

## Christopher R Clucas

### Qualifications

Chartered Engineer  
BSc (Sp Hons) – Chemistry (1970/73),  
University of Sheffield  
MSc Cryogenic Engineering (1978/79),  
University of Southampton

### Affiliations

Member of the Institution of Gas Engineers & Managers  
Member of the Institute of Marine Engineering, Science and Technology  
Member of the Institute of Refrigeration  
Committee Member and past Chairman of the Isle of Man Branch of Institution of Marine Engineers  
Committee Member and past Chairman of the Isle of Man Engineering Society  
Chairman of SIGTTO GPC

### Date of Birth

1952

### Nationality

British

### Contact

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### Current Position at CWA

External Consultant. Retained as specialist on LPG/LNG carriers and ship/shore facilities and terminals, expertise in loss prevention and safety auditing, training, operational manuals, incident investigation. Chris has over 35 years of experience in LNG design, construction and operation.

## Summary of Employment

<b>2019 - Date</b>	<b>Liquefied Gas Consultancy Ltd, Isle of Man</b> Director
<b>1990 - 2019</b>	<b>Dorchester Maritime/Bernhard Schulte</b> <b>Shipmanagement, Isle of Man</b> Director/Group Fleet Director

BSM IoM (known as “Dorchester Maritime” until January 2008) is the Isle of Man office of the worldwide Schulte Shipmanagement Group. The office looks after the day-to-day operation of the 30+ LNG, Ethylene and LPG gas ships managed from the Isle of Man. Responsible for the 130+ gas carriers managed by the various BSM Group offices around the world, including four off “Q Flex” ships under management, all with TGZ III containment. Appointed on January 2008 to the Board of the IoM Company and as Group Fleet Director.

Particular responsibilities include new building plan review for LNG, Ethylene and LPG ships, cargo system maintenance and upgrading, contamination claims and training of sea staff to IMO requirements - courses approved by UK, Liberian NIS and Polish Administrations. Carries out onboard training courses and safety reviews within the managed fleet, and for third parties on a consultancy basis. Gas consultancy including risk assessment and “Expert Witness” commissions.

Chris has extensive experience of shipyard construction including testing and trials with GTT No-96 and TGZ III Systems in DSME, HHI, SHI and Izar.

Chris has also attended the Membrane Technology / Construction Course at GTT, Paris and is well known to GTT’s senior staff.

Chris has furthermore taught LNG technology to sea staff using demonstration pieces sent by GTT, in relation to membrane technology.

Instructor for special IMO courses aboard LNG/LPG training ship, ANNABELLA.

Presented papers on gas ship training to the Gastech 1993 Conference in Paris, February 1993, Gastech 1994 in Kuala Lumpur, October 1994. ‘Ship Repair and Conversion’ 1995 in London, November 1995, Gastech 1996 in Vienna, December 1996 and SMi “Understanding LNG” Conference in London, February 1999, Gas Technology Institute Symposia, London 2002 & 2003, RINA Conference London 2004, IBC Mid-East LNG Conferences Dubai 2003 & Qatar 2004 & 2006, Seatrade Conference London 2005 and Lloyds List LNG Conference London 2007.

He was the LPG Session Chairman at Gastech 1998 in Dubai and LNG Session Chairman at Gastech 2000 in Houston, Gastech 2002, Qatar, Gastech 2005, Bilbao, and Gastech 2006 Abu Dhabi. Co-Chair of Chairman of Gastech Conference and the Programme Advisory Committee since 2005.

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He established the Gas Safety Course at the Marine Training Centre in the Republic of Kiribati in March 1993 and established the Gas Safety Courses for a series of new LNG carriers in the UK and for LPG ships in Poland.

He conducted the Gas Training Course for Surveyors of a Red Ensign-group Flag Administration, an IACS-member Classification Society and the United States Coast Guard.

He also conducted Gas Training for a US Oil Major when they initiated operation of an LPG FPSO, management of 2 off VLGC's and an LNGC – including training sea-staff (classroom & on board) and shore management, Gas Training for several new Owners who were new entrants to LNG ship management – both sea-staff and shore management, and Gas Training for LNG & LPG Jetty Supervisors for a major Mid-East Gulf client. He has conducted practical training for new Jetty personnel at a VCM import terminal in India, and has conducted Risk Analysis studies for LPG & LNG terminals in the British Isles.

He is a member of consultancy team advising on major LNG import project into India, and a member of consultancy team developing new coastal LNG project. He is also a member of SIGTTO's General Purposes Committee; Chairman of SIGTTO Panel meetings 2002 – 6, and SIGTTO Task Groups on the IMO IGC Code Revision, Training Standards for LNGC's and LPGC's, ESD systems, LPG Co-mingling, Fire Hazard Management and Mercaptan Dosing.

He developed new-build specifications with Owners for a number of LNGC newbuilds in Korea & Spain, and newbuild specifications with Owners for a number of LPG newbuilds in China & Korea.

He has extensive knowledge of the Patent system, and when inventing a novel propulsion system for LNG carries, he patented this design, and has patented new technology for controlling cargo boil-off on new generation diesel-electric LNG ships.

**1979-1990**

**Kosangas, Copenhagen/Isle of Man**

Gas Superintendent with fleet of LPG tankers

This position involved ship inspection, cargo system maintenance and upgrading, dry-docking, cargo specifications, Charter Party compliance, contamination claims, general company safety policy and training of officers. Also Superintendent for two new buildings, plus inspection and trials on four new/second hand purchases.

In 1982, Chris transferred to Isle of Man subsidiary company in charge of gas cylinder filling depot, road transport, bulk tanker operation (domestic and industrial) plus gas engineering aspects of the associated town's gas company. Built two new LPG road tankers and refurbished two second hand units. He was also involved with the LPG tank storage and import operations.

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Work for Kosan Tankers included gas trials, emergency repairs and contamination claim consultancy. The town's gas work involved a major computer analysis of the pipe network with extensive trouble-shooting and CAD work to optimise flows. The boosting and pressure governing systems were also extensively upgraded. Also involved with the LPG tank storage and import operations, and organising various training courses. He was also in charge of day-to-day supervision of direct & sub-contract labour force; introduction of new techniques resulting in an increase in productivity by up to 200%, ordering stock & spares and maintenance of accurate plant records - especially buried

**1978-1979**

**Southampton University**  
Postgraduate Studies

In addition to academic studies, was seconded to British Gas to assist with the computer-aided design (CAD) of the new LNG plants.

**1978**

**Powell Duffryn Oil and Chemical Storage Co Ltd**  
Operations Supervisor/Plant Designer, Purfleet Depot

The work involved a broad range of terminal and plant activities with a wide range of oils, petrochemicals, liquid gases and chemicals including jetty road and rail tanker operations; product heating and temperature monitoring, drying, blending and drumming operations; boiler and steam plant operation and maintenance, construction, maintenance and survey of pipelines, pumps and valves, steam boilers.

**1973-1978**

After graduating in Chemistry, joined the International Chamber of Shipping in London. Secretary of Gas and Chemical Tanker Committees. Represented shipping industry at numerous UK Government and United Nations (IMO) meetings, member of UK and IMO groups which prepared the IMO Construction Codes for both Chemical and Gas ships. Compiled the ICS Tanker Safety Guide (Liquefied Gas) - the standard industry safety 'bible'. Compiled the ICS Tanker Safety Guide (Chemicals) amendments; on IMO groups that compiled the chemical and gas training syllabuses for the STCW Convention. Lectured at a number of training courses. Published a number of technical papers and spoke at various seminars and conferences.

## Summary of Experience for LPG Supply Storage and Distribution

Chris has been closely involved with the development of LPG supply and storage projects over the last 15 years. Specific experience includes:

- Technical and operational advice on a number of new jetty and storage developments as regards design parameters.
- Installation of new bulk LPG storage sphere and bullets in the Isle of Man including the conception, design, safety case review, transport of components, construction and testing and commissioning. The tanks involved were three off second hand 100 ton verticals and one off 600 ton sphere.
- Updating of safety and operational facilities at existing LPG storage sit, including road tanker stands, transfer pumps, emergency shutdown and gas detection systems, gas bottling plant and towns gas production plant.

Chris is fully familiar with UK, EC and US safety regulations form LPG installations. He is thoroughly familiar with UK and similar Codes of Practice and Guidelines issued by HSE and Fire Authorities, as relevant to LPG installations.