sea Trials witnessing and Evaluation of results
- Vibration and Acoustic Analysis (design stage and trouble-shooting)
- Mechanical engineering analysis

CC) SERVICES IN NEW VESSEL CONSTRUCTION PROJECTS**OBJECTIVES:**

- Assess and Control design, construction and operational risk
- Verify Compliance with Building Contract
- Add value to Newbuilding assets by applying efficient technical negotiations based on expert due diligence, specialty engineering and proactive and rigorous project management.

CC1) NEW VESSEL DESIGN ASSURANCE:**(I) REVIEW OF THE FEA / STRUCTURAL ANALYSIS:****OBJECTIVES:**

Assurance of Contractual Compliance of the design with the review by experts of the FEA / Structural Analysis submitted by the Builder and Verification that the results of the Analysis are depicted exactly in the detail design drawings which are submitted for approval. Valid issues are effectively negotiated with both the Builder and the Class in order to be corrected and the associated detail drawings are duly modified as a result and re-issued for approval.

Above design reviews do not constitute a re-affirmation of Class approval, because:

- 1) *Design issues (e.g. omissions, discrepancies, design flaws, Rule misinterpretations, non-conformities with Building Contract, etc.) are often found following post-Class approval reviews.*
- 2) *Experts' reviews target areas which by experience present potential issues affecting the integrity of construction,, the knowledge of which is disregarded to the detriment of the Owner being a third-party entity to the contractual relationship between the shipyard and the Class.*

- 3) *The Class is mostly unaware of all the contractual stipulations affecting Owners' interest that are rescinded by design constraints hidden in the engineering information which is made known only by experts' review.*
- 4) *Class determinations are contextual, i.e., confined pursuant to the specific scope of service agreed with the Shipyard.*
- 5) *When the Class is aware of concerns, in a direct dialogue with the third party that it can find itself liable for missing a problem.*
- 6) *Unsolved / unknown design issues to operators, managers and the crew cause deception of the vessel's abilities and pose a high risk of failure.*

(II) PLAN REVIEW :

Review of the detail drawings (hull, hull outfit, cargo system, (or cargo gear), machinery and electric / automation as well as special coatings), included in the list of drawings for Owners' approval and valid comments of non-compliance, omission, or discrepancy are provided together with the required alteration, or modification. Technical correspondence and negotiations are conducted as required.

CC2) NEW CONSTRUCTION ASSURANCE

Assurance of compliance of the construction with the Building Contract by a proactive and diligent Site Management and an effective and rigorous Supervision in representing the Owners at the Site of Construction and attending the Construction works and events. Objectives and tasks are pursued with technical due diligence, aiming at mitigation of Construction and Contract risks, the Compliance with the Building Contract, the Control of the agreed Quality and Shipbuilding standards, and the Safety at the sites of Construction. Effective technical negotiations with Builders and the Class are conducted on all issues arisen during construction with professional and effective engineering validation and best practice.

(I) ON-SITE MANAGEMENT AND SUPERVISION:

We support Owners' Management, by appointing technical advisor/project coordinator who is the point of contact with Owners and conducts periodic visits at the site(s) of construction in order to apply technical due diligence in the verification of the compliance of Construction with the NB Contract, the application of the approved design, the materials, the methods and all the works at the site of Construction, the validation of the Master Plan and the detailed construction progress versus Milestone Payments and major / key Construction events, as well as the applied by the Shipyard's management QA/QC, standards, fabrication and construction methods and safety procedures. Highly experienced Site Manager / Supervisors of the necessary engineering disciplines are appointed in attending all Construction works effectively and proficiently in order to verify compliance, who are supported and administered by ACS headquarters.

Tasks and objectives include and are not limited to the following:

- a) *Provision of supervision together with on-site management supported the technical advisory at our headquarters*
- b) *Continuous technical support, compliance and quality control and administration of our on-site resources*
- c) *Continuous and control of Contract and Construction Risk*
- d) *Verification of Construction progress, construction milestones, and Contractual compliance*
- e) *Due diligence exercise on all construction phases and all major construction events*

- f) Resolving/negotiating with Owners, Shipyard and the Class on all technical issues arisen during the detail design development and application of the design in the construction, as well as during the day-to-day monitoring of construction activities on site
- g) Provision of a single point of contact with the Owners
- h) Provision of technical advisor and assistance to the Owners in technical negotiations as required
- i) Periodic visits of the technical advisor at the site(s) of construction
- j) All Testing and Trials verifications for compliance
- k) Regular (monthly) as well as prompt reporting as required to Owners on progress of all project activities, the verification of compliance of construction, the quality of construction and all issues of construction pending compliance, or requiring technical negotiations.
- l) Provision of due diligence, engineering investigations and technical expertise on complex or multidisciplinary engineering issues and major disputes of construction, testing and trials.
- m) Provision of continuous guidance of expertise and enhancing the professional image of Owners Representation and the teamwork of our resources on the site of construction.
- n) Administration and control of all project documentation.
- o) Post delivery services of handling claims.

DD) SERVICES SUPPORTING FLEET MANAGEMENT OBJECTIVES

Operational and capital risk-based Asset Management applications and targeted methodologies in view of:

- Assessments prior to acquisition of new and old vessel assets
- Assessments of Fleet / vessel operational readiness including: (i) operational capability, (ii) maintenance, (iii) refits, (iv) procurements, (v) regulatory compliance, (vi) charter compliance
- Operational capability and engineering prognosis and Longevity for Asset life-cycle Management of vessel/Fleet

EE) THIRD PARTY SERVICES IN RESPONSE TO INDUSTRIAL DISPUTES:

(Complex, Contentious and Non-Contentious matters of the Marine and Offshore Industry)

- New Construction, Repairs and Conversion disputes and arbitration
- Marine and Offshore Finance Disputes (new construction, sale and purchase transactions, MOU related)
- Marine Insurance disputes (cargo insurance, hull and machinery insurance, builders' insurance, P&I cover).
- Various other contentious shipping matters (charter-party disputes, bunker disputes)
- Various other non-contentious shipping matters (advice on design and construction disputes in shipbuilding contracts, ship or oil rig management contracts and related warranty inspections)

EXPERIENCE

ACS MARINE SERVICES (ASIA) has extensive experience by virtue of the work of its Executives and Senior Managers for Owners and Operators and for Classification Bodies in the widely exposed area of demands in the Marine and Offshore Industry.

Indicative projects are as follows:

- Construction of series of 3xProduct Carriers 45,000 TDW in MHI Japan (AVIN Corporation Int'l
- SA Greece) Construction of one Product Tanker 45,000TDW at Uljanic Croatia for VROON BV Holland.
- Construction of series of Aframax Tankers, at 2 Maj Mangalia, Romania (BLUE FLAG NAVIGATION Ltd., Greece)
- Numerous projects of Commercial Surveys, Fleet Condition Assessments, Damage Surveys, Record Reviews, expert Inspection and Testing, for Clients.
- Life Extension evaluations (with ABS Group): LPG Luigi Lagrange for CARBOFIN SpA Italy, *LNG Elba*. *LNG Palmaria* for SNAM SpA. Italy, LNG Golar Freeze of Gotaas Larsen UK., numerous *LPG carriers* and Tankers of the Fleet of BERGESEN dy ASA, Norway.
- Newbuilding of series of Chemical Carriers type IMO 2 for NOVELLA SpA, in Croatia: Engineering Consultancy, Project Management, design approval and Site Supervision.
- Various comparative reviews of design and specifications for LPG, Tankers BC's and Container vessels.
- Advance Structural analysis of new designs of vessels and for existing Ships in investigation of structural flaws. Comparative Studies of standard designs of Gas Carriers, Cellular Container ships, Bulk carriers and Tankers.
- Newbuilding of series of 2x84,000 cum LPG Carriers for SONATRACH PETROLEUM CORPORATION at KHI Japan. Engineering Consultancy, Project Management, detail design approval and Site Supervision. ➤ Technical Consultancy in Project Financing; (CITI Bank POLAND).
- Technical Consulting for Project Financing (Royal Bank of Scotland).
- Design Assessment, Plan Review, Technical Advice for 5x2500 TEU Container Ships (NIKI Shipping Co. Inc.) at Jurong Shipyard / Singapore.
- Inspection and pre-qualification evaluations of Japanese and S. Korean Shipyards for Gas Carrier projects (Mitsui, Mitsubishi, Kawasaki, Hitachi, Samsung, Daewoo, Hyundai) on behalf of SONATRACH PETROLEUM CORPORATION B.V.I.
- Valuation and technical assessment of Machinery and real estate assets of Chemomorsky Shipyard in Nikolaev / Ukraine for AVIN INTERNATIONAL CORP. /Greece.
- Newbuilding of series of 3x59,200 cum LPG / *Ammonia Carriers* for SONATRACH PETROLEUM CORPORATION at Kawasaki S.C, Japan. Engineering Consultancy, Project Management and Technical Advice, design approval and Site Supervision.
- Newbuilding of handymax Bulk Carrier for ATLANTICA ASA / A.M.NOMIKOS, built by Dayang / Sinopacific Group P.R. China: Design review and Site Supervision.
- Newbuilding of supramax bulk carrier at Tsuneishi Cebu for GLEAMRAY MARITIME INC./ Greece, site supervision and project management support.

- Newbuilding of 315,000 TDW Tanker for SONATRACH PETROLEUM CORPORATION at NACKS, Nantong, P.R.
China. Project Management, detail design approval and supervision.
- BMC: Provision of Site management support for the Newbuildings of two LPG Carriers at Hyundai Samho, S.Korea.
- Royal Bank of Scotland (RBS)- Clarksons UK: Provision of due diligence services in Project Financing of Conversion of
Pipe Laying Vessel at STM Singapore for Clough / Australia.
- Investigations, feasibility studies and evaluations concerning the technology of reduction or abating of shipborn gas emissions at sea and at port (on-going).
- Project Management and site Supervision of 95,000 MT Bulk Carrier at Jiansu Eastern for Blue Planet.
- Design review of 9,000 TEU Container ships at Hanjin HI-C (Phil) Subic (ongoing)

SENIOR RESOURCES

Tassos Copitsas: Managing Director:

Naval Architect, Marine Engineer (NTUA), MSc, C.Eng. Eur.Ing. Thirty three years of activity and working experience in the Shipping and the Marine Industry in executive and senior positions involved in most aspects of the Marine and Off-shore Industry working in multi-national environment. He has served as Regional Manager for Europe, Middle East and West Africa Division of the American Bureau of Shipping / Group of Consulting Services. Also served as a Technical Director and Fleet Manager of Multinational and Greek Ship Managements and as Project Manager and Supervisor in Newbuildings worldwide. He has working knowledge of regulatory requirements applicable to all types of vessels and vessel operations, safety and environment policies.

Peter Contraros: ACS Associates: Principal Engineer / PDC Maritime S.A.: Director.

Structural engineering specialist, Coatings specialist.HND and Post Diploma in Naval Architecture (Sunderland University), Member of RINA, Ch.Eng.-Eur.Ing (FEANI). ABS Classification Principal Engineer, Manager of R&D (Research and Development) in IACS and ABS SafeHull development. Thirty-two years of experience in Shipbuilding, Engineering Approval and Advance Structural Analysis in existing and new Vessels and Offshore Structures: FSOs, FPSOs, SPMs Jack ups. Representative of ABS Class Society in U.K Department of Energy for interpretation of the UK Act of Parliament for Offshore structures in the UK Sector – Jack ups and Semi-submersible Structures. Member of IACS working party for strengthening Ship's Safety. Manager of group of Engineers for the Development of structural formulations and computer tools (programs) for the analysis of special aspects of design of LNG and LPG Carriers, Bulk Carriers, Tankers, Product and Chemical Carriers.

Malcolm Thomson: Senior Naval Architect.

HNC diploma in Naval Architecture, Design and Industrial Management. ABS Senior engineer, Shipyards Project and Production Engineer (Moss Rosenberg, Kveamer, IMPaC Hamburg). His wide range of experience covers naval architecture, conceptual design, feasibility studies, structural design and engineering, planning, plan approval, site work and supervision, deadweight surveys, on/off hire, damage and condition surveys and inclining tests. The range of projects he has been involved with includes structural design, new construction, ship repair and conversion of various types of ships and off-shore structures (production platforms, jack-up, mono hull and semi-submersible drilling rings, steel and aluminum structures, cargo access equipment and harbor installations.

Heinz Groninga: Senior Marine Engineer:

Diploma in Marine Mechanical and Electric Engineering (University of Hamburg), DOT First Class combined Steam / Motor Engineer, Chartered Engineer, HNC in Industrial Management. More than 25 years extensive activity and working experience in all aspects of the Marine Engineering design and operation of engines, machinery and related systems and Diesel engines plants for various types of vessels. He has served in field engineering for diesel engines and electric machinery with Shipyards (Eurolog Engineering GmbH Hamburg, Howaldtswerke Schlichting Shipyard, Lubeck; Kveamer UK) and he has attended newbuildings, conversions, upgrading and modification works. He has also worked with Jebsens Hamburg as Technical Manager and as Chief Engineer onboard vessels.

Tony Lloyd: Senior Electrical Engineer

FIEEE. Chartered Engineer, Dip.EE(1st Degree), Eur.Ing., Member IEE Health & Safety Policy Committee. UKAS (NAMAS) Assessor. He has gained more than 30 years of extensive experience as Senior Electrical Engineer, which covers ship electrical plants and systems, electrical and electronic engineering, design, planning and arrangements of electrical plants, (marine, petrochemical and industrial), power supply industry worldwide. He has been working in conceptual design, electrical engineering, planning, plan approval, on-site work and supervision of operation, installation and testing. He is also providing technical expert witness.

James F. Stanley: Senior Naval Architect and Project Manager.

ONC, BSc Naval Architect, (Sunderland University) member of RINA, Chartered Engineer, Quality Assurance Engineer, Shipbuilding Production Engineer. Newbuildings Project Manager, Supervising engineer with extensive experience of steel quality and construction and inspection, coupled with an in-depth knowledge of marine coating systems and their applications to stringent standards on a wide variety of ships and Shipyards in the U.K., Japan, Korea, and China.. Former Quality Assurance Engineer, aware of the procedures of a QA system, knowledgeable of Classification Societies and regulatory bodies requirements, ISO standards, shipyards' standards for the construction of ocean going ships.

Bjorn Key: ACS Senior Marine and Electrical Engineer / Newbuilding projects.

ONC, BSc Marine and Electrical Engineer, Chartered Engineer, Quality Assurance Engineer. First Class Ch. Engineer (Motor), Project Engineer and Supervisor in new vessel constructions with more than 25 years of extensive experience in mainly machinery and electric construction installation, commissioning, instrumentation and control of machinery and electrical systems and the evaluation of test and trial performance. He is aware of the standards and their application on a wide variety of ships. New Buildings Supervisor for the construction and operation of various types of vessels in Japan, S. Korea, China Shipyards.

Niels Erik Lundgren: ACS Senior QA/QC Senior Marine Coatings Inspector, Qualified Marine Coatings expert previously employed as Senior Coatings Inspector by Hempel Marine Paints, and Jotun Marine Paints Sweden. He has vast supervisory experience based on more than 35 years extensive activity in the Marine Industry, and Petrochemical Industry in the field of Marine Coating applications in Newbuildings and Ship Coating repairs in Shipyards worldwide (China, Japan, S. Korea, Vietnam, Singapore, Philippines).

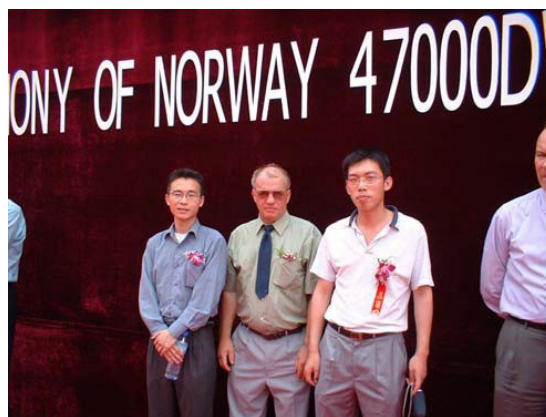
PHOTO ALBUM



ACS – SITE TEAM – JAPAN



ACS SENIOR STAFF – S.KOREA



ACS SITE TEAM – P.R. CHINA



LPG/NH3 "ALRAR" SERIES (59,200 cum) – KAWASAKI - JAPAN



LPG "REGGANE" SERIES (84,000 cum) – KAWASAKI - JAPAN



MV "ATLANTICA SUN" – DAYANG – P.R. CHINA



MV "GECON I" – TSUNEISHI – CEBU / PHILIPPINES