



## Scaled Solutions Publications List

### Publications 2010

Eyvind Sorhaug (Talisman Norge), David Marlow, Myles Jordan (Nalco) and Gordon Graham (Scaled Solutions); “Red vs. Green Scale Inhibitors for Extending Squeeze Life - A Case Study from North Sea, Norwegian Sector”, proceedings of the 21<sup>st</sup> Tekna Oilfield Chemistry Symposium, Geilo, Norway, March 2010.

GM Graham, M Kyle, Kirsty Marshall (Scaled Solutions); “Improved Scale Inhibitor Assay for Sulphonated Polymers in Oilfield Brines”, proceedings of the 21<sup>st</sup> Tekna Oilfield Chemistry Symposium, Geilo, Norway, March 2010.

GM Graham, S Kidd, R Fitzpatrick, R Wright (Scaled Solutions); “Effective Simulation of Field SI Squeeze Treatments using Core Flood Derived Data” proceedings of the 21<sup>st</sup> Tekna Oilfield Chemistry Symposium, Geilo, Norway, March 2010.

Rob Fitzpatrick, Robert Stalker, Gordon Graham, Rob Wright, (Scaled Solutions); “Active Wellbore Modelling and its Impact on Chemical Placement and Return”, proceedings of the 21<sup>st</sup> Tekna Oilfield Chemistry Symposium, Geilo, Norway, March 2010.

Karsten Sjursæther, Steinar Berntsen, (ConocoPhillips Scandinavia), James Davidson, Sarah Dyer, Gordon Graham, (Scaled Solutions Ltd); “The Influence of Entrained Solids, Turbulence and Scale Inhibitor Concentration on the Kinetics of Barium Sulfate Scale Formation in Moderate Scaling Regimes”, proceedings of the 21<sup>st</sup> Tekna Oilfield Chemistry Symposium, Geilo, Norway, March 2010.

GM Graham, H Williams, S Keir (Scaled Solutions Limited); “Formation and Control Of Stabilized Emulsions and Calcium Naphthenates” proceedings of the 21<sup>st</sup> Tekna Oilfield Chemistry Symposium, Geilo, Norway, March 2010.

B Senthilmurugan, B. Ghosh (Petroleum Institute, Abu Dhabi), G. M. Graham (Scaled Solutions Ltd, UK) and S. S. Kundu (Petroleum Institute, Abu Dhabi); “The Influence of Maleic Acid Co-Polymers on the Growth and Microstructure of Calcite Scale”, Paper SPE 131132, presented at SPE Scale Conference, May 2010.

Gordon M. Graham, Sam Kidd, Robert Fitzpatrick, Rob Wright (Scaled Solutions Ltd.) “Appropriate Simulation of Field Treatments Using Core Flood Data”, Paper SPE 131131, presented at SPE Scale Conference, May 2010.

Eyvind Sorhaug (Talisman), Myles M. Jordan, David Marlow (Nalco), Robert Stalker, Gordon Graham (Scaled Solutions); “Achieving Extended Squeeze Life in Challenging Wells - A Non-Conventional Approach”, Paper SPE 131093 presented at SPE Scale Conference, May 2010.

Carlos Menezes and Artyom Petrik, (Total E&P UK Ltd.), Gordon Graham, Caroline Simpson, Vince Cocozza, and Alan Kerr, (Scaled Solutions Ltd). “Scale Dissolver Applications in HP/HT Gas Condensate Reservoirs”, Paper SPE 131121 presented at SPE Scale Conference, May 2010.

Helen Williams, Sarah Dyer (Scaled Solutions Ltd), Maria Carmen Moreira Bezerra (Petrobras), Gordon Graham and Rob Wright (Scaled Solutions Ltd); “The Effect of Sulfide Scavengers on Scaling Tendency and Scale Inhibitor Performance”. Paper SPE 131115 presented at SPE Scale Conference, May 2010.

GM Graham, L Wichers Hoeth, S Kidd (Scaled Solutions Limited), N Fleming and K Ramstad, (Statoil), “Mechanical Alteration of Near Well Bore Mineralogy for Improved Squeeze Performance”, Paper SPE 130147 presented at SPE Scale Conference, May 2010.

Myles Jordan (Nalco), Eyvind Sorhaug (Talisman Norge), David Marlow (Nalco), and Gordon Graham (Scaled Solutions); “Red vs. Green Scale Inhibitors for Extending Squeeze Life - A Case Study from North Sea, Norwegian Sector”, proceedings of the NACE International Corrosion Conference and Expo, March 2010.



## Scaled Solutions Publications List

### Publications 2009

R Wright, K Melvin (Talisman Energy UK), R Stalker, S Dyer, GM Graham (Scaled Solutions Limited) Laboratory Examination of the Factors Influencing the Formation of Silicate Scales Under Oil Field Operating Conditions , Royal Society of Chemistry, Oilfield Chemistry Symposium, Manchester, November 2009.

N Fleming, K Ramstad, (Statoil Hydro) S Kidd, L Wichers Hoeth (Scaled Solutions Limited): "Impact of Successive Squeezes on Treatment Lifetime & Well Productivity: Comparative Assessment of Viscosified & Non-Viscosified Treatments", Paper SPE 120969 SPE Oilfield Chemistry Symposium, Houston, USA, April 2009.

R Stalker, GM Graham, G Oluyemi, (Scaled Solutions Ltd) : "Modelling Staged Diversion and Chemical Placement in the Presence of Near-Wellbore Fractures" Paper SPE 121683 SPE Oilfield Chemistry Symposium, Houston, USA, April 2009.

K Marshall, GM Graham, I Munro, M Smillie (Scaled Solutions Limited) "Challenges Facing Residual Chemical (Polymer) Scale Inhibitor Assay in Oilfield Waters", proceedings of the 20<sup>th</sup> Tekna Oilfield Chemistry Symposium, Geilo, March 2009.

G.M. Graham (Scaled Solutions Ltd), N Fleming, K Ramstad (StatoilHydro), L. Wichers-Hoeth, S. Dyer (Scaled Solutions Ltd), "Challenges for Long Term 'Field Life' Core Flood Testing" proceedings of the 20<sup>th</sup> Tekna Oil Field Chemistry Symposium, Geilo, Norway, March 2009.



## Scaled Solutions Publications List

### Publications 2008

E Sorhaug (Talisman Energy), GM Graham, R Stalker, IJ Littlehales and SL Kidd (Scaled Solutions): "Scale Challenges in Talisman's Varg Field" Paper SPE 114077, proceedings of the ninth SPE International Symposium on Oil Field Scale, Aberdeen, UK, May 2008.

R Stalker, IJ Littlehales, GM Graham and GF Oluyemi (Scaled Solutions): "Radial Core Flood Placement Tests" Paper SPE 114096, proceedings of the ninth SPE International Symposium on Oil Field Scale, Aberdeen, UK, May 2008.

N Fleming and K Ramstad (StatoilHydro), A Nelson and GM Graham (Scaled Solutions): "Innovative use of Kaolinite in Downholde Scale Management: Squeeze Life Enhancement and Water Shutoff" Paper SPE113656, proceedings of the ninth SPE International Symposium on Oil Field Scale, Aberdeen, UK, May 2008.

K.B Melvin and C Cummine (Talisman Energy); J Youles (BG Group), H Williams, GM Graham and S Dyer (Scaled Solutions): "Optimising Calcium Naphthenate Control in the Blake Field" Paper SPE 114123, proceedings of the ninth SPE International Symposium on Oil Field Scale, Aberdeen, UK, May 2008.

N Fleming and K Ramstad (StatoilHydro) AC Nelson and GM Graham (Scaled Solutions): "Impact of Successive Squeezes on Treatment Lifetime and Well Productivity: Laboratory and Field Evidence" Paper SPE 113657, proceedings of the ninth SPE International Symposium on Oil Field Scale, Aberdeen, UK, May 2008.

SM Heath, CJ Strachan, M Sim and M Archibald (Clariant Oil Services), R Stalker (Scaled Solutions): "Development of a Viscosified Scale Inhibitor for Improving Placement in Acid Fractured Limestone Reservoirs." Paper SPE 114046 proceedings of the ninth SPE International Symposium on Oil Field Scale, Aberdeen, UK, May 2008.

Helen Williams, Sarah Dyer, Christopher Keyes, Vincent Coccozza (Scaled Solutions): "Use of Naphthenate Flow Rigs for in situ Demulsifier Testing" proceedings of the 19<sup>th</sup> Tekna Oil Field Chemistry Symposium, Geilo, Norway, March 2008

Eyvind Sorhaug (Talisman Norway) and Gordon Graham (Scaled Solutions) "Managing the Inorganic Scale Challenge in Talisman's Varg Field" proceedings of the 19<sup>th</sup> Tekna Oil Field Chemistry Symposium, Geilo, Norway, March 2008

Robert Stalker, Gbenga Oluyemi, Ian Littlehales and Gordon Graham (Scaled Solutions) : "Radial Core Flood Placement Tests" proceedings of the 19<sup>th</sup> Tekna Oil Field Chemistry Symposium, Geilo, Norway, 09-12 March 2008



## Scaled Solutions Publications List

### Publications 2007

Robert Stalker, Kristen Butler, Gordon Graham (Scaled Solutions Ltd.), Rex Wat, Lars-Even Hauge and Kjell Erik Wennberg (Statoil): "Evaluation of Polymer Gel Diverters for a High Temperature Field with Special Focus on the Formation Shape Factor - an Important Parameter for Enhancing Matrix Placement of Stimulation Chemicals", paper SPE 107806, presented at the European Formation Damage Conference held in Scheveningen, The Netherlands, 30 May-1 June 2007

Britt Marie Hustad & Rex Wat (Statoil ASA), Ian Littlehales & Gordon M. Graham (Scaled Solutions Ltd.): "Downhole Continual Injection in new HP/HT Gas Production Systems such as the Kristin Field - The Impact of Chemical Gunking", paper #14, presented at the Tekna Oilfield Chemistry Symposium, Geilo, Norway.

Gordon M. Graham, Sorcha Craig and Robert Stalker, "Shear Thinning Fluid Flow Behaviour in Sandstone Cores - Experimental and Theoretical Observations", paper # 24, presented at the Tekna Oilfield Chemistry Symposium, Geilo, Norway

Britt Marie Hustad & Rex Wat (Statoil ASA), Ian Littlehales & Gordon M. Graham (Scaled Solutions Ltd.): "Evaluating Chemical Injection Packages for Downhole Continual Injection in High Rate HPHT Gas Production Systems", Paper SPE 106450, presented at the 2007 SPE International Symposium on Oilfield Chemistry held in Houston, Texas, U.S.A., 28 February-2 March 2007

Helen Williams, Sarah Dyer and Gordon Graham (Scaled Solutions Ltd.): "Understanding The Factors Influencing The Formation And Control Of Calcium Naphthenate Solids And Stabilised Emulsions Using A Novel Laboratory Flow Rig", Paper SPE 106499, , presented at the 2007 SPE International Symposium on Oilfield Chemistry held in Houston, Texas, U.S.A., 28 February-2 March 2007

Robert Stalker, Kristen Butler, Gordon Michael Graham, Fazrie Wahid (Scaled Solutions Limited), "Maximising Chemical Placement In Complex Wells", paper SPE 106498, presented at the 2007 SPE International Symposium on Oilfield Chemistry held in Houston, Texas, U.S.A., 28 February-2 March 2007.



## Scaled Solutions Publications List

### Publications 2006

Graham, G.M, Stalker, R. & Wahid, F. (Scaled Solutions Ltd.): "Simulating Chemical Placement in Complex Heterogeneous Wells", paper SPE 100631, proceedings of 8th SPE International Symposium on Oilfield Scale held in Aberdeen, UK, 31st May - 01st June 2006.

Dyer, S.J., Williams, H.L. & Graham, G.M. (Scaled Solutions Ltd.), Cummine, C. & Melvin, K.B. (Talisman Energy, UK), Haider, F & Gabb, A.E. (B G Group): "Simulating Calcium Naphthenate Formation and Mitigation Under Laboratory Conditions" paper SPE 100632, proceedings of 8th SPE International Symposium on Oilfield Scale held in Aberdeen, UK, 31st May - 01st June 2006.

Sarah Dyer (Scaled Solutions Ltd.), Karine Orski & Carlos Menezes (Total E&P UK PLC) Steve Heath & Calum MacPherson (Clariant Oil Services), Caroline Simpson & Gordon Graham (Scaled Solutions Ltd.): "Development of Appropriate Test Methodologies for the Selection and Application of Lead and Zinc Sulphide Inhibitors for the Elgin/Franklin Fields" paper SPE 100627, proceedings of 8th SPE International Symposium on Oilfield Scale held in Aberdeen, UK, 31st May - 01st June 2006.

Sarah Dyer (Scaled Solutions Ltd.), Karine Orski & Carlos Menezes (Total E&P UK PLC) Steve Heath & Calum MacPherson (Clariant Oil Services), Caroline Simpson & Gordon Graham (Scaled Solutions Ltd.): Prediction and Optimisation of Pb/Zn/Fe Sulphide Scales in Gas Production Fields", Proceedings of Tekna 17th International Oilfield Chemicals Symposium, Geilo, Norway - 19th - 22nd March 2006.

Stalker, R., Wahid, F. & Graham, G.M. (Scaled Solutions Ltd.): Chemical Placement in Heterogeneous and Long Reach Horizontal Wells" Proceedings of Tekna 17th International Oilfield Chemicals Symposium, Geilo, Norway - 19th - 22nd March 2006





## Scaled Solutions Publications List

### Publications 2005

Gordon M. Graham (Scaled Solutions Ltd.): "Field Rejuvenation - Flow Assurance Challenges" invited keynote presentation; proceedings of the 2005 PRSS (PetroNas) Technology Forum, held in Port Dickson, Malaysia, 24th - 26th July 2006

Fazrie Wahid, Gordon M. Graham & Robert Stalker (Scaled Solutions Ltd.): "Challenges for Downhole Scale Inhibitor Squeeze Treatments in Long Reach Horizontal Wells and Heterogeneous Wells" proceedings of the 2005 PRSS (PetroNas) Technology Forum, held in Port Dickson, Malaysia, 24th - 26th July 2006

James J. S., Frigo D. M., Townsend M. M. (Shell UK), Gordon M. Graham and Fazrie Wahid (Scaled Solutions Ltd), and Heath S. M. (Clariant Oil Services) "Application of a Fully Viscosified Scale Squeeze for Improved Placement in Horizontal Wells", paper SPE 94593, proceedings of 7th SPE International Symposium on Oilfield Scale to be held in Aberdeen, UK, May 2005.

F. Wahid and G.M. Graham SPE (Scaled Solutions Ltd), M. Jordan SPE (Nalco Ltd.) and D. Oliphant, Norske Shell.: "Enhanced Scale Inhibitor Placement by Gravity Slumping In High Permeability Horizontal Wells - Draugen Field North Sea.", SPE 95067, proceedings of 7th SPE International Symposium on Oilfield Scale to be held in Aberdeen, UK, May 2005.

G. M. Graham, SPE, Scaled Solutions Limited, I. R. Collins, SPE, BP (UK) and T. J. Johnson, BP America.: "Technical and Economic Analysis of the Downhole Scale Risks and Uncertainties for Subsea and Deepwater Field Developments", SPE 95049, proceedings of 7th SPE International Symposium on Oilfield Scale to be held in Aberdeen, UK, May 2005

Michelle Falla and Karine Orski, Total Fina Elf (UK), Dario M. Frigo and J. Stewart James, Shell U.K. Limited, Gordon M. Graham, Scaled Solutions Limited, Steve Heath SPE, Catherine Strachan SPE and Calum McPherson, Clariant Oil Services Limited. "Design and Laboratory Testing of Scale-Inhibitor Squeeze Packages for HP/HT Gas-Condensate Reservoirs", SPE 94865, proceedings of 7th SPE International Symposium on Oilfield Scale to be held in Aberdeen, UK, May 2005

C. M. Simpson & G. M. Graham, SPE, Scaled Solutions Ltd., I. R. Collins, SPE, BP (UK), John McElhiney, Pratt Technology (US) & Roy Davis, SPE, Dow Liquid Separations (US). "Sulphate Removal for Barium Sulphate Scale Mitigation - Kinetic vs. Thermodynamic Controls in Mildly Oversaturated Conditions", SPE 95082, proceedings of 7th SPE International Symposium on Oilfield Scale to be held in Aberdeen, UK, May 2005

Helen Williams and Gordon M. Graham (Scaled solutions Ltd.), Rex Wat (Statoil), Ping Chen (Champion Technologies), Thomas Hagen (Champion Technologies), Kjell Erik Wennberg (Statoil), Vigdis Viken (Statoil), Gordon M. Graham (Scaled Solutions Ltd.): "Scale Dissolver Application Under HP/HT Conditions - Use of a HP/HT "Stirred Reactor" for In-Situ Scale Dissolver Evaluations", SPE 95127, proceedings of 7th SPE International Symposium on Oilfield Scale to be held in Aberdeen, UK, May 2005

Fazrie Wahid and Gordon M. Graham (Scaled Solutions Ltd.), Dave Oliphant (Norske Shell, Norway), "The Impact of Gravity Slumping on Scale Inhibitor Squeeze Treatments in Horizontal Wells", Proceedings of NIF 16th International Oilfield Chemicals Symposium, Geilo, Norway - March 2005.

Graham, G.M., Williams, H.L. (Scaled Solutions Limited), Wat R., Tau, L.A. and Wennberg K.E. (Statoil, Norway): "Design and Application of a Novel HT/HP "Stirred Reactor" Test Rig to Study Scale Formation and Control", Proceedings of NIF 16th International Oilfield Chemicals Symposium, Geilo, Norway - March 2005.

Emma J. Hills (Champion Technologies, UK), G.M. Graham (Scaled Solutions Limited), Bruno Langlois (Rhodia HPCI, France), Chris Jones (Rhodia Consumer Specialties Limited, UK): "Molecular Weight and Compositional Controls on the Performance of Polymeric Scale Inhibitors- a Mechanistic Interpretation", Proceedings of NIF 16th International Oilfield Chemicals Symposium, Geilo, Norway - March 2005.

Graham, G.M., Williams, H.L.(Scaled Solutions Ltd.), Wat R., Tau, L.A. and Wennberg K.E. (Statoil, Norway): "Design and Application of a Novel HT/HP "Stirred Reactor" Test Rig to Study Scale Formation and Control", paper SPE 93425, proceedings of 6th International Symposium on Oilfield Chemistry held in Houston, Texas, USA, 2-4 February 2005



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### Publications 2005 cont/

Robert Stalker (Scaled Solutions Ltd), Gordon M. Graham SPE (Scaled Solutions Ltd), Graeme Hellings (Helix-RDS), Joanne C. Williams (Venture), Ian Littlehales Scaled Solutions Ltd.: "Downhole Scale Formation and Inhibition in Mild Sulphate Scaling Conditions", SPE93427, proceedings of 6th International Symposium on Oilfield Chemistry held in Houston, Texas, USA, 2-4 February 2005.

Simpson, C. & Stalker R (Scaled Solutions Ltd), Johnson T. & Roggelin, C (Solutia Europe).: "Phosphonate Based Scale Inhibitors for High Iron and High Salinity Environments", proceedings of the IX Royal Society of Chemistry Chemicals in the Oil Industry Symposium, Manchester UK 31st October - 2nd November 2005

F. Wahid & Graham, G.M (Scaled Solutions Ltd) & Thomson G.B. (Heriot-Watt University).: "A Novel and Holistic Approach in Examining the Processes Impacting Barite Inhibition by DETPMP in the Presence of Divalent Cation by Molecular Mechanics Modelling", proceedings of the IX Royal Society of Chemistry Chemicals in the Oil Industry Symposium, Manchester UK 31st October - 2nd November 2005

### Publications 2004

Stalker R., Graham G.M. (Scaled Solutions Ltd.) Oliphant D (Norske Shell) and Smilie M (Scaled Solutions Ltd.). "Potential Application of Viscosified Treatments For Improved Bullhead Scale Inhibitor Placement in Long Horizontal Wells - A Theoretical and Laboratory Examination", paper SPE 87439, proceedings of 6th SPE Oilfield Scale Symposium, Aberdeen, 26-27 May 2004.

Graham, G.M. (Scaled Solutions Ltd.) and Collins I.R. (BP).: "Assessing Scale Risks and Uncertainties for Subsea Marginal Field Developments", paper SPE 87460, proceedings of 6th SPE Oilfield Scale Symposium, Aberdeen, 26-27 May 2004.

Collins, I.R. (BP), Graham, G.M. and Stalker, R. (Scaled Solutions Ltd.).: "Sulphate Removal for Barium Sulphate Scale Mitigation in a Deepwater Subsea Production System" paper SPE 87465, proceedings of 6th SPE Oilfield Scale Symposium, Aberdeen, 26-27 May 2004.

Robert Stalker, SPE, Gordon M Graham SPE and Caroline Simpson (Scaled Solutions Ltd.).: "The Impact of Inorganic Scale Deposits and Their Removal on General CO<sub>2</sub> Corrosion Rates and Corrosion Inhibitor Performance", SPE 87554, proceedings of 1st SPE Oilfield Corrosion Symposium, Aberdeen, 28 May 2004

Ian R Collins (BP Exploration Operating Co. Ltd.), G.M. Graham and Robert Stalker (Scaled Solutions Limited).: "Optimising the Level of Sulphate Reduction Required to Mitigate the Risks Associated with Barium Sulphate Scale Management in a Deepwater Subsea Field - Offshore Angola", Paper No. 11 proceedings of 15th International Oil Field Chemistry Symposium; Geilo, Norway, 28 - 31st March 2004

Wahid, F (Scaled Solutions Ltd.), Thomson, G.B. (Heriot-Watt University) and Graham, G.M. (Scaled Solutions Ltd.).: "The Evaluation of Inhibitor Complex Adsorption on Barite Surfaces by Molecular Mechanics Modelling", proceedings of 15th International Oil Field Chemistry Symposium; Geilo, Norway, 28 - 31st March 2004

Dave Oliphant (Norske Shell, Norway), Gordon M. Graham (Scaled Solutions Ltd.) and Callum Smyth (Norske Shell, Norway).: "Scale Management In The Draugen Field: Economic Challenges Associated With Chemical Placement On The Draugen Field", proceedings of 15th International Oil Field Chemistry Symposium; Geilo, Norway, 28 - 31st March 2004

C M E Simpson, R Stalker and G M Graham (Scaled Solutions Ltd.).: "CO<sub>2</sub> Corrosion Inhibitor Performance Measurements in OIW Emulsion Systems - Importance of Test Methodology for Effective Inhibitor Ranking", proceedings of 15th International Oil Field Chemistry Symposium; Geilo, Norway, 28 - 31st March 2004

Ian R Collins SPE (BP, UK), Gordon M Graham SPE and Robert Stalker SPE (Scaled Solutions Ltd).: "Laboratory and Economic Evaluation of the Impact of Chemical Incompatibilities in Commingled Fluids on the Efficiency of a Produced Water Reinjection System: A North Sea Example", SPE 86525, proceedings of SPE International Symp. on Formation Damage Control Lafayette, U.S.A., 18-20 February 2004.



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### Publications 2003

C.M.E Simpson, R Stalker and G.M.Graham Scaled Solutions Ltd.: "CO2 Corrosion Inhibitor Performance Measurements in Oil and Water Mixtures - Application Of Bubble Cell Technologies", prepared for Royal Society of Chemistry "Chemicals In the Oil Industry Conference", to be held in Manchester UK, November 2003

G.M. Graham, Scaled Solutions Ltd. UK. and A. J. B. Hennessy, University of Edinburgh.: "Scale Inhibitor Surface Interactions Using Synchrotron Radiation Techniques", prepared for Royal Society of Chemistry "Chemicals In the Oil Industry Conference", to be held in Manchester UK, November 2003

R. Stalker, G.M. Graham, and R. McIntosh; Scaled Solutions Ltd. UK.: "The Impact of Iron on Scale Inhibitor Performance - an Experimental Investigation under Aerobic and Anaerobic Conditions", Proceedings of NIF 14th International Oilfield Chemicals Symposium, Geilo, Norway - March 2003

I.R. Collins, BP Exploration Operating Co., R Stalker and G.M. Graham, Scaled Solutions Ltd.: "A Laboratory and Economic Evaluation of the Impact of Chemical Incompatibilities in Co-Mingled Fluids on the Efficiency of a Produced Water Re-Injection System - A North Sea Example", Proceedings of NIF 14th International Oilfield Chemicals Symposium, Geilo, Norway - March 2003

C.M.E Dick, R Stalker and G.M.Graham Scaled Solutions Ltd.: "Testing Methodologies for Corrosion Inhibitors in Oil and Water Mixtures and Low % Water Oilfield Environments", Proceedings of NIF 14th International Oilfield Chemicals Symposium, Geilo, Norway - March 2003.

F. Wahid & G.B. Thomson, Heriot-Watt University, and G.M. Graham Scaled Solutions Ltd.: "Mechanistic Study of Barite Scale Inhibition by DETPMP Using Molecular Modelling Techniques - Complex Formation", Proceedings of NIF 14th International Oilfield Chemicals Symposium, Geilo, Norway - March 2003.

G.M. Graham, SPE, R. Stalker and R. McIntosh; Scaled Solutions Ltd. UK., SPE 80254: "The Impact of Dissolved Iron on the Performance of Scale Inhibitors Under Carbonate Scaling Conditions", proceedings of SPE International Symposium on Oil Field Chemicals, Houston, USA, February 2003.

Robert Stalker (Scaled Solutions Ltd.), Ian R Collins (BP Exploration Operating Company) and Gordon M Graham (Scaled Solutions Ltd.), SPE 80257: "The Impact of Chemical Incompatibilities in Commingled Fluids on the Efficiency of a Produced Water Re-Injection System: A North Sea Example", proceedings of SPE International Symposium on Oil Field Chemicals, Houston, USA, February 2003.

Gordon M. Graham, (Scaled Solutions Ltd.), Juhász, A., (Shell Intl. E+P); Thomson, G.B., Sheed, J., (Heriot-Watt University, UK) and Fourgeot, S., (University of Besancon, France).: SPE 80232 "Sulphate Scale Dissolution Using EDTA and DTPA-based Scale Dissolvers - Secondary Phase Formation and Mineral Conversion", proceedings of SPE International Symposium on Oil Field Chemicals, Houston, USA, February 2003.

E. J. Mackay (Heriot-Watt University) and Gordon M Graham (Scaled Solutions Ltd.), SPE 80252.: "The Use of Flow Models in Assessing the Risk of Scale Damage", proceedings of SPE International Symposium on Oil Field Chemicals, Houston, USA, February 2003.

Guan H., Heriot-Watt University, UK. Graham, G.M., (Scaled Solutions Ltd.), UK Juhász, A, Heriot-Watt University, UK.: SPE 80231 "Investigation of Wettability Alteration Following Scale Inhibitor Adsorption onto Carbonate and Clastic Reservoir Core Material - Static Tests and ESEM Studies", proceedings of SPE International Symposium on Oil Field Chemicals, Houston, USA, February 2003.

N. Laing (Heriot Watt University), G. M. Graham (Scaled Solutions Ltd.), and S. J. Dyer, (Heriot Watt University), SPE 80229: Barium Sulphate Inhibition in Subsea Systems - The Impact of Cold Seabed Temperatures on the Performance of Generically Different Scale Inhibitor Species", proceedings of SPE International Symposium on Oil Field Chemicals, Houston, USA, February 2003.





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### Publications 2003 cont

G. M. Graham, I.J. Littlehales, Scaled Solutions, K. Melvin, and M. Orme, (Talisman Energy), SPE 80380: Laboratory Testing and Field Optimisation Studies for Mildly Oversaturated Calcium Sulphate (Anhydrite) Scaling Systems", proceedings of the fifth SPE International Symposium on Oil Field Scale, Aberdeen, UK, January 2003.

G.M. Graham, Scaled Solutions, D.M. Frigo, (Shell UK Expro) and N. Poynton, (Baker Petrolite), SPE 80386: Calcium Sulphate (Anhydrite) Scale Control in a Mature Asset - The Kittiwake and Fulmar Reservoirs, proceedings of the fifth SPE International Symposium on Oil Field Scale, Aberdeen, UK, January 2003.

G.M. Graham, Scaled Solutions Ltd, E.J. Mackay, (Heriot-Watt University), A. Juhasz, (Shell Intl.) and G. Hua, (Heriot-Watt University), SPE 80396: Non-Aqueous Scale Inhibitor Applications - Core Flood and Modelling Studies, proceedings of the fifth SPE International Symposium on Oil Field Scale, Aberdeen, UK, January 2003.

G.M. Graham, G.M., Scaled Solutions Ltd, S. J. Dyer and C. Anderson (Heriot-Watt University), SPE 80395: Naphthenate Scale Formation - Examination of molecular Controls in Idealised Systems", proceedings of the fifth SPE International Symposium on Oil Field Scale, Aberdeen, UK, January 2003.

### Publications 2002

G. M. Graham, (Scaled Solutions Ltd.), S. J. Dyer, (Heriot-Watt Univ.) and P. Shone, (Shell Exploration & Production), SPE 80254: "Potential Application of Amine Methylene Phosphonate-based Inhibitor Species in HP/HT Environments for Improved Carbonate Scale Inhibitor Performance", SPE Production & Facilities, November 2002.

GC Graham, N Feasey and G Seland, ONDEO Nalco ES; R Stalker, Scaled Solutions, SPE 74651: Innovative Concept to Reduce the Total Cost of Scale Management through the Capture and Re-Use of Chemical Inhibitors, proceedings of the fourth SPE International Symposium on Oil Field Scale, Aberdeen, UK, January 2002.

G. M Graham, Scaled Solutions; A Gyani, BP; MM Jordan, ONDEO Nalco ES; C Strachan and R McClure, TR Oil Services; IJ Littlehales, Scaled Solutions; A Fitzgerald, BP, SPE 74665: "Selection and Application of Non-Damaging Scale Inhibitor package for Pre-Emptive Squeeze in Mungo Production Wells", proceedings of the fourth SPE International Symposium on Oil Field Scale, Aberdeen, UK, January 2002.

M.M. Jordan, ONDEO Nalco ES; IR Collins and A Gyani, BP; GM Graham, Scaled Solutions Ltd, SPE 74666: "Core Flooding Studies to Examine Potential Application of Novel Scale Inhibitor Products to Minimise Intervention During Field Life Cycle", proceedings of the fourth SPE International Symposium on Oil Field Scale, Aberdeen, UK, January 2002.

GM Graham, (SPE); Scaled Solutions, IR Collins, BP Exploration Operating Co.; R Stalker and IJ Littlehales; Scaled Solutions, SPE 74679: "The Importance of Appropriate Laboratory Procedures for the Determination of Scale Inhibitor Performance", proceedings of the fourth SPE International Symposium on Oil Field Scale, Aberdeen, UK, January 2002.

G. M. Graham (Scaled Solutions Ltd.), E. J. Mackay, S. J. Dyer, and H. Bourne (TR Oil services): "The Challenges for Scale Control in Deepwater Production Systems - Chemical Inhibition and Placement Challenges", NACE / Corrosion 2002, Denver USA, Paper 02316 April 2001.

G. M. Graham (Scaled Solutions Ltd.), and C.P. McMahon (Heriot-Watt University): "The effect on Scale Inhibitor Performance Against Bulk (Homogeneous) and Surface (Heterogeneous) Scale Nucleation and Growth by the addition of Film Forming Corrosion Inhibitors", NACE / Corrosion 2002, Denver USA, Paper No. 02315. April 2001,