

**Dr Sheila Marshman**  
**External Consultant**

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**Qualifications**

PhD Chemistry, Royal Holloway, University of London  
Thesis: Investigation of Sediment Formation in Modern  
Fuel and Lubricant Systems  
MSc Analytical Chemistry, CNA, Kingston  
Polytechnic  
BSc (Hons) Applied Chemistry, CNA, Kingston  
Polytechnic  
Chartered Chemist

**Affiliations**

Fellow of the Royal Society of Chemistry

**Nationality**

British

**Current Position at CWA**

External Consultant with CWA Oil & Chemical Department. Highly experienced petroleum chemist; extensive experience of oil contamination incidents and quality disputes.

**Specific Expertise and Experience**

- Over 30 years experience in fuels and lubricants analysis, testing and research. This includes analytical method development, writing and review of test methods and product specifications for petroleum and associated products. Representative on IP and Def Stan committees
- Invented a rapid test to predict the storage stability of middle distillate fuels and developed a test kit for MOD and commercial use. The test is now published as standard methods IP CP/2000 and ASTM D6748-02a.
- Provided technical information regarding the impact of legislation on fuel properties such as sulphur content, volatility and emissions on vehicle operation.

- Implemented fuel quality surveys on distillate fuels, and am familiar with national/ EU FQMS requirements.
- Experience in both writing and reviewing tender documents in relation to
  - Purchase of analytical equipment
  - Analysis and testing provision for petroleum products.

## Summary of Previous Employment

2002-2003

**Intertek Testing Services**

Senior Technical Consultant – Fuels and Lubricants

Provided high level consultancy and technical support to customers in a wide range of industries including marine engine fuel and lubricant analysis and consultancy, biofuels processing and analysis, process plant problem solving.

Designed and ran training courses on fuels and lubricants analysis both as internal training and for third party clients.

Reviewed, audited and improved methodology of standard methods used in laboratories, rewrote procedures and undertook problem solving and staff training.

1997-2002

**QinetiQ Ltd, Fuels and Lubricants Centre**

Technical Consultant (Chemistry)

- Technical Leader Special Products providing technical support to the MOD and to non-MOD customers on a wide range of products, including engine coolants, aircraft and runway de-icing materials, turbine engine cleaning fluids, detergents, solvents and general chemicals.
- Technical Leader/technical consultant for teams researching middle distillate fuel chemistry. Tasks included further work on the chemistry of middle distillate storage stability and also investigation of liquid/vapour composition of fuels at low temperatures.
- Technical Leader of teams investigating lubricant chemistry. Projects included analysis of thermal breakdown products of aviation lubricants, assessment of the impact of turbine lubricants on aircraft cabin air quality, investigation of causes of sudden oil filter blockage in aviation lubricants, and developing an analysis programme to fully characterise automotive lubricants.

Planned, costed and co-coordinated work programmes, developed or adapted equipment to meet experimental requirements, interpreted and reported results.

Maintained, improved and expanded knowledge base and scope of testing/work programmes for these teams.

1994-1997

**DERA: Fuels & Lubricants Centre**

Senior Scientist, Special Products

Project Manager and Technical Head of Special Products Section giving technical support on a wide range of speciality and general chemicals, responsible for costing planning and delivering work programmes and implementing QA procedures. Developed new tests to evaluate runway de-icer performance and to assess the performance of alternative solvents .

1990-1993

**Fuels Research Company**

Senior Scientific Officer

Directorate of Quality Assurance, Technical Support, MOD

Technical leader for research into chemistry leading to the instability of middle distillate fuels. Duties included technical supervision of 2 Extra Mural Research contracts and international technical liaison with chemists from Australia Canada and USA; also undertaking defect analysis on fuels.

2 patents filed: Development of prototype test kit to measure storage stability. Assessment of novel additives to improve storage stability.

1980-1990

**Royal Aircraft Establishment, Ministry of Defence**

Higher Scientific Officer. Fuels Research

Research into chemistry leading to the instability of middle distillate fuels: development of analytical methods and equipment for monitoring required chemical species; techniques include electrochemical methods, chromatography and spectroscopic methods. Secretary of IP ST-G-2A subcommittee.

Higher Scientific Officer. Fleet Support

Laboratory manager for analytical instrumentation which included AA, UV and IR spectrometry, various chromatographic techniques and titrimetry.

Analysis of fuels, lubricants and pollution samples, using analytical techniques as required. Inspection of bulk fuel and lubricant storage on board ships and at shore installations. MOD representative on IP analytical subcommittees.

1976-1980

**Admiralty Oil Laboratory, Ministry of Defence**

Scientific Officer. Fleet Support

Analysis of fuels, lubricants and associated products using a variety of analytical techniques. Inspection of bulk fuel and lubricant storage on board ships and at shore installations.

1975-1976

**Eli Lilly plc**

Graduate Chemist

Undertook large scale synthesis of novel compounds for pharmaceutical testing and intermediates. TLC, HPLC and GC analysis of these compounds.

1971-1975

**BP Research, Sunbury on Thames Research Centre**

Technical Apprentice

'Thin' sandwich course; 6-month placements in various petroleum based projects including chemical and physical testing of a variety of products and some chemical engineering.

**Publications**

Marshman, SJ., Proceedings of 3rd International Conference on Stability and Handling of Liquid Fuels, 1988, 581-595

Marshman, SJ., David, P., Preprints Am Chem Soc Divn Fuel Chem, 1990, 35 (4), 1108-1116

Marshman, SJ., Fuel, 1990, 69, 1558-1560

Marshman, SJ., Proceedings of 4th International Conference on Stability and Handling of Liquid Fuels, 1991, 489-502

Marshman, SJ., Padley, JF Proceedings of 4th International Conference on Stability and Handling of Liquid Fuels, 1991, 331-339

Marshman, SJ., Proceedings of 4th International Conference on Stability and Handling of Liquid Fuels, 1991, 594-604

Marshman, SJ., Fuel, 1991, 70, 967-970

Marshman, SJ., Proceedings of 5th International Conference on Stability and Handling of Liquid Fuels, 1994, 377-390

Marshman, SJ., Proceedings of SAE International Conference on Lubricating Tomorrow's Aircraft, 1999