

# FORMATE PUBLICATION LIST

van Oort, E., Howard, S.: "Shale Stabilization by High-Salinity Formate Drilling Fluids". AADE-17-NTCE-111, April 2017.

Howard, S., Anderson, Z., van Oort, E.: "HPHT Formation Fluid Loss Control without Bridging Particles". AAE-17-NTCE-110, April 2017.

Vajargah, A. K., Sullivan, G., Johnson, M., van Oort, E.: Transitional and Turbulent Flow of Drilling Fluids in Pipes: An Experimental Investigation". AAE-17-NTCE-042, April 2017.

van Oort, E., Pasturel, C., Bryla, J., & Ditlevsen, F.: "Improved Wellbore Stability in Tor/Ekofisk Wells Through Shale-Fluid Compatibility Optimization". SPE-184661-MS, March 2017.

Rinde, T., Killie, R., Howard, S.K., Solli, L., Lillelokken, N.: "Impact of New and Ultra-High Density Kill Fluids on Challenging Well-Kill Operations". SPE-180047-MS, April 2016.

Moroni, L.P., Davidson, M., Lam, J., Goonoo, A., Twycross, J., Howard, S.K.: "Heavy-Duty Cleanup: Caesium Formate-Based Microemulsions Make Light Work of a Tough Job". OTC-26474-MS, March 2016.

Howard, S.: "Effect of Stress Level on the SCC Behavior of Martensitic Stainless Steel during HT Exposure to Formate Brines". NACE C2016-7613, March 2016.

Howard, S., Anderson, Z., Parker, S.: "Solubility of Barium Sulfate in Formate Brines – New Insight into Solubility Levels and Reaction Mechanisms". SPE-179021-MS, February 2016.

Howard, S., Busengdal, C.: "Cesium/potassium Formate Fluids Are Clearly Faster Than OBM". Exploration & Production Magazine, January 2016.

Fleming, N., Moland, L. G., Svanes, G., Watson, R., Green, J., Patey, I., ... Howard, S.: "Formate Drilling & Completion Fluids: Evaluation of Potential Well Productivity Impact, Valemon". SPE-174217-MS, June 2015.

Howard, S., Kaminski, L., & Downs, J.: "Xanthan Stability in Formate Brines - Formulating Non-damaging Fluids for High Temperature Applications". SPE-174228-MS, June 2015.

Howard, S., Chrenowski, M.: "Formate Brines and their Crystallization Temperatures – New Insight into Fluid Behavior and Measuring Methodology", SPE-173741-MS, April 2015.

Downs, J.: "Time for a Change", Oilfield Technology, April 2015.

Van Oort, E., Ahmad, M., Spencer, R., Legacy, N.: "ROP Enhancement in Shales through Osmotic Processes", SPE/IADC-173138-MS, March 2015.

Howard, S.K., Chrenowski, M.: "A Laboratory Evaluation of the Suitability of Cesium Acetate brines as Completion, Workover, Suspension, and Packer Fluids for Extreme/Ultra HPHT Wells – Results of an Extensive Corrosion Testing Program", NACE Paper No 5501, March 2015.

Siemens, R., Meyer, E.: "Using formate brine and water based drilling fluids to improve drilling performance", Encana, Calgary, September 2014.

Howard, S., Chrenowski, M.: "Corrosion in Formate Brines - 20 Years of Laboratory Testing and Field Experience", OTC 24983-MS, March 2014.

Kaarigstad, H., Strachan, C., Fjellstad, V., Gyland, K., Filbrandt, J.D.: Qualification of Gravel Packing in HP/HT Wells", SPE 168210, February 2014.

Han, L., Hicking, S.H., Twycross, J., El-Jamali, Patey, I., Green, J.: "Design Considerations and Qualification Testing of High Density Oil Based Completion Fluids for an HPHT Gas Development", SPE 168207, February 2014.



Carnegie, A.W., Omar, M., Colman, G., Supriyono, H.: "Experience with Formate Fluids For Managed Pressure Drilling and Completion of Subsea Carbonate Gas Development Wells", SPE 165761, October 2013.

Olsvik, G., Howard, S., Downs, J.: "The Long-Term Production Performance of Deep HPHT Gas Condensate Fields Developed Using Formate Brines", SPE 165151, June 2013.

Kaminski, L., Downs, J.D., Howard, S.K.: "Clearly Cloudy – Finding a Clouding Glycol System for Formate Brines", Poster presentation at the 20th SPE Bergen One Day Seminar, April 2013.

Setiawan, T.B., Bin Omar, M.M., Bin Sulaiman, M.Z., Bin Musa, M.Z., Fadzli, M., Nesan, T.P., Wuest, C.H., Shaun, J., Toralde, S., Sridharan, P.A.: "Managed Pressure Drilling With Solids-Free Drilling Fluid Provides Cost-Efficient Drilling Solution for Subsea Carbonate Gas Development Wells". SPE 164573, April 2013.

Mahadi, K.A., Izzat, M., Nizam, M., Ogbonna, C., Jadid, M.B.: "First Subsea Completion by an Operator in KN Field, Offshore Malaysia". IPTC 16697, March 2013.

Kaminski, L., Howard, S., Downs, J.: "Clearly Different", Oilfield Technology Magazine, July 2012.

Grosse-Sommer, A., Sava, X., Gilbert, Y.: "Applying Life Cycle Assessment to Evaluate the Sustainability of Completion Fluids", SPE 150654, April 2012.

Downs, J.D.: "Exposure to Phosphate-based Completion Brine under HPHT Laboratory Conditions Causes Significant Gas Permeability Reduction in Sandstone Cores". IPTC 14285, February 2012.

Al-Ghazal, M.A., Al-Sagr, A.M., Al-Driweesh, S.M.: "Evaluation of Multistage Fracturing Completion Technologies as Deployed in the Southern Area gas Fields of Saudi Arabia". The Saudi Aramco Journal of Technology, Fall 2011.

Cooper, P., Galford, J., Goodyear, G., Moake, G.L., Truax, J.: "Borehole and invasion Effects of Formate-Based Mud System on LWD Density, Neutron, PE, and Gamma-ray Logs". SPE 147297, November 2011.

Downs, J.: "Life Without barite: Ten Years of Drilling Deep HPHT Gas Wells With Cesium Formate brine". SPE 145562, October 2011.

Zwaag, C.H., Svanes, G.S., Schiefloe, B.S., Ibragimova, Z., Austmo Moeller, K., Vikanes, H., Lund Smørðal, C., Pederesen, G.E., Bringsjord, K.L.: "Reduced Solids Oil Based Completion Fluid for horizontal HPHT Openhole Completions", SPE 144163, June 2011.

Fitnawan, E.A.Y., Hovland, S., Schiefloe, B.S., Møller, K.A.: "Successful Design and Practices Shaping Up a Robust HPHT Well Completion Concept for Subsea-Horizontal Wells". OTC 21476, May 2011.

Richmond, M., Hutton, A., Davidson, M., Howard, S., Frost, B. Leon, S., Jaspars, M.: "Cutting the Cost of HP/HT Cleanups: Novel High Density Cleanup Package Enables Brine Reclamation and Reduces Costs", SPE 140117-MS, March 2011.

Downs, J.D.: "Leasing encourages sustainable chemical use", Oil & Gas Technology magazine, Winter 2010.

Downs, J.D., Turner, J.B. and Howard, S.: "A Well Constructed Chemical", Oilfield Technology magazine, September 2010.

Salgaonkar, L., Ali, R., Danait, A., Salahudin, S.: "Strategies for Removal of Formate Brine-Based Drill in Fluid (DIF) Filtercake in Gravel-Packed Completions: A Laboratory Evaluation." SPE 130199 MS, June 2010.

Downs, J.D.: "A Review of the Impact of the use of Formate Brines on the Economics of Deep Gas Field Development Projects." SPE 130376, January 2010.

King, L. and Benton, W.: "Cracking Protection", Oilfield Technology magazine, August 2006.

Downs, J.D.: "Observations on Gas Permeability Measurements under HPHT Conditions in Core Materials Exposed to Cesium Formate Brine." SPE 121649-PP, May 2009.

Ginest, N., Al-Sagr, A., Al-Malki, B., Al-Khawajah, M., Jones, C., Morgan, Q., Parry, K.: "A Successful Expandable Sand Screen Case History in a Deep, Corrosive Gas Well Application." SPE 122847, May 2009.

Simpson, M., Al-Reda, S., Foreman, D., Guzman, J., Al-Fawzy, M.: "Application and recycling of Sodium and Potassium



Formate Brine Drilling Fluids for Ghawar HT Gas Wells.” OTC 19801, may 2009.

Howard, S. and Downs, J.D.: “Formate Brines for HPHT Well Control – New Insight into the Role and Importance of the Carbonate/Bicarbonate Additive Package.” SPE 121550, April 2009.

Roy, A., Twynam, A., Parke, J., Morrison, A., Downs, J.: “Perforating Techniques and Use of Cesium Formate Kill Pills to Maximize Productivity in HP/HT Gas Wells and Minimize HSE Risks.” Journal of Petroleum Technology, Vol. 61, No. 4, April 2009, Pages 70-72.

Gilbert, Y., Kumpulainen, A., Syrjanen, M.: „New Tool Assists Informed Purchasing Decisions Based on Overall Cost and HSE Risk Potential of Well Construction Fluids”, SPE 120488-MS, March 2009.

Calderon, A., Aragão, A.F., Chagas, C.M., Guimarães, C., Barbedo, R.: “The Challenges and Advantages of Openhole Completions in the Manati Gas Field”, IPTC 12364, December 2008.

Qureshi, A., Ali, M., Preining, P.: “Pushing the Limits: Improving Drilling Performance of High Temperature Gas Wells in Thar Desert in Sindh, Pakistan”, SPE 115319-MS, October 2008.

Ezell, R., Harrison, D.J.: Design of Improved High Density, Thermally Stable Drill-In Fluid for HTHP Applications”, SPE 115537, September 2008.

Howard, S. and Downs, J.D.: “Formate Brines Effective in HP/HT Wells”, The American Oil & Gas Reporter, August 2008.

McRae, J. Bump, D., Van Dike, E., Phillips, G., Dick, M.: “Shale Inhibition Strategies for Reservoirs Containing Reactive Clay – Experiences Drilling High Angle Wells in Bohai Bay”, OTC 19320, May 2008.

Roy, A., Twynam, A., Parke, J., Morrison, A., Downs, J.: “An Evaluation of Perforating Techniques and Use of Caesium Formate Kill Pills to Maximise Productivity in HPHT Gas Wells and Minimise HSE Risks”, OTC 19242, May 2008.

Black, A.D., Bland, R.G., Curry, D.A., Ledgerwood, L.W., Robertson, H.A., Judzis, A., Prasad, U., Grant, T.: “Optimization of Deep Drilling Performance With Improvements in Drill Bit and Drilling Fluid Design”, IADC/SPE 112731, March 2008.

Howard, S.K. and Downs, J.D.: “Hydrothermal Chemistry of Formate Brines and Its Impact on Corrosion in HPHT Wells”, SPE 114111, May 2008.

Gordon, W., Pittman, I., Rydlewicz, M., Innes, R.: “HP/HT WCCL Technology Aids Successful Deployment Perforating Operations on the Glenelg Field”, SPE 113835, April 2008.

Gilbert, Y. Kumpulainen, A., Pessala, P., and Ravio, T.: “HSE Risk Monetization and Well Construction Fluids: Presenting a Method for Comparing the Costs Associated with Fluid-related HSE Risk and its Consequences”, AADE-08-DF-HO-30, April 2008.

Howard, S. and Downs, J.D.: “Formate brines in extreme HPHT well construction operations – Do they have limitations?”. AADE-08-DF-HO-11, April 2008.

Downs, J.: “Seven years of successfully constructing difficult North Sea HPHT wells using cesium formate brine”, World Oil, March 2008.

Syltøy, S., Eide, S.E., Torvund, S., Berg, P.C, Larsen, T., Fjeldberg, H., Bjørkevoll, K.S., McCaskill, J., Prebensen, O.I., Low, E.: “Highly Advanced Multitechnical MPD Concept Extends Achievable HPHT Targets in the North Sea”, SPE 114484, January 2008.

Downs, J., Wang, J., Carnegie, A.: “Engineering a Revolution in Drilling and Completion Fluid Technology – The Development and Deployment of Cesium Formate Brine”, Asia Pacific Oil and Gas E&P Conference, Beijing, 17-18th January 2008.

Gilbert, Y., Nordone, A., Downs, J., Vaahtera, A., Ravio, T.: “REACH and the HSE Case for Formate Brines”, IPTC 11222-PP, December 2007.

Gilbert, Y., Vaahtera, A., Ravio, T.: “Formate Fluids and Environmental Regulations: A global view of benefits and challenges”: SPE 110891, November 2007.

Downs, J.D.: “Formate brines as high-performance drilling and completion fluids for challenging HPHT wells – What



have we learnt from a decade of field use?", presentation to IQPC HPHT conference, Aberdeen, 19-20 November 2007.

Omland, T.H., Dahl, B., Saasen, A., Taugbøl, K., Amundsen, P.A.: "Optimization of Solids Control Opens Up Opportunities for Drilling of Depleted Reservoirs", SPE 110544, October 2007.

Downs, J.D.: "Formate brines as non-damaging drill-in and completion fluids for HPHT wells – what have we learnt from the first 100 jobs?", presentation to IQPC Formation Damage Control conference, Kuala Lumpur, 10-13 September 2007.

Brown, A., Farrow, C., and Cowie, J.: "The Rhum Field: A Successful HP/HT Gas Subsea Development (Case History)", SPE 108942, September 2007.

Brangetto, M., Pasturel, C., Gregoire, M., Ligertwood, J., Downs, J.D., Harris, M. and Turner, J.B.: "A review of the performance of cesium formate brines as workover and suspension fluids in the World's largest HPHT field development", presentation to the IADC World Drilling Conference, Paris, 13-14 June 2007.

Brangetto, M. et al: "Caesium formate brines used as workover, suspension fluids in HPHT field development", Drilling Contractor, May/June 2007.

Downs, J.D., Harris, M., Benton, W., Howard, S.K., Billingham, M.: "New insights into the potential for environmental cracking of corrosion resistant alloys in high-density formate and bromide well completion brines at high temperature," NACE 07097, 2007.

Berg, P.C., Pedersen, E.S., Lauritsen, Behjat, N., Hagerup-Jenssen, S., Howard, S., Olsvik, G., Downs, J.D., Harris, M., Turner, J.: "Drilling, Completion, and Openhole Formation Evaluation of High-Angle Wells in High-Density Cesium Formate Brine: The Kvitebjørn Experience, 2004-2006", SPE 105733, February 2007.

Downs, J.D. and Carnegie, A.: "Formate brines as high-performance drilling and completion fluids for challenging HPHT wells – What have we learnt from a decade of field use?", presentation to IQPC Asia Pacific Drilling Summit, Bangkok, 27-28 February 2007.

Al-Bazali, T.M., Zhang, J., Chenevert, M.E., Sharma, M.M.: "Factors Controlling the Membrane Efficiency of Shales When Interacting With Water-Based and Oil-Based Muds", SPE 100735, December 2006.

Pedersen, B.K., Pedersen, E.S., Morriss, S., Constable, M.V., Vissapragada, B., Sibbit, A., Stoller, C., Almaguer, J., Evans, M., Shray, F., Grau, E. Fordham, E., Minh, C.C., Scott, H., McKeon, D.: "Understanding the Effects of Cesium/Potassium Formate Fluid on Well Log Response – A Case Study of the Kristin and Kvitebjørn Fields, Offshore Norway", SPE 103067, September 2006.

Hansen, S.A., Breivik, D.H., Gjønnnes, M., Svanes, K., Vujovic, M., Svela, P.E., Sørheim, O.I.: "Drilling Fluids in an HPHT Reservoir: Experiences with three Different Systems on the Kristin Field Development", SPE 103336, September 2006.

Fuh, G.F., Ramshaw, I., Freedman, K., Abdelmalek, N.: "Use of Reservoir Formation Failure and Sanding Prediction Analysis for Viable Well-Construction and Completion-Design Options", SPE 103244, September 2006.

Downs, J.D., Leth-Olsen, H.: "Effect of Environmental Contamination on the Susceptibility of Corrosion Resistant Alloys to Stress Corrosion Cracking in High-Density Completion Brines", SPE 100438, May 2006.

Downs, J.D., Blaszcynski, M., Turner, J., Harris, M.: "Drilling and Completing Difficult HP/HT Wells With the Aid of Cesium Formate Brines – A Performance Review", SPE 99068, February 2006.

Oswald, R.J.: "Taking Nondamaging Fluids to New Extremes: Formate-Based Drilling Fluids for High-Temperature Reservoirs in Pakistan", SPE 98391, February 2006.

Bradshaw, R.J. et al.: "Formate-Based Drilling Fluid Resolves High-Temperature Challenges in the Natuna Sea", SPE 98347, February 2006.

Downs, J.D., Howard, S.K., Carnegie, A.: "Improving Hydrocarbon Production Rates Through the Use of Formate Fluids – A Review", SPE 97694, December 2005.

Leth-Olsen, H., Downs, J.D., Benton, W., Carnegie, A.: "Inhibition of CO<sub>2</sub> Corrosion by Formate Fluids in High Temperature Environments", Chemistry in the Oil Industry IX, EOSCA, Royal Society of Chemistry, Manchester,

November 2005.

Gjønnnes, M., Myhre, I.G.: "High Angle HPHT Wells". SPE 95478, June 2005.

Galford, J., Truax, J., Moake, G.L.: "Borehole and Formation Invasion Effects of Formate-Based Mud Systems and Nuclear Logs". Paper # LL. SPWLA 46th Annual Logging Symposium, June 26-29, 2005.

Lo Piccolo, E., Scoppio, L., Nice, P.I.: "Corrosion and Environmental Cracking Evaluation of High Density Brines for Use in HPHT Fields", SPE 97593, May 2005.

Leth-Olsen, H.: "CO<sub>2</sub> Corrosion in Bromide and Formate Well-Completion Brine", SPE 95072, May 2005.

Howard, S.K., Downs, J.D.: "Formate Fluids Optimize Production Rates", AADE-05-NTCE-05, April 2005.

Zuvo, M. et al: "High-Resolution Environmental Survey around an Exploration Well Drilled with Formate Brine in the Barents Sea, Norway", SPE 94477, March 2005.

Simpson, M.A., Al-Reda, S., Al-Khamees, S., Zhou, S., Treece, M., Ansari, A.: "Overbalanced Pre-Khuff Drilling of Horizontal Reservoir Sections With Potassium Formate Brines", SPE 92407, March 2005.

Leth-Olsen, H.: "Corrosivity of oilfield brines acidified by CO<sub>2</sub>." Hart's E&P, November 2004.

Santodomingo, L.: "Formiatos Como Fluido De Completacion." Sheflu Cempo, 2004.

Leth-Olsen, H., Downs, J.D., Carnegie, A., Benton, W.: "Inhibition of Carbon Dioxide Corrosion by Formate Brines in High Temperature Environments." Chemistry in the Oil Industry IX, EOSCA, Royal Society of Chemistry, Manchester, 1 November 2005.

Scoppio, L., Nice, P.I., Nødland, S., Lo Piccolo, E.: "Corrosion and Environmental Cracking Testing of a High-Density Brine for HPHT Field Application," NACE 04113, 2004.

Leth-Olsen, H.: "CO<sub>2</sub> Corrosion of Steel in Formate Brines for Well Application," NACE 04357, 2004.

Taugbøl, K., Lilledal, L., Juel, H., Svanes, K., Jakobsen, T.M.: "The Completions of Subsea Production Wells Eased by the Use of a Unique, High-Density, Solids-Free, Oil Based Completion Fluid," SPE 87126, March 2004.

D. Messler, D. Kippie, M. Broach, D. Benson: "A Potassium Formate Milling Fluid Breaks the 400°Fahrenheit Barrier in a Deep Tuscaloosa Coiled Tubing Clean-out.", SPE 86503, Feb 2004

Van Oort, E.: "On the physical and chemical stability of shales", Journal of Petroleum Science and Engineering, 38 (2003) 213-235.

Rommetveit, R., Fjelde, K.K., Aas, B., Day, N.F., Low, E., Schwartz, D.H.: "HPHT Well Control; An Integrated Approach", OTC 15322, May 2003.

Stenhaug, M., Erichsen, L., Fokko, H.C., Parrott, R.A.: "A Step Change in Perforation Technology Improves Productivity in Horizontal Wells in the North Sea", SPE 84910, October 2003.

Rabe C., Barettona Fontoura, A.G.: "Effect of Organic Salts in the Physico-Chemical Properties of Shales", 12th Panamer Soil Mech & Geotech Eng Conf/39th US Rock Mech (Soil & Rock Amer 2003) (Cambridge Mass 06/22-26/2003) Vol. 12 pp, 795-800 (2003).

Metoc plc: "Formate Brines Environmental Assessment", METOC Report No. 1147, April 2003.

Peer-Group International Ltd.: "Formate Fluid QRA", IDM-ENG-052-PGI-001, 2003.

Benton, W., Harris, M., Magri, N., Downs, J., and Braaten, J.: "Chemistry of Formate Based Fluids", SPE 80212, 2003.

Slay, J.B. and Ray, T.W.: "Fluids Compatibility of Elastomers in Oilfield Completion Brines", Paper 03140, Corrosion 2003.

Hallman, J.H., Bellinger, C.E.: "Potassium Formate Improves Shale Stability and Productivity in Underbalanced Drilling Operations", CDE 2003-028.

Jiang, P., Taugbøl, K., Mathisen, A.M., Alterås, E., Mo, C.: "New Low-Solids Oil-Based Mud Demonstrates Improved

Returns as a Perforating Kill Pill”, SPE 83696, February 2003.

Bhatnagar, M., Kuman, A., Barthwal, A.K., Pal, K., and Josh, N.P., “Formate Brine Drilling Fluid System for Drilling Slim Holes”, Petrotech 2003, New Dehli, January 2003.

Saasen, A. Jordal, O.H., Burkhead, D., Berg, P.C., Løklingholm, G. Pedersen, E.S., Turner, J., and Harris, M.J.: “Drilling HT/HP Wells Using a Cesium Formate Based Drilling Fluid”, SPE 74541, 2002.

Lomba, R.F.T.; de Sa, C.H.M; Brandao, E.M.; A New Approach to Evaluate Temperature Effects on Rheological Behavior of Formate-Based Fluids”, Journal of Energy Resources Technology, Vol. 124, p. 141, Sep 2004.

Byrne, M., Paty, I., Downs, J.D., and Turner, J.: “Formate Brines: A Comprehensive Evaluation of their Formation Damage Control Properties Under Realistic Reservoir Conditions”, SPE 73766, 2002.

McKey, R. and Hallman, J.: “Low Concentration of Formate Fluids Improve Drilling in Water-Based Muds in Difficult Shale Environments in Western Canada”.

Hallman, J., Mackey, R., Schwartz, K.: “Enhanced Shale Stabilization with Very Low Concentration Potassium Formate / Polymer Additives”, SPE 73731, 2002.

Swoboda, C.: “Optimizing HighTemperature Kill Pills: The Åsgard Experience”, SPE 76639, 2002.

Guo, P., Gilchrist, W.A., Page, G., Wills, P., Brown, A.M., and Kay, S.: “Interpretation of Nuclear Logs in Formate-Based Drilling Fluids in a North Sea Well”, SPWLA 43rd Annual Logging Symposium, 2002.

Weekse, A., Grant, S., Urselman, R.: “Expandable Sand Screen: Three World Records in the Brigantine Field”, SPE 74549, February 2002.

Downs, J.D.: “Last Advances in the Development of Ecological Drilling Fluids”, IBC Asia conference, Offshore/Upstream Asia-Pacific 2002.

Downs, J.D.: “Advances in the Development of Ecological Drilling Fluids” IBC 10th Annual Conference, London March 2002.

Jiang, P., Taugbøl, K., Mathisen, A.M., Alterås, E., Mo, C.: “New Low-Solids OBM Demonstrates Improved Returns as Perforating Kill Pill”, SPE 73709, February 2002.

Cobianco, S., Bartosek, M., Lezzi, A. and Guarneri, A.: “New Solids Free Drill-in Fluid for Low Permeability Reservoirs”, SPE 64979, 2001.

Zuvo, M. and Askø, A.: “Drilling Technology : Na/K formate brine used as drilling fluid in sensitive Barents Sea wells”, Offshore, August 2001.

Bungert, D., Maikranz, S. Sundermann, R., Downs, J., Benton, and W., Dick, M.A.: “The Evolution and Application of Formate Brines in High Temperature/Pressure Operations”, SPE 59191, 2000.

McKay, G, Bennett, C.L., Gilchrist, J.M.: “High Angle OHGP’s in Sand/Shale Sequences : A Case History Using a Formate Drill-in Fluid”, SPE 58731, 2000.

Benton, W. Turner, J.: “Cesium formate fluid succeeds in North Sea HPHT field trials”, Drilling Contractor, May/June 2000.

Swoboda, C.: “Optimizing High-Temperature Kill Pills: The Åsgard Experience”, SPE 57568, 1999.

Hands, N., et al.: “Optimising a Long Multi-Lateral Gas Well’s Inflow Performance,” World Oil 73, April 1999.

Hands, N., Kowbel, K., Maikranz, S., and Nouris, R.: “Drill-in fluids reduces formation damage, increases production rates”, Oil & Gas Journal, 96:28, 7/13/1998.

Chenevert, M.E.: “Drilling Fluid Optimization in Shales. Swelling Pressure and Compressive Strength of Shale, Topical Report”, Prepared for Gas Research Institute, Contract No. 5093-210-2898, December 1998.

Fadnes, F.H., Jakobsen, T., Bylov, M., Holst, A., and Downs, J.D.: “Studies on the Prevention of Gas Hydrates Formation in Pipelines using Potassium Formate as a Thermodynamic Inhibitor”, SPE 50688, 1998.



OSCA: "High Temperature Horizontal Drilling. Flexible Formate/Bromide System Drills Overbalanced, Underbalanced", OSCA, 1998.

Svendsen, Ø., Saasen, A., Vassøy, B., Skogen, E., Mackin, F., and Normann, S.H.: "Optimum Fluid Design for Drilling and Cementing a Well Drilled with Coiled Tubing", SPE 50405, 1998.

Hands, N., Francis, P., Whittle, A., and Rajasingam, D.: "Optimising Inflow Performance of a long Multi-Lateral Offshore Well in Low Permeability Gas Bearing Sandstone: K14-FB 102 Case Study", SPE 50394, 1998.

Chenevert, M. and Pernot, V.: "Control of Swelling Pressures Using Inhibitive Water Based Muds", SPE 49263, 1998.

Brady, M.E., Craster, B., Getliff, J.M., and Reid, P.I.: "Highly Inhibitive, Low Salinity Glycol Water Based Drilling Fluid for Shale drilling in Environmentally Sensitive Locations", SPE 46618, 1998.

Davidson, E. and Stewart, S.: "Open Hole Completions: Drilling Fluid Selection", SPE 39284, 1997.

Van Oort, E.: "Physico-Chemical Stabilization of Shales", SPE 37263, 1997.

Bishop, S.R.: "The Experimental Investigation of Formation Damage due to Induced Flocculation of Clays within a Sandstone Pore Structure by High Salinity Brine", SPE 38156, 1997.

Gallino, G., Guameri, A., Maglione, R., Nunzi, P., and Xiao, L.: "New Formulations of Potassium Acetate and Potassium Formate Polymer Muds Greatly Improved Drilling and Waste Disposal Operations in South Italy", SPE 37471, 1997.

Müller, M.: "Perforation der Rotliegend-Horizontalbohrung Söhlingen Z3A." DGMK-Frühjahrstagung 1997, Fachbereich Aufsuchung und Gewinnung, Celle, DGMK-Tagungsbericht 9701, ISBN 3-931850-18-8.

Sundermann, R., "Bohr- und Komplettierungsspülmittel," Deutsches Patentamt, DE 196 09 194 A1, 11 September 1997.

Howard, S.K., Houben, R.J.H., van Oort, E., and Francis, P.A.: "Formate Drilling and Completion Fluids – Technical Manual", SIEP 96-5091, Shell International Exploration and Production B.V., 1996.

Trautwein, R., Sundermann, R. and Bungert, D.: "Kalium-Formiat-Lösungen für Bohr- und Komplettierungs-Flüssigkeiten in tiefen Rotliegend-Gasbohrungen," paper presented Berichte, DGMK-Frühjahrstagung 1996, Fachbereich Aufsuchung und Gewinnung, Celle, DGMK Tagungsbericht 9602, ISBN 3-931850-03-X.

Abou-Sayed, I.S., Chambers, M.R. and Mueller, M.W.: "Mobil Completes Deep, Tight, Horizontal Gas Well in Germany," Petroleum Engineer International 42, August 1996.

Sundermann, R. and Bungert, D.: "Potassium-Formate-Based Fluid Solves High Temperature Drill-In Problem," Journal of Petroleum Technology 1042, November 1996.

van Oort, E., Hale, A.H. Mody, F.K., and Roy, S.: "Transport in Shales and the Design of Improved Water-Based Shale Drilling Fluids", SPE 28309, 1996.

Ramsey, M.S., Shipp, J.A., Lang, B.J., Black, A., and Curry, D.: "Cesium Formate : Results and Analysis of Drilling with a New High Density Unweighted Brine", SPE 36425, 1996.

Ramsey, M.S., Shipp, J.A., Lang, B.J., Black, A. and Curry, D.: "Cesium Formate : The Beneficial Effects of Low Viscosity and High Initial Fluid Loss on Drilling Rate – A Comparative Experiment", SPE 36398, 1996.

Howard, S.K.: "Formate Brines for Drilling and Completion: State of the Art", SPE 30498, 1995.

Svendsen, Ø., Toften, J.K., Marshall, D.S., and Hermansson, C.L.: "Use of a Novel Drill-in/Completion Fluid Based on Potassium Formate Brine on the First Open Hole Completion in the Gulfaks Field", SPE 29409, 1995.

Van Vliet, J., Bour, D.L., and Griffith, J.E.: "Slimhole Cementing – Analysis and Possible Solution of the Problem", SPE 30511, 1995.

Downs, J.D, Killie, S., Whale, G.F., and Inglesfield, C.: "Development of Environmentally Benign Formate-Based Drilling and Completion Fluids", SPE 27143., 1994.

Brinkhorst, J.W.: "Optimisation of Drilling Fluid and Clean-Up Operations in Rogan South, Draugen Field, Norway,"



presented at the Horizontal Well Technology Forum, Aberdeen, 24-25 January 1994.

Downs, J.D.: "Formate Brines: Novel Drilling and Completion Fluids for Demanding Environments", SPE 25177, 1993.

Downs, J.D.: "Formate Brines: New Solutions to deep Slim Hole Drilling Fluid Design Problems", SPE 24973, 1992.

Downs, J.D.: "High Temperature Stabilisation of Xanthan in Drilling Fluids by the Use of Formate Salts," in Physical Chemistry of Colloids and Interfaces in Oil Production, Editions TechNet, Paris, 1991.

Clarke-Sturman, A.J. and Sturla, P.L.: "Aqueous Polysaccharide Compositions," European patent 259 939, 16 March 1988.