

SOCIETY OF PETROLEUM ENGINEERS

SPE Asia Pacific Health, Safety and Environment Conference and Exhibition 2005

Held September 19 – 20, 2005
Kuala Lumpur, Malaysia

Printed from CD-ROM with permission by:

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

© 2005 SPE. All rights reserved.

Copyright and Use Restrictions

Copyright 2005, Society of Petroleum Engineers

Material included in this *Proceedings* is copyright protected. Electronic reproduction, distribution, or storage of any part of an SPE-copyrighted paper for commercial purposes without the written consent of the Society of Petroleum Engineers is prohibited. Permission to reproduce in print is restricted to an abstract of not more than 300 words; illustrations may not be copied. The abstract must contain conspicuous acknowledgment of where and by whom the paper was presented. For photocopying beyond the above permissions, libraries and other users dealing with the Copyright Clearance Center (CCC) Transactional Reporting Service must pay a base fee of \$3 per copyrighted article plus \$0.25 per page to CCC, 222 Rosewood Drive, Danvers, Massachusetts 01923 U.S.A. For other permissions, contact Librarian, SPE, 222 Palisades Creek Drive, Richardson, Texas 75080-2040 U.S.A.

Use of SPE member or author contact information included on this CD for commercial purposes or reproduction of that information in whole or in part, in any form or medium, is strictly prohibited and subject to legal action. Contact SPE to inquire about rental of mailing lists.

This CD of the 2005 Asia Pacific Health, Safety and Environment Conference and Exhibition was produced by SPE. This product contains Adobe® Reader® Software. Permission to print and distribute content from this product must be obtained from SPE. Duplication of replication products is absolutely prohibited without written permission from SPE and Adobe. Adobe, the Adobe logo, and Reader are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.

Material on the CD was reproduced from original papers and/or electronic files provided by the authors. Some discrepancies are inevitable. Please advise SPE of errors so corrections can be made to the electronic versions of the article. Send corrections by e-mail to pdf@spe.org or mail to the SPE Americas Office, attention Technical Paper Administrator.

USE OF MATERIALS LIMITATIONS

All materials contained in these *Proceedings* are copyrighted to the Society of Petroleum Engineers. Papers on this CD are for your personal non-commercial use and may not be copied, distributed electronically or in print, or reproduced in whole or in part, in any form without the expressed written permission of the Society of Petroleum Engineers.

2005 SPE Asia Pacific Health, Safety and Environment Conference and Exhibition

19–20 September 2005 • Kuala Lumpur, Malaysia

TABLE OF CONTENTS

- 1** SPE 94694 [An Integrated Approach to Healthcare and Health Promotion in Both the Workplace and the Community](#)
J. Luby and E.A. Al-Jahdaly, Saudi Aramco Healthcare
- 4** SPE 95196 [Designing the Perfect Drilling Fluid Additive: Can It Be Done?](#)
J. Hall, Halliburton Fluid Systems
- 10** SPE 95223 [The Development and Implementation of a Comprehensive System of Care in Remote Locations](#)
R.S. Cram, Anadarko Petroleum Corp.
- 16** SPE 95245 [The Development and Utilization of Scattered and Remote Gas Field Resources With HSE](#)
P. Yanming, Z. Jian, L. Xiaoyang, Y. Jianwen, and Z. Changming, Daqing Oilfield Co., PetroChina, and W. Xiaomu, CNPC Daqing Petroleum
- 20** SPE 95250 [The Importance of Leadership in Developing and Maintaining an Effective Safety Culture Within an Organisation](#)
J.P. Barrett and R.S. Cram, Anadarko Algeria Co. LLC
- 26** SPE 95274 [Delivering Environmental Assurance in a Global Organization](#)
I.M. Sealy, Schlumberger Ltd.
- 28** SPE 95281 [The Essence of Effective Integrity Management—People, Process and Plant](#)
S.W. Ciaraldi, BP Indonesia
- 37** SPE 95299 [Leadership and Safe, Productive Culture and Workplace—A Case Study in Improving Safety Through Leadership Development in Drilling and Completions Operations](#)
J. Karish, Ensco, and G. Siokos, Enterprise Development Network Pty. Ltd.
- 41** SPE 95323 [Crude Oil Contaminated Soil Clean Up With Bioremediation: A Case Study and Implementations in Minas Field, Indonesia](#)
E. Rumbiyant, F. Hermiani, and B.S. Aji, PT Caltex Pacific Indonesia, and S. Nugraha, BPMIGAS
- 46** SPE 95343 [Treatment of Produced Water From Polymer Flooding Process Using a New Type of Air Sparged Hydrocyclone](#)
S. Liu, Shanghai Jiaotong U., and X. Zhao, X. Dong, B. Miao, and W. Du, Daqing Oilfield Co. Ltd.

- 50** SPE 95346 [Step Change Towards a Zero Incident Work Environment—Managing the Human Factor](#)
P.J. Grant, L.M. Senior, and J.H. Lake, Equilibria
- 54** SPE 95352 [EIA Study To Identify Effect of Gas Flaring on Rice in Oil Field of Assam](#)
C. Bose, Oil India Ltd., and K.K. Sharma, Assam Agricultural U.
- 60** SPE 95354 [Short-Term Numerical Simulation of Geological Sequestration of CO₂ in the Barrow Sub-Basin, West Australia](#)
Q. Yang, China U. of Geosciences (Wuhan) and U. of New South Wales, and Z. Guan and F. Zhou, China U. of Geosciences (Wuhan)
- 64** SPE 95366 [Breaking the Safety Plateau: A Successful Implementation of Behaviour-Based Safety Across a Range of Cultures, Facilities and Functions](#)
N. Younes, BG Group
- 68** SPE 95367 [An Enduring Commitment to Sustainable Community Development in Myanmar: The Yetagun Socio-Eco Development Program](#)
A.G. Musa, Petronas, and A. Tarnoff, Save the Children Federation Inc.
- 72** SPE 95378 [The 14-Point HSSE Assurance Tool](#)
N. Younes, BG Group
- 76** SPE 95381 [Marine Biodiversity—Exploring the Deepes](#)
A. Walls and J. Clarke, BP
- 82** SPE 95384 [Reducing the Footprint of 3D Seismic in the Tropical Rainforest of Ecuador](#)
M. Thurber, Walsh, and D. Westlund and F.L. Benalcazar, EnCana
- 86** SPE 95410 [A New Algorithm for Retrieval of Air Quality From Landsat TM7](#)
L.H. San, M.Z.M. Jafri, and K. Abdullah, U. Sains Malaysia
- 90** SPE 95839 [Food for Thought—A Strategy for Improving Food Hygiene and Safety in Catering Operations](#)
B. Phillips and C. Minshell, BP
- 94** SPE 96161 [Prevention of Tick Bites on Offshore Wellhead Towers; An Integrated Health, Safety and Environmental Approach](#)
M.S. Newson-Smith, Abu Dhabi Marine Operating Co.
- 97** SPE 96175 [Vehicle Data Recorders for Addressing “Driving Behavior”](#)
S.M.A. Kazmi, A. Shaikh, S. Nensey, and R. Rafiq, BP Pakistan E&P Inc.
- 100** SPE 96250 [Managing Major Incident Risks](#)
D. Smith, Intl. Assn. of Oil and Gas Producers, and V. Zijlker, Shell Intl. E&P BV

- 107** SPE 96406 [Acute Leukemia and Benzene Exposure—A Case Study](#)
S.Y. Al-Qahtani, Saudi Aramco
- 109** SPE 96428 [Designing for a Healthy Working Environment—Engineering Practices and Tools Used in the Norwegian Petroleum Industry](#)
T.I.Thronsen and D. Høivik, Statoil ASA
- 113** SPE 96430 [Offshore Run: A Model of Working and Living in Harmony](#)
A. Khanthong, Unocal Thailand Ltd.
- 115** SPE 96431 [Substance Abuse Testing Program: A 10-Year Experience](#)
A. Khanthong, Unocal Thailand Ltd.
- 118** SPE 96447 [Understanding the Environmental Impact of De-Commissioning; The Established Marine Ecosystem Associated With Offshore Platforms, Brunei Darussalam](#)
S. Holyoak, Panaga Sub-Aqua Club; S. Oakley, Tropical Research and Conservation Centre; and J. Elder, D. Bell, and L. Miller, Panaga Sub-Aqua Club
- 133** SPE 96449 [Life Beneath the Platforms—The Movie ...](#)
S. Holyoak, Panaga Sub-Aqua Club, and R. Munns and M. Oldfield, Scubazoo
- 135** SPE 96453 [Health, Safety and Environment Culture in the Norwegian Petroleum Industry](#)
D. Høivik, Statoil ASA
- 139** SPE 96455 [Human Factors—Health and Safety as a Priority in Design Experience From the Norwegian Petroleum Industry](#)
D. Høivik and T.I. Thronsen, Statoil ASA
- 143** SPE 96456 [Responding to a Potentially Trans Boundary Oil Spill](#)
C. Sintian, M.R. Yusof, and A. Othman, Petronas Carigali Sdn. Bhd.
- 148** SPE 96458 [The Good Practices in HS&E Management of Contractors](#)
K.A Lang, N. Burnett, D. Allan, and A. Fergusson, Baker Hughes
- 159** SPE 96461 [Removing Mercury From the Workplace: A Case History of the Decommissioning and Recycling of Mercury-Contaminated Equipment](#)
V. Berdugo, R. Bjoroy, C.J. Richards, D. MacWilliam, M. Riding, and B. Ross, Schlumberger
- 170** SPE 96466 [Going From “Good to Great” in a Good Industry](#)
S.D. Burch, DuPont Safety Resources
- 173** SPE 96472 [Malaria Control Measures for Oil and Gas Operations – What Works – What Doesn’t – What Does the Literature Say?](#)
M.Z. Balge and G.R. Krieger, Newfields Inc..

- 179** SPE 96480 [Oil Spill Response Management and Transboundary Issues in Malaysia](#)
C.K. Wing, Petroleum Industry of Malaysia Mutual Aid Group
- 182** SPE 96481 [Waste Management Strategy Decision Matrix Is Crucial to Compliant and Economical Waste Treatment and Disposal](#)
R. Collins, Halliburton Baroid Fluid Services, and A. Stanley, Halliburton HSE
- 186** SPE 96491 [The Success Services of the Drilling HSE Networks](#)
H.S.B.H.M. Yussof, Brunei Shell Petroleum Co. Sdn. Bhd.
- 188** SPE 96492 [Monitoring of Mercury Content of Fishes Near the Bongkot Platform, Gulf of Thailand](#)
P. Dhanasin, W. Utoomprurkporn, M. Hungspreugs, and T. Soponkanabhorn, PTT E&P Public Co. Ltd.
- 191** SPE 96495 [Environmental Management for Thai Offshore Base Construction Project](#)
D. Lambasara and T. Soponkanabhorn, PTT E&P Public Co. Ltd.
- 196** SPE 96496 [Health Management at Workplace](#)
M. Lim, East Asia Response Pte. Ltd.
- 198** SPE 96499 [Behavior Based Safety—Implementation, Learnings and Results of Loss Prevention System in ExxonMobil Malaysia](#)
T. Kathirgamanathan and T.K. Wong, ExxonMobil E&P Malaysia Inc.
- 204** SPE 96504 [Canopy Bridges Along a Rainforest Pipeline in Ecuador](#)
M. Thurber and P. Ayarza, Walsh; OIEPC
- 208** SPE 96507 [Exploration Drilling in the Barents Sea; Prevailing Zero Discharge Regime, Challenges and Learning From Recent Exploration Drilling](#)
J.E. Paulsen, H. Hoset, T. Rørhuus, V. Larsen, D. Alm, Ø. Birkeland, and R. Marker, Statoil ASA
- 217** SPE 96536 [Continuing Medical Education Incentive Program](#)
P. Krigovsky, Unocal Indonesia Co.
- 223** SPE 96543 [Implementation of Slurry Fracture Injection Technology for E&P Wastes at Duri Oilfield](#)
M. Arfie, PT Terralog Teknologi Indonesia; E. Marika, Terralog Technologies Inc.; and E.S. Purbodiningrat and H.A. Woodard, PT Caltex Pacific Indonesia
- 237** SPE 96545 [Effects of Risk Communication on the Behaviour of Workers Towards Health Risks](#)
M.Z. Farid, Petronas
- 241** SPE 96552 [Biodiversity Management in Oil and Gas Sector—Indian Scenario](#)
M. Gomathi, Oil and Natural Gas Corp. Ltd.

- 252** SPE 96563 [Macrobenthic Community as Environmental Pollution Indicator](#)
J.A. Kulleh and S.H. Kip, Sarawak Shell Bhd., and L.T. Seng, LTS Consultancy
- 259** SPE 96567 [A Deepwater Monitoring Design and Program To Assess the Environmental Fate and Effects of Paraffin Based Muds and Cuttings off Sarawak and Sabah \(Malaysia\)](#)
J.P. Ray, B.M. James, P.B. Dorn, and W.F. Farmayan, Shell Global Solutions (U.S.) Inc.; S. Hj-Kip and K. Hii, Shell Sarawak; and I. Rhodes, Shell Global Solutions (U.S.) Inc.
- 273** SPE 96582 [The Environmental Benefits of Reducing Water Production](#)
J. Hibbeler and P. Rae, BJ Services Co.
- 280** SPE 96597 [Injection Strategy and Best Practices for Managing Produced Water](#)
A. Abou-Sayed and K. Zaki, Advantek Intl. Corp.
- 284** SPE 96600 [Behavior-Based Safety Implementation in Thailand: Factors Critical to Success](#)
P. Whitney and A. Stanley, Halliburton
- 295** SPE 96601 [Implementation of Tree Cutting Best Practice Based on Reduced Impact Logging Guidelines for Indonesia on Tangguh LNG Project](#)
Narwoko, BP Indonesia
- 305** SPE 96605 [Improving Safety Awareness—A Field Study](#)
T. Gilmore, S. Gritto, S. Steinback, and M. Clayton, BJ Services
- 309** SPE 96606 [New Operational Technique Improves HSE in Offshore Acidising Operations](#)
B. Sinanan and P. Rae, BJ Services Co.
- 316** SPE 96673 [Smoking Cessation Program in the Workplace](#)
L.E. Custodio and P.S. Manlapaz, Unocal Philippines Inc.
- 320** SPE 96674 [Enhanced Fitness Program in the Workplace: The Unocal Philippines Inc. Experience](#)
R.C. Surara and R.P. Lacsá, Unocal Philippines Inc.
- 323** SPE 96675 [Cardio Vascular Health Program](#)
E.A. Inciong, T. Clemena, and L. Custodio, Unocal Philippines Inc.
- 326** SPE 96678 [Oil Spill Response Organisations and Their Utilisation in Disaster Relief](#)
C. Richardson, Oil Spill Response Ltd.
- 329** SPE 97302 [Managing Safety—Focusing on High Potential Risks and Incidents](#)
E. Sixma, SIEP, and K. Rutten, Brunei Shell Petroleum Co. Sdn. Bhd.