

# **SPE International Conference and Exhibition on Health, Safety, Security, Environment and Social Responsibility 2016**

Stavanger, Norway  
11 - 13 April 2016

Volume 1 of 3

ISBN: 978-1-5108-2467-6

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2016) by Society of Petroleum Engineers  
All rights reserved.

Printed by Curran Associates, Inc. (2016)

For permission requests, please contact Society of Petroleum Engineers  
at the address below.

Society of Petroleum Engineers  
P. O. Box 833836  
Richardson, Texas 75083-3836

Phone: (800) 456-6863  
Fax: (972) 952-9435

[books@spe.org](mailto:books@spe.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

## VOLUME 1

<b>Accelerating the Prevention-of-Mother-To-Child-Transmission of HIV: An International Oil Company's Social Responsibility Initiative in the Niger Delta</b> .....	1
<i>Sunday Okegbemiro, Chinwe Okala</i>	
<b>Achieving Efficiencies Through Global Multi-Site Certifications</b> .....	10
<i>Melanie Brooke-Lander, Dina Kuykendall</i>	
<b>Active Hearing Protection Device Provides Unique Possibilities for Hearing Research</b> .....	20
<i>T. Gjestland, O. Kvaløy, T. V. Tronstad, A. Melvaer</i>	
<b>Adapting Your Assurance Program to Maximize Value in Challenging Times</b> .....	27
<i>Matthew B. Peduzzi, Dina Kuykendall, Melanie Brooke-Lander</i>	
<b>Addressing the Gaps Between Occupational and Process Safety Culture</b> .....	37
<i>Sunil D. Lakhiani, Delmar R. Morrison, Joseph B. Sala</i>	
<b>Adjustment of Occupational Exposure Limits to Non-Standard Work Schedules</b> .....	44
<i>Evy Mellemsæther, Ingvar Eide</i>	
<b>Advanced Oil Spill Modelling in the Offshore Oil &amp; Gas Industry: Improving the Emergency Response Management along the Project Life-Cycle</b> .....	51
<i>Giuliana Iazeolla, Maurizio Mariani, Luca Cassina, Michele Marconi, Juan Manuel Deffis, Melania Buffagni</i>	
<b>Advanced Process Safety Barrier Management by Applying Proactive Incident Investigation to Failed or Impaired Barriers</b> .....	62
<i>Arthur Groot</i>	
<b>Advancements in Biodiversity Baseline Assessment and Monitoring Approaches for Enhanced Oil &amp; Gas Performance</b> .....	69
<i>Leonardo R. Viana, Marielle Canter Weikel, Jennifer Blaha, Trond Halvor Larsen, Jorge Ahumada, Ruth Romer</i>	
<b>ALARP Methodology Used for BAT Environmental Impact Reduction</b> .....	81
<i>Jens Rosendal Valeur, Loredana Ruggiero</i>	
<b>Aligning Biodiversity and Ecosystem Services Impact Mitigation with the Operational Lifecycle of the Nikaitchuq Site (North Slope, Alaska)</b> .....	93
<i>D. Speranza, V. Gerber, V., C. Mickiewicz, W. Grande, J. Thomas, K. Hoppe, P. M. Pedroni</i>	
<b>Applying An Ecological Avoidance Program To Minimize Environmental Impacts During A Seismic Survey</b> .....	108
<i>David Ochanda, Anatole Cramer</i>	
<b>An Approach to Process Safety Management</b> .....	122
<i>Eamon Chandler, Robin Bryden, Tony Paul, Simon Roddy</i>	
<b>Are We Drowning the Benefits of Impact Assessments in Paper?</b> .....	127
<i>Steinar Eldøy, Arne Myhrvold</i>	
<b>At-Risk Groups in the Norwegian Petroleum Industry - Analysis of Risk Exposure Using Survey Data</b> .....	135
<i>J. E. Heggland, A. Øren, T. Kråkenes, J. E. Tharaldsen, I. Dahle</i>	
<b>The Barents Sea Exploration Collaboration - BaSEC</b> .....	140
<i>Svein Olav Drangeid</i>	
<b>Barrier Management and the Interaction Between Technical, Operational and Organisational Barrier Elements</b> .....	146
<i>O. Lauridsen, E. Lootz, T. Husebo, G. Ersdal</i>	
<b>Barriers, Collaboration and Well Control - A Service Contractor's Response</b> .....	155
<i>Matthew D. Novia, Mary D. Fernandes</i>	
<b>Behavioural Rating of Drillers' Cognitive Skills</b> .....	160
<i>R. C. Roberts, R. Flin</i>	
<b>The Bolivian Chaco Region: A Challenging Societal Context</b> .....	172
<i>Cynthia Trigo</i>	
<b>Breakthrough HSE Performance in a Large North American Oil and Gas Business Through Change Leadership and a Focused Strategy</b> .....	176
<i>Braden Dunsmore, Hein Ellis</i>	
<b>Building a Common Vision of the Local Development using a Methodology Called Participatory Territorial Planning</b> .....	184
<i>A. A. De Caro, Moisés Augusto Merida</i>	
<b>Building a Culture of Prevention as One Team</b> .....	194
<i>Ahmad Abu Samah</i>	
<b>Challenges with Free Fall Lifeboat Performance in Rough Weather; Analyses, Improvements and Operational Risk Reducing Measures for Use of Free Fall Lifeboats on the Norwegian Continental Shelf</b> .....	202
<i>E. Myrseth, L. Tronstad</i>	
<b>Changing Minds, Winning Hearts - Shifting a Cultural Paradigm</b> .....	220
<i>Veallu Jagadaseen</i>	
<b>Clean Sea - Underwater Robotic Technology for Environmental and Asset Integrity Monitoring in Deep and Ultra-Deep Water</b> .....	234
<i>Francesco Gasparoni, Gennaro Aiello, Andrea Lainati, Armando Sechi, Danilo Maddalena, Tiberio Grasso, Federico Bruni, Michele Filippini, Luigi Miozza</i>	
<b>A Collaborative Approach to Infectious Disease Preparedness: The IDRAM Initiative</b> .....	249
<i>Francesca Viliani, Michael Edelstein, Abbas Omaar, Osman Dar, Emmeline Buckley, Hisham Tariq, Zia Sadique</i>	

<b>Competency Management Guidance for Geophysical Industry Personnel with HSE Responsibilities</b> .....	259
<i>Ian M. Threadgold, Stephen G. Hallows, Randy P. Ingram</i>	
<b>A Comprehensive Model for Oil Spill Liability Estimation</b> .....	266
<i>P. Boehm, A. M. Morrison, S. Semenova, R. Kashuba, A. Ahnell, C. Monti</i>	
<b>Construction Site Safety Standardisation</b> .....	273
<i>A. Akitola, J. Barlow, E. Cooke, W. Fynn, H. Hansen, M. Heim, R. Jackson, S. Mennes, D. Pendrey, B. Perkins, N. Popat, J. Thomas</i>	
<b>Construction Waste Generation and Minimization for Major Gas Processing Facilities</b> .....	284
<i>Rob Hoffmann, Carl Lam, Andrew Graham, Lucy Webb</i>	
<b>Corporate Transformation to Embrace a Positive Safety Culture</b> .....	293
<i>Toru Sugimoto, Daniel Guilarte Mantellini, Alfons Salmhofer</i>	
<b>Cost Cutting and Improving Safety at the Same Time. Possible?</b> .....	302
<i>Jan Reier Huse</i>	
<b>Critical Habitat Determination for Linear Infrastructure: Approaches to Delineating Discrete Management Units under IFC Performance Standard 6</b> .....	307
<i>Leon Bennun, Edward Pollard, Malcom Starkey, Helen Temple</i>	
<b>Critical Issues Analysis: Lifecycle Approach for Optimized Execution of Capital Projects</b> .....	314
<i>Elizabeth L. Green, Robin Woolson</i>	
<b>A Cross Sector Approach to Managing Biodiversity Impacts</b> .....	321
<i>Mark Johnston, Ruth Romer</i>	
<b>Cross-Matching Fitness-to-Work with Assignment to Work Location</b> .....	331
<i>Gerald Cauchi, Alex Barbey</i>	
<b>CSR Corporate Social Responsibility or Corporate Sustainability Responsibility</b> .....	339
<i>Hans Christian Smith, Bosse Litsheim</i>	
<b>Culture Change Framework Dramatically Improves Safety Performance</b> .....	354
<i>B. Dunsmore, G. Rainbow</i>	
<b>Cutting Cost, Not Corners In HES Organizational Capability</b> .....	364
<i>Vanessa Roseborough, Ashley Drinkwater</i>	
<b>A Decision Support Model for Platform Decommissioning: Successful Applications in California and Implications for Worldwide Use</b> .....	376
<i>Bridget McCann, Max Henrion, Brock Bernstein</i>	
<b>Developing a Sustainable HSE Culture - Learnings from the Corrib HSE Journey</b> .....	397
<i>Jarlath Trench, Peter Colleran</i>	
<b>Developing and Implementing a Customized Standard to Manage Social and Environmental Risk in Project-Managed Assets</b> .....	416
<i>Stephanie Dvorak, Jairo Alberto Gonzalez, Ricardo Artola, Juan Carloslopez, Nicholas Abrahams</i>	
<b>Developing Social Business Initiatives for Access to Energy, A Key Success Factor for Sustainability: The Awango Project</b> .....	423
<i>Jean-Marc Fontaine, Christophe Dargnies, Ariane Delalande</i>	
<b>Development and Implementation of a Risk-Based Environmental Management System in an Oilfield Services Company</b> .....	428
<i>Ian Sealy, Hannah Scott, Kirsty Walker</i>	
<b>Development of a Practical Evaluation Tool for Climate Driven Physical Risks</b> .....	434
<i>Patrizia Buttini, Giulia Marcelli, Chiara Petrella, Juan Deffis</i>	
<b>Development of a Robust and Cost Efficient Solution for Oil Spill Response for Barents Sea Exploration</b> .....	443
<i>Rune Pedersen, Hans Petter Dahlslett, Anne Wenke, Sonnove Mclvor, Svein Olav Drangeid</i>	
<b>Development of an Integrated Community Health Program for a Large Oil and Gas Project</b> .....	453
<i>Andry Novosivsky, John D. Moore, David Hancock, Marci Z. Balge, Gary R. Krieger</i>	
<b>Development of Environmentally Friendly Tracer Technology for Monitoring Drilling Fluid Infiltration During Coring Operation</b> .....	464
<i>J. L. Cramer, T. B. Nielsen, S. Bähring, H. T. Torgersen, M. Cowling, T. Sidley</i>	
<b>Ebola Outbreak Preparedness and Response - A Nigerian Oil and Gas Company Experience</b> .....	471
<i>B. Aliyu, A. Ben-Edet, E. Abbah, S. Jones, M. Diara, D. Buford, S. Ngunjiri</i>	
<b>Effective Care Management Minimizes Workplace Injury Severity</b> .....	476
<i>Daniel M. Couch, Albert J. Robb</i>	
<b>An Electronic Medical Record System Supporting Global Health and Medical</b> .....	484
<i>Perla Manlapaz, Luis Castillejo, Shani Herrington</i>	
<b>Energy Efficiency: Collecting Experiences from 20 Years of Efforts on The Norwegian Continental Shelf</b> .....	494
<i>Eric L. Rambech, Valentin Vandenbussche, Emma Karlstrom Thylander, Peter J. B. Lindersen, Hildegunn T. Blindheim</i>	
<b>Energy Management</b> .....	509
<i>Knut S. Helland, Johan Tavast, Tyler Scott</i>	
<b>Enhancing Social and Environmental Performance Through an Integrated Approach</b> .....	513
<i>M. Betre, P. Diaz, M. Weikel, M. Mora, J. Donovan, A. Moretz, S. Connick, N. Anwar</i>	
<b>Environmental Performance in the E&amp;P Industry: Data for 2013 and 2014</b> .....	527
<i>J. A. Campbell, W. M. Poore</i>	
<b>Environmental Solutions Implemented for the Goliat Offshore Oil Field Development - The First Oil Field Development in the Norwegian Barents Sea</b> .....	544
<i>Erik Bjørnbom, Ole Hansen, Marta Linde Melhus, Ulf Klevstad</i>	
<b>EU Offshore Safety Directive: How to Identify Sensitive Coastal Features in Case of a Major Accident</b> .....	562
<i>M. E. Nucci, P. M. Pedroni, M. Buffagni, A. Petrone, L. Scataglini, F. P. Pucillo</i>	

<b>Evaluating Possible Site Locations From a Social Perspective: Reducing Risks and Impacts</b> .....	572
<i>J. K. Lennock, J. Roeygens</i>	
<b>Exceling Hse Professional Development Using An Hse Online University</b> .....	579
<i>K. Breitsprecher, L. A. Worley</i>	
<b>Exploration Impact Assessment Toolkit: Maximising Efficiency Through Standardisation To Deliver Robust Impact Assessments</b> .....	587
<i>Shana Westfall</i>	
<b>Exploring Indirect "Scope 3" Greenhouse Gas Emissions for Oil and Gas</b> .....	595
<i>Robert Siveter, Dan Irvin, Lisa Nelowet Grice</i>	
<b>Fact vs. Fiction - A Barrier Based Approach to Identify Leading Indicators</b> .....	608
<i>Amar Ahluwalia, Marisa Pierce</i>	
<b>Fatigue In Fly In Fly Out Operations</b> .....	626
<i>David Flower, Laurent Arnulf, Devan Kumarasamy, Francois Pelat, Kimberley Phillips, Graham Reeves, Susanne Schunder-Tatzber, Gerald Steenman, Artemis Kostareli</i>	

## VOLUME 2

<b>From Concept to Application - Data Drilling, a Tool to Supplement Incidents Prevention Strategy from a Perspective of Well Services Company</b> .....	635
<i>Weng Fei Leong, Shen Chen</i>	
<b>Full Scale Measurements of Cyclic Bending Moments on Subsea WellHeads on the Norwegian Continental Shelf</b> .....	645
<i>G. Grytøy, L. Reinås, L. E. Eilertsen, M. Russo</i>	
<b>Functional Barrier Model - A Structured Approach To Barrier Analysis</b> .....	660
<i>Alwin Van Aggelen</i>	
<b>Functional Status of Workers In Oil and Gas Industry In the Arctic and the Ways of Their Optimization</b> .....	669
<i>Ya. A. Korneeva, N. N. Simonova, G. N. Degteva, E. O. Lebedeva</i>	
<b>Gas Flaring Reduction Initiative Ofon Phase 2 Project</b> .....	682
<i>Opakirite Braide, Christophe Remoue, Guillaume Rat, Ikechi Anozie, Patrick Vandeville, Nnamdi Ahiamadu, Uzoma Okoroafor, Wendy Brown, Dieudonne Ganga</i>	
<b>Getting to Zero - The Perfect HSE Day</b> .....	689
<i>Dina Kuykendall, J. Jack Hinton, Sergey Peresyppkin</i>	
<b>A Global Effective Ebola Outbreak Preparedness and Response from an Oil and Gas Company Perspective</b> .....	702
<i>M. Diara, S. Ngunjiri, B. Aliyu, B., S. Jones, A. Brown, C. Simmons, G. Miller, R. Plenderleith, C. Gomez, D. Buford</i>	
<b>Global Environmental Baseline &amp; Monitoring Survey (GEMS) - Over a Decade of Results Oriented, Monitoring and Assessing the Oil Industry Impacts on the Deep Offshore Environment (Case Study: Block 17-Girassol Field)</b> .....	714
<i>Elcio Martins, Mario Manuel, Thomas Merzi, Sophie Canovas, Anais Guillou</i>	
<b>The Global Initiative: 20 Years of Government and Industry Cooperation</b> .....	738
<i>Philip Ruck, Thomas Coolbaugh, Joselito Guevarra, Anton Rhodes, Peter Taylor</i>	
<b>Guideline for Design of Cost Efficient and Robust Sensor Based Environmental Monitoring Systems</b> .....	747
<i>Amund Ulfnes, Tone Frost, Pal Rylandsholm, Oyvind Endresen, Stale Johnsen, Anders Hermansen</i>	
<b>Hammerfest LNG Plant in Norway - Significant Local Value Creation</b> .....	760
<i>Kari Mette Darell Holand, Ragnhild Rønning</i>	
<b>Hands-Free Implementaion in the Global Supply Chain Operations of an Oilfield Services Provider</b> .....	769
<i>W. F. Leong, M. Wells, C. Oliver, C. Ross, D. Lancaster, S. Saltz, P. Dunaway</i>	
<b>Health Impact Assessment: Moving From Assessment To Decision Making And Management</b> .....	780
<i>Heidi S. Erickson, Tania Barron, Rachel Hunicke, Ashley Drinkwater, Jacqui Beck</i>	
<b>Health Management Contract Guidance for Operators and Contractors</b> .....	793
<i>Alex Barbey, Paul Hodgins, Phil Sharples, Susanne Schunder-Tatzber, Halim Mohammed, Frano Mika, Stephen Jones, Asadang Dusadi-Isariyavong, Artemis Kostareli</i>	
<b>Hiring of Community Casual Workers: A Key Component of a Successful Entry Strategy With Communities in a Precarious Environment</b> .....	799
<i>Olivier Michel, Marion Muyobo, Anne-Sophie Leroy</i>	
<b>A Holistic Approach to Corporate Health and Wellness</b> .....	807
<i>Robin Tauzin, Karim Pachyannakis</i>	
<b>A Holistic Approach to Safety Barrier Management</b> .....	816
<i>Bard Jansen, Frank Firing</i>	
<b>How an Oilfield Services Company Managed the Ebola Outbreak in Nigeria</b> .....	824
<i>U. Okorocho, O. Chukueke, U. Y. Muogbo</i>	
<b>How Can Operators Encourage Contractors to Participate in Reporting Schemes? The Example of the "Improvement-Cards" Scheme and Rewards Catalogue on an Operated Site in Russia</b> .....	830
<i>C. Lavigne, O. Konovalova, A. Meunier</i>	
<b>How Free, Prior and Informed Consent in Mexico Will Make or Break the Burgeoning Hydrocarbon Sector</b> .....	838
<i>Joshua Lashway, Fiona Athie, Karin Nunan, Isolina Sanchez, Vicky Copeman</i>	
<b>How to Establish a Methane Reporting in Line with the UNEP - CCAC - OGMP (United Nations Environment Program, Climate and Clean Air Coalition, Oil &amp; Gas Methane Partnership) within an Oil &amp; Gas Company</b> .....	848
<i>S. Plisson-Sauné, E. Pirrone, N. Musset, W. Brown, J. Miné</i>	
<b>HSE Assessment of Contractor Supervisors: An Innovative Approach Based on Performance Audits, Self-Assessment and Metrics</b> .....	859
<i>Giovanni Rivas, Luca Frattini, Manfredi Giusto</i>	

<b>HSE for Youth: How Sharing HSE Expertise Externally Reinforces the Principles Internally</b> .....	863
<i>Muriel Barnier, M. L. Stott</i>	
<b>Identifying and Managing Community Health and Safety Risks and Impacts During the Construction of a Petrochemical Refinery: Experience from Southeast Asia</b> .....	870
<i>Janis Shandro</i>	
<b>Identifying Priority Ecosystem Services in Peru</b> .....	877
<i>J. O. Lopez-Plana, H. Nyul, A. Watson, E. Parham, A. Garcia, P. Howard, C. Santamaría</i>	
<b>Impact Investing: A New Opportunity for Oil and Gas</b> .....	882
<i>Barnaby Briggs</i>	
<b>Impacting Organizational and Safety Performance by Developing a HSE Staff Leadership Program: A Colombian Case Study</b> .....	885
<i>F. Correa, L. Varon Aranguren, A. Mesa</i>	
<b>Implementation of Science-Based Environmental Baseline Techniques for Offshore Oil and Gas Projects</b> .....	890
<i>J. O. Lopez-Plana, I. Barceló, P. Lastra, T. Andersen, M. Pérez, N. Edghill, L. C. Cosendey, I. Nájera</i>	
<b>Implementation of the Global Oil and Gas Industry Association's Biodiversity and Ecosystem Services Management Framework in an Oil and Gas Company</b> .....	899
<i>J. O. Lopez-Plana, C. Santamaria</i>	
<b>Implementation of the UN Guiding Principles in Conflict-Affected Settings: Aligning Human Rights and Conflict Sensitive Approaches</b> .....	903
<i>Roper Cleland, Yadaira Orsini</i>	
<b>Implementing a Global Workplace Wellness Strategy - Theoretical Foundations and Business Value</b> .....	912
<i>Janis Davis-Street, Neelum Sanderson, Amy Shannon, Noel Ryan, Paul Brash, Stephani Estala</i>	
<b>The Importance of Early Identification of Safety and Sustainability Related Risks in Arctic Oil and Gas Operations</b> .....	931
<i>Toril I. Utvik, Catherine Jahre-Nilsen</i>	
<b>Improvement of Road Safety Within the Oil and Gas Industry and its Effect on the Community - Case Study</b> .....	938
<i>Ramy I. Khallaf, Abdelsalam Y. Yasseen</i>	
<b>Improving Environmental Performance by Sharing Information on Offshore Drilling Discharge Environmental Science and Drill Cuttings Treatment Technology</b> .....	947
<i>Changyong Zhang, Roxanna Brom, Jonathan Gelliff, Joseph P. Smith</i>	
<b>Improving the Environmental Impact of Drilling Fluids: Case History of a New, Salt-Free, Non-Aqueous Fluid</b> .....	958
<i>Jonathan Walker, J. J. Miller, Kim Burrows, Jared Hovan, Timothy Mander</i>	
<b>Increasing Operational Managers' Awareness and Ability to Address Major Accident Risk by Means of Operational Training</b> .....	965
<i>Ole Harald Utvik, Helen Von Hirsch Maclean, Arild J. Haugland</i>	
<b>The Influence of Communicating on Safety Measures on Risk-Taking Behavior</b> .....	974
<i>Jop Groeneweg, Emma Ter Mors</i>	
<b>Inherent Safety Thinking Applied to Construction and Fabrication of Deepwater Facilities</b> .....	984
<i>M. Zerafa, N. Popat, B. Perkins, A. Marsden, P. Smith, I. Penney, P. Wolf, V. Budilo</i>	
<b>An Innovative Approach for Stochastic Analysis of Blowout Inventories and Impacts</b> .....	996
<i>Edoardo Dellarole, Michele Bonuccelli, Luca Frattini, Luciano Scatagli, Lorenzo Borello, Annamaria Petrone</i>	
<b>An Innovative Approach to Well Safety by Increasing Operational Awareness through Real-Time Monitoring</b> .....	1014
<i>Nazaad Baksh, Anil Wadhwa, Anmar Ahmed, Steve Hill</i>	
<b>Innovative Measures for Mitigating Potential Impacts on Sea Turtles During Seismic Surveys</b> .....	1021
<i>S. Van Der Wal, S. A. Eckert, J. O. Lopez-Plana, W. Hernandez, K. L. Eckert</i>	
<b>The Integration of Environmental and Social Issues into Concept Decision Making</b> .....	1032
<i>Sarah Wilford, Rob O'Brien</i>	
<b>Is There Scientific Evidence to Support the Selection of Hydraulic Fracturing Rules?</b> .....	1039
<i>David Campin</i>	
<b>Issue Management and Sustainability: Lessons from a Major Oilfield Development in Madagascar</b> .....	1073
<i>Jay Wagner, Murray Jones, Karen Nash</i>	
<b>Joint Industry Project Developing a Best Available Technique Methodology for Selecting Leak Detection Systems</b> .....	1082
<i>E. Karlström Thylander, T. S. Grimsrud, V. Vandenbussche</i>	
<b>A Joint Industry Research Programme to Improve Oil Spill Response Technologies and Methodologies for Use in the Arctic Offshore Environment</b> .....	1094
<i>Joseph V. Mullin</i>	
<b>A Joint Strategy Between the Hydrocarbon Sector and Colombian Environmental Authorities for the Conservation of a Regional Natural Park</b> .....	1107
<i>Luis Gabriel Carmona, Fernando Correa, Karin Perdomo</i>	
<b>The Journey from Epidemiology to Health Analytics</b> .....	1117
<i>K. R. Sexton, J. K. W. Hess, F. A. Bhojani</i>	
<b>Land Access and Compensation Process During The Exploration and Appraisal Phase in Uganda: A Constant Challenge Against Operational Delays and Compliance With International Best Practices</b> .....	1124
<i>Olivier Michel, Marion Muyobo, Anne-Sophie Leroy</i>	
<b>Learning from Community-Company Conflicts: Practical Approaches</b> .....	1132
<i>Yadaira Orsini</i>	
<b>Listening Studies: How Investing Time in Deeply Understanding Community Contributes to Operational Excellence</b> .....	1147
<i>Linda Brewer, Clory Martin</i>	

<b>Livewire Project for Young Entrepreneurs in Basilicata Region South Italy</b> .....	1157
<i>Ivan Baggi</i>	
<b>Maintaining Business Continuity During the Ebola Crisis</b> .....	1163
<i>Craig G. Stark, Andre Willems</i>	
<b>Major Accident Indicators in High Risk Industries - A Literature Review</b> .....	1170
<i>S. S. Kilskar, K. Øien, R. K. Tinnansvik, J. E. Heggland, R. H. Hinderaker, S. Wiig</i>	
<b>Major Hazards - Seamlessly Embedding Considerations of the Environment</b> .....	1183
<i>Christelle Jennet, Jean-Marie Libre, Andy Bain, Calum Macpherson, Luke Whittaker</i>	
<b>Major Mobilisation Scenario Planning</b> .....	1189
<i>Chris Moore</i>	
<b>Making Safety Critical Decisions in a High-Hazard High-Consequence Environment: A Case Study</b> .....	1196
<i>Peter Hudson, Timothy Hudson</i>	
<b>Management-led Investigations: How They Made A Difference</b> .....	1205
<i>Madiha Mahmood, Graeme Lawrie</i>	
<b>Managing Biodiversity Challenges in a Sensitive Remote Scottish Island Environment</b> .....	1210
<i>Calum S. A. Macpherson, Rachel Keown, Craig Hynd</i>	
<b>Managing Blowout Risk Using a Dynamic Barrier Approach</b> .....	1226
<i>Amar Ahluwalia, Liu Ruochen</i>	
<b>Managing Environmental Challenges During the First Exploration Well for Shale Gas in Denmark</b> .....	1240
<i>Claude-Henri Chaineau, Christiane Eygun, Rachel Keown</i>	

### VOLUME 3

<b>Managing the Human Factor in the Incident Investigation Process</b> .....	1264
<i>Julia Burggraaf, Jop Groeneweg</i>	
<b>Mapping of Oil and Gas Companies' Policy Commitment to Respect Human Rights</b> .....	1272
<i>Thomas Trier Hansen</i>	
<b>Monitoring the Health of the Asset Integrity Management System Through the Use of Generic KPIs</b> .....	1279
<i>Mahmoud Gawish, Don Smith</i>	
<b>Next Generation 3D Dropped Object Risk Assessment</b> .....	1292
<i>Ingar Fossan, Jan A. Pappas, Sverre Nodland, Shyam Sundar Dhanabalan, Anand Buhugni, Albert Shim</i>	
<b>Noise and Vibration Database on Handheld Tools</b> .....	1310
<i>Tønnes A. Ognedal, Reidulf Klovning</i>	
<b>Oil And Gas Industry Learning Project On Community Grievance Mechanisms</b> .....	1318
<i>Shane Boladeras, Elizabeth Wild, Helen Murphy</i>	
<b>Oil Spill Contingency Study for Greenland – Risk Reduction and Oil Spill Response</b> .....	1330
<i>Camilla A. Spansvoll, Anne Wenke, Odd Willy Brude, Knut E. Solberg, Jens Peter Holst-Andersen</i>	
<b>Oil Spill Detection and Response Using Satellite Imagery, Insight to Technology and Regulatory Context</b> .....	1341
<i>Martin Skedsmo, Rob Ayasse, Nina Soleng, Marte Indregard</i>	
<b>Operational Benefits of an Integrated QHSE and Sustainable Development Management System: A Case Study from the UK</b> .....	1349
<i>Dave Forbes, Kirsty Walker</i>	
<b>Outreach and Communication; Phase Two of the Joint Industry Project on Oil Spill Response</b> .....	1356
<i>A. Nicoll, R. Cox</i>	
<b>Peer Health Educators Can Promote Worksite and Community Health</b> .....	1363
<i>A. Shannon, E. De La Torre, J. Davis-Street, C. Okala</i>	
<b>Planning for Local Content: The Case of Block 2 in Tanzania</b> .....	1372
<i>Titus Fossgard-Moser, Harald Back</i>	
<b>The Potential of Local Community Compensation for Hosting Facilities</b> .....	1384
<i>Emma Ter Mors, Jop Groeneweg</i>	
<b>Predicting Toxicity for Simple Water-Based Drilling Fluids Using a Response Surface Methodology</b> .....	1390
<i>Thomas Cortner, Erica Trickey</i>	
<b>Preserving Environmental Compliance in Low Cost Market Conditions</b> .....	1397
<i>Chris Clodfelter, Josh Morrissette</i>	
<b>Preventing Claims and Grievances in Pipeline Projects: Using a Holistic Approach and Data Management Systems to Enhance Stakeholder Management</b> .....	1402
<i>Sjacco De Vos, Coco C. A. Smits</i>	
<b>Process Safety Elements That Can Prevent The Worst Case</b> .....	1408
<i>Deepak M. Gala, Richard Quick, Ken Dupal</i>	
<b>Produced Water Management Under the Norwegian "Zero Harmful Discharge Regime" – Benefits With the Risk Based Approach</b> .....	1420
<i>Nesse Steinar, Garpestad Eimund, Dragsund Egil</i>	
<b>Public-Private Partnership: Lessons Learned from a Large Project in a Developing Country Setting</b> .....	1429
<i>Andry Nowosiwsky, David Prest, John D. Moore, Gary R. Krieger</i>	
<b>Quantified Risk Analysis of DP Operations - Principles and Challenges</b> .....	1434
<i>Haibo Chen, Bjorn Nygård</i>	
<b>Rainforest Connectivity Strategies for Oil and Gas Development</b> .....	1446
<i>M. W. Thurber, G. H. Abad</i>	

<b>Recognizing and Driving Excellence Through a Mature HSE Recognition Program</b> .....	1459
<i>Melanie Brooke-Lander, Dina Kuykendall</i>	
<b>Recovering Business Value From Near Misses</b> .....	1470
<i>Norman W. Ritchie</i>	
<b>Re-Energising the Life-Saving Rules</b> .....	1482
<i>Robin Bryden, Sabine Gradinger, Nijen Dick, Tony Paul</i>	
<b>The Relative Success of Three IVMS Implementation Strategies</b> .....	1495
<i>Corey Catten, Casey Johnson</i>	
<b>Responsible Water Resources Management in a Semi-Arid Region of Kenya using Techniques from Public Water Utilities</b> .....	1502
<i>Richard Boak</i>	
<b>Results of Environmental Risk Assessment Carried Out On Nearshore Gabon Installations Taking Into Account Environmental Sensitivity</b> .....	1509
<i>Jean-Marie Libre, Stephane Condemine</i>	
<b>Risk At Arms Length: How Exploration And Production Companies Are Managing Risks In Non-Operated Joint Ventures</b> .....	1524
<i>Tony Zamora</i>	
<b>Risk Management: Typical Safety Regulator Findings in the Norwegian Petroleum Industry</b> .....	1533
<i>Bjornar Heide, Else Riis Rasmussen, Torleif Husebø</i>	
<b>A Risk-Based Approach to Driving and Journey Management for Land Transport Contractors</b> .....	1544
<i>G. Wiraatmaja, M. Tauriainen</i>	
<b>A Robot that Removes Operators from Extreme Environments</b> .....	1551
<i>Ian Peerless, Adam Serblowski, Berry Mulder</i>	
<b>"Safer Together" - Driving A Safety Culture Change In A Challenging Environment</b> .....	1563
<i>Annette Nienhaus, Dana Afrenie, Gratiela Sandu</i>	
<b>Safety Coach Concept: Creating a Culture of Learning</b> .....	1568
<i>Benedikt Lammerding</i>	
<b>Seismic Airgun Sources: Clarifying the Loudness</b> .....	1575
<i>John R. Tulett, Robert M. Laws</i>	
<b>Sharing Information on Oil and Gas Activity in Marine Environments Using the IPIECA Marine Geospatial Bibliography</b> .....	1588
<i>Philip Ruck, Josep Oriol Lopez Plana, Paul Edmunds</i>	
<b>"Sharing Love for Health &amp; Safety," An Innovative Communication Campaign Designed to Create Workforce Engagement Through the Spread of Health and Safety Messages in Unconventional Ways</b> .....	1593
<i>Davide Scotti, Darren Matkin, Simona Ruffolo</i>	
<b>Simplicity From Complexity: A Systematic Risk-based Approach to Managing Marine Biofouling in the Petroleum Industry</b> .....	1601
<i>Deborah Peach, Tegan Box</i>	
<b>A Social License to Operate in the Arctic: Exploring the Challenges and Opportunities for Offshore Oil and Gas Activities in Greenland</b> .....	1613
<i>C. C. A. Smits, E. Huber</i>	
<b>Stakeholder Engagement on Shale Gas in Europe: Has It Already Failed?</b> .....	1620
<i>Claude-Henri Chaîneau, Jean Lennox</i>	
<b>Stress - Impacts on Health and Human Performance</b> .....	1634
<i>Janis Davis-Street, Jereline Kendrick, Luis Castillejo, Michael Grimsley</i>	
<b>Styles of Thinking, Behavioural Economics and Operational Risk Assessment in Oil and Gas Activities</b> .....	1645
<i>Ronald W. McLeod</i>	
<b>Subsea Dispersant Injection - Summary of Operationally Relevant Findings From a Multi-Year Industry Initiative</b> .....	1659
<i>P. J. Brandvik, O. Johansen, E. J. Davies, F. Leirvik, D. F. Krause, P. S. Daling, D. Dunnebie, S. Masutani, I. I. Nagamine, C. Storey, C. Brady, R. Bellore, T. Nedwed, C. Cooper, A. Ahnell, O. Pelz, K. Anderson</i>	
<b>Subsea Mechanical Dispersion, Adding to the Toolkit of Oil Spill Response Technology</b> .....	1679
<i>Per Johan Brandvik, Emlyn Davies, Daniel F. Krause, Pierre A. Beynet, Madhusuden Agrawal, Peter Evans</i>	
<b>Successfully Managing a Large High-Hazard Road Transport Operation Using the Hearts and Minds Tool Driving for Excellence</b> .....	1690
<i>Peter Hudson</i>	
<b>The Survival of a Cultural Change Programme Relies Heavily upon Continual Innovation, Evolution and Maintenance of Focus: The 8 Years Long History of Leadership in Health and Safety Programme.</b> .....	1699
<i>D. Scotti, D. Matkin</i>	
<b>A Sustainable Supply Chain Model For Promoting Collaboration With Hydrocarbon Sector Suppliers And Contractors</b> .....	1705
<i>Luis Gabriel Carmona, Fernando Correa</i>	
<b>The Taninthayi Nature Reserve Project as a Model of Compensation of Impacts to Biodiversity</b> .....	1712
<i>Edward Pollard, Ray Victurine, Robert Tizard, Soe Win Hlaing</i>	
<b>TB or Not TB: Development of an Integrated Occupational and Community Health TB Surveillance Program</b> .....	1723
<i>Andry Nowosiwsky, Nicholas Burke, John D. Moore, Gary R. Krieger</i>	
<b>Third Edition of the Oil and Gas Industry Guidance on Voluntary Sustainability Reporting</b> .....	1728
<i>Helen Murphy, Louise Tyson, Hilde Røed, Bertrand Janus</i>	
<b>Three Years Experience in Engaging Local Content at Project Planning Phase</b> .....	1735
<i>Etienne Hammann</i>	



<b>Together, Better: Stabilizing Stakeholder Relationships and Maintaining Social Capital During Major Economic Decline</b> .....	1746
<i>Linda Bucke</i>	
<b>Traditional Ecological Knowledge on Acoustic Disturbance - Research Project Partnering with Communities on the North Slope, Alaska</b> .....	1753
<i>Jurgen Weissenberger, Jen Dushane, Dan Vos, Ella Ede</i>	
<b>Training and Reinforcing Non-Technical Skills Using a Team Behavioural Marker Framework</b> .....	1760
<i>Margaret Crichton, Scott Moffat, Lauren Crichton</i>	
<b>Transitioning From a Classic Wellness Paradigm to a Culture of Health Strategy: Early Reflections and Impacts</b> .....	1768
<i>J. K. W. Hess, K. W. Sexton, F. A. Bhojani</i>	
<b>Tripartite Collaboration on Enhancing Knowledge about Norwegian HSE Regulations for the Petroleum Activities</b> .....	1775
<i>L. Myrholt, H. Spilde, N. G. Gundersen, G. Solberg, K. O. Tendenes</i>	
<b>TRL (Technology Readiness Level) Assessment of DREAM (Dose-related Risk and Effects Assessment Model) to Qualify its Use for Modelling of Produced Water and Drilling Discharges</b> .....	1786
<i>Grethe Kjeilen-Eilertsen, Thomas Merzi, Monica Burgos, Ute Brönnner</i>	
<b>Underwater Sound Radiation From Subsea Factories</b> .....	1794
<i>B. Binnerts, P. Van Beek</i>	
<b>Use of Riserless Mud Recovery for Protection of Cold Water Corals While Drilling in Norwegian Sea</b> .....	1802
<i>Daniel Macdonald</i>	
<b>Water and Oil: Sustaining our Future?</b> .....	1826
<i>C. Yagüe, C. Santamaría, E. Del Estal, E. Marín</i>	
<b>What Are The BES Fundamental Principles for Project Planning and Development Throughout The Asset Lifecycle of Oil and Gas Operations?</b> .....	1836
<i>Sarah Connick, Paola Maria Pedroni, Mark Johnston, Ruth Romer</i>	
<b>What is the 2030 Vision for Water Management in the Oil and Gas Sector?</b> .....	1845
<i>Alistair Wyness, Ruth Romer</i>	
<b>When MEDEVAC is a Challenge: An Innovative, Easily Deployable, Fully Integrated Medical Support, Proven in Arctic Conditions</b> .....	1853
<i>Bruno Sicard, Frederic Marouze, Celine Roche, Anne Sailliol</i>	
<b>Who are Biodiversity and Ecosystem Services Stakeholders?</b> .....	1859
<i>Edward Pollard, Leon Bennun</i>	
<b>Wireless Noise Surveillance - Development of Dynamic Noise Maps</b> .....	1865
<i>Simon Carlsen, Ellen Katrine Jensen, Anders Aardal, Hiroki Yoshino, Ole-Herman Bjor, Herold Olsen</i>	
<b>Working in Conflict Zones: The Nigerian Oil &amp; Gas Industry Example</b> .....	1881
<i>Vincent G. Nnadi, Lawrence Isung</i>	
<b>Author Index</b>	