

Volume 61 • Issue 2 • Conference proceedings • 2021

CONTENTS

ACREAGE RELEASE – FULL PAPERS (NON PEER REVIEWED)

2021 Offshore petroleum exploration acreage release

P. Trotman 291–293

Geological overview of the 2021 offshore acreage release areas

T. Bernecker, R. Owens, A. Kelman and K. Khider 294–324

Distribution and estimates of Australia's identified energy commodity resources

B. E. Bradshaw, M. L. Orr and T. Bernecker 325–330

YEAR IN REVIEW – FULL PAPERS (NON PEER REVIEWED)

Australian exploration review 2020

I. Cockerill 331–340

Australia petroleum production and development – 2020

J. Keith 341–346

Business environment review 2020

S. Molyneux 347–356

BUSINESS – EXTENDED ABSTRACTS

Keeping the workforce healthy and safe during COVID-19 at Woodside

T. Anderson 357–361

A new engagement approach for regulatory submissions

J. Arnott, B. Wilson and D. Kurz 362–365Impact of hydrogen solubility on depleted gas field's caprock: an application for underground hydrogen storage
M. Bahar and R. Rezaee

366–370

Social licence: what is really going on out there?

S. Browne and J. Scales 371–374

Policy roadmap to net zero: the role of gas in decarbonising the National Energy Market

S. Byrom, G. D. Bongers and A. Boston 375–378Assessing the impacts of scale residues from offshore oil and gas decommissioning on marine organisms
T. Cresswell, S. Brown, H. Wong and S. Apte

379–383

Using a satellite-aircraft hybrid system based on the same sensor to monitor oil and gas facilities for methane emissions
H. J. Deglint, W. D. Shaw and J.-F. Gauthier

384–388

Potential impacts of shale and tight gas developments on unconfined aquifers – a chemical screening framework
R. Doble, D. Mallants, Y. B. Aghbelagh, D. Gonzalez, P. Davies, L. Peeters and R. Crosbie

389–394

Disruption and damages: climate-related risks to the Australian oil and gas sector
S. M. Downes, A. Steel, E. Favaro and M. Wood

395–399

Detection of methane fugitive emissions using drones

G. Gargiulo 400–401

Moomba carbon capture and storage case study: material emissions reduction at Moomba plant <i>N. Harley</i>	402–404
A generational west coast gas shakeup looms <i>S. Kavonic</i>	405–407
International standardisation driving global competitiveness and sustainability of the oil and gas and future energy industries <i>M. Keys and M. Taylor</i>	408–411
Top three LNG buyers to search for alternative LNG pricing structure after paying a total cost premium of \$56 billion for oil-indexed LNG contracts in 2019 and 2020 – how will this affect Australia as the number one supplier to this market? <i>S. Knutsson</i>	412–416
How the upstream oil and gas industry can leverage interdisciplinary research to more effectively engage with Indigenous communities <i>D. Lockhart and J. Xu</i>	417–421
Agile framework for capital projects <i>P. Mahapatra and P. Shahriari</i>	422–424
Mobile autonomous methane monitoring stations for emission measurement <i>M. Mainson, C. Ong, M. Myers and A. Spiers</i>	425–428
Importance of Australia's offshore oil and gas infrastructure for fish <i>D. McLean, T. Bond, E. S. Harvey, D. Ierodiaconou, K. Cure, M. Taylor, S. Whitmarsh, T. Sih and P. I. Macreadie</i>	429–437
The CSIRO In-Situ Laboratory: a field laboratory for derisking underground gas storage <i>K. Michael, L. Ricard, L. Stalker and A. Horte</i>	438–441
Tracking industry responsiveness to COVID-19 – what has happened and what lies ahead <i>J. Mitchell and D. O'Keeffe</i>	442–444
Australia offshore well inventory characterisation and decommissioning cost saving opportunities through cap rock restoration and rigless/riserless techniques <i>C. Murphy and S. A. Higgins</i>	445–449
Real time emissions monitoring: the foundation of a blockchain enabled carbon economy <i>P. Nielsen, S. Johnston and P. Black</i>	450–453
Development of the clean hydrogen industry in Australia – a regulatory and fiscal roadmap for the fuel of the future <i>J. O'Reilly, C. Pope and A. Lomas</i>	454–457
The Australian CCS roadmap – a reflection on lessons learned and considerations for future success <i>J. Paz</i>	458–462
Deferred maintenance – a major industry challenge? <i>K. Seccombe and D. O'Keeffe</i>	463–465
Green pivot: can Australia master the hydrogen trade? <i>P. Sharma, B. Gallagher and J. Sultoon</i>	466–470
Geological and Bioregional Assessments: a program to encourage industry development and improve regulatory efficiency while maintaining the highest possible environmental standards <i>A. Stacey, M. Bouma, E. Turner and M. Baskys</i>	471–476
Geological and Bioregional Assessments: assessing the prospectivity for tight, shale and deep-coal resources in the Cooper Basin, Beetaloo Subbasin and Isa Superbasin <i>L. S. Hall, M. L. Orr, M. E. Lech, S. Lewis, A. H. E. Bailey, R. Owens, B. E. Bradshaw and G. Bernardel</i>	477–484

Geological and Bioregional Assessments: assessing direct and indirect impacts using causal networks <i>L. J. M. Peeters, K. Holland and C. R. Huddlestome-Holmes</i>	485–490
Geological and Bioregional Assessments: a tale of two basins <i>C. R. Huddlestome-Holmes, K. Holland and L. J. M. Peeters</i>	491–494
Embracing Australia's decommissioning liability <i>A. Taylor and S. Stokes</i>	495–497
Transforming Australia's approach to decommissioning research <i>A. Taylor and P. I. Macreadie</i>	498–500
Resilient Leadership – the pathway beyond COVID <i>S. B. Taylor</i>	501–504
Understanding pygmy blue whale movement and distribution off north Western Australia <i>M. Thums, L. C. Ferreira, C. Jenner, M. Jenner, D. Harris, A. Davenport, V. Andrews-Goff, M. Double, L. Möller, C. R. M. Attard, K. Bilgmann, P. G. Thomson and R. D. McCauley</i>	505–511
Finding net zero: how green LNG can improve the competitiveness of Australian LNG <i>D. Toleman and L. Cullen</i>	512–515
Keys to successful negotiation of indigenous land use agreements and building consent for the development of natural resources, The Great Sandy Desert Project, a case study <i>J. van Hattum, M. Bin-Rasheed and G. Castledine</i>	516–521
Blockchains – achieving consensus in oil and gas business processes <i>S. Waller</i>	522–525
Decommissioning and rehabilitation: funding models <i>K. Wee</i>	526–529
ENGINEERING – EXTENDED ABSTRACTS	
Innovation and instrumentation in CO ₂ monitoring wells for reservoir surveillance and advanced diagnostics <i>P. Barraclough, M. Bagheri, C. Jenkins, R. Pevzner, S. Hann, K. Wuttke, S. Nikolov and M. Mondanos</i>	530–535
Novel collaborative P&A campaign using inflatable packers and bismuth alloy plugs <i>A. Bensaied, G. Farag and J. Fulks</i>	536–539
Effective engagement on process safety fundamentals in challenging times <i>O. K. Cary and N. Netscher</i>	540–543
Using digital twins and data analytics to make informed operational decisions – a centrifugal compressor case study <i>A. Jones and D. Marshment</i>	544–547
Case study for CO ₂ removal using Fluor Solvent for offshore natural gas treatment <i>N. Kritzinger, R. Ravikumar, S. Singhal, K. Singh and S. J. Choudhury</i>	548–552
Establishing principles in digital transformation through comparative analysis of frameworks and development strategies in platform/coding development for consulting <i>N. Lim, L. Lim and D. Tanuwibawa</i>	553–558
Gas sampling for mercury analysis <i>J. Lawer</i>	559–562
Application of battery energy storage systems in industrial facilities <i>H. Sharafizad</i>	563–566
Process safety challenges of CO ₂ sequestration <i>C. Smith</i>	567–570

How CFIHOS can help you recover from COVID-19 [P. Townson] NOTE: This paper is not published as no presentation was made at the APPEA 2021 Conference	571–574
Low-salinity carbonated water injection in sandstone reservoirs: interplay between oil recovery improvement, salinity and fines migration <i>E. Yazdani Sadati, A. Siahvashi and S. Hurter</i>	575–578
GEOSCIENCE – EXTENDED ABSTRACTS	
Exploring for the Future geomechanics: breaking down barriers to exploration <i>A. H. E. Bailey, A. J. M. Jarrett, L. Wang, D. N. Dewhurst, L. Esteban, S. Kager, L. Monmusson, L. K. Carr and P. A. Henson</i>	579–587
Resolving lithostratigraphic complexities in the Crayfish Group, Otway Basin using chemostratigraphy <i>B. Bendall, A. Forbes and T. Hill</i>	588–593
The West Erregulla gas discovery. Implications for an extensive Permian play fairway across the onshore northern Perth Basin, Western Australia <i>A. Cortis, A. Farley, D. Lewis, S. Cheong, A. Chia and W. Zhang</i>	594–599
Controls on the preservation of Jurassic volcanism in the Northern Carnarvon Basin <i>M. Curtis, S. Holford, M. Bunch and N. Schofield</i>	600–605
Measurement of gas contents in shale reservoirs – impact of gas density and implications for gas resource estimates <i>J. M. Ekundayo, R. Rezaee and C. Fan</i>	606–610
Integration of new interpretation, attribute analysis and inversion results for the Dampier Sub-basin, North West Shelf of Australia <i>J. Grahame and J. Yao</i>	611–615
Geochemical evidence for a new Triassic petroleum system on the western margin of Australia <i>E. Grosjean, D. S. Edwards, N. Rollet, C. J. Boreham, D. Nguyen and T. Buckler</i>	616–625
Storing CO ₂ in buried volcanoes <i>S. Holford, N. Schofield, M. Bunch, A. Bischoff and E. Swierczek</i>	626–631
Controls on gravity-driven normal fault geometry and growth in stacked deltaic settings: a case study from the Ceduna Sub-basin <i>M. Jimenez, S. P. Holford, R. C. King and M. A. Bunch</i>	632–639
Basin-to-prospect-scale subsurface characterisation: new insights into the Exmouth Sub-basin, North West Shelf, Australia <i>A. Kholiq, C. Jacob, B. J. Lim, O. Schenk, A. Mukherjee and A. Karvelas</i>	640–645
Structural containment in the Port Campbell Embayment and on the Mussel Platform, Otway Basin, Victoria <i>L. Langhi, E. Swierczek, J. Strand, L. G. Divko, D. Whittam and A. Ross</i>	646–651
New insights into the deep-water Otway Basin – Part 1. Integrated depth imaging workflows unravelling the subsurface <i>S. Y. Lee, B. J. Lim, A. Anantan and A. Karvelas</i>	652–656
New insights into the deep-water Otway Basin – Part 2. Tectonostratigraphic framework revealed by new seismic data <i>A. Karvelas, T. West, C. Nicholson, S. Abbott, G. Bernardel, C. Mitchell, D. Nguyen, M.-E. Gunning, I. Borissova and O. Schenk</i>	657–664
New insights into the deep-water Otway Basin – Part 3. Petroleum system modelling <i>O. Schenk, E. Grosjean, D. S. Edwards, C. J. Boreham, T. West and A. Karvelas</i>	665–672

Varying least principal stress along lithofacies in gas shale reservoirs: effects of frictional strength and viscoelastic stress relaxation <i>P. P. Mandal, R. Rezaee, M. Sari and J. Sarout</i>	673–678
Structural interpretation of the Beetaloo Sub-basin, NT from nonseismic geophysical data <i>J. Markov, C. Delle Piane, E. Swierczek, C. Foss and M. Faiz</i>	679–683
Salt in the Vulcan sub-basin, NW Australia: observations from high-quality 3D seismic data and implications for palaeogeography <i>S. Molyneux and S. Doyle</i>	684–687
Sediment provenance analysis of the Permian from the Perth Basin using an automated Raman heavy mineral technique <i>S. Munday, A. Forbes, B. Fairey, J. Hennig-Breitfeld, T. Breitfeld, T. Hicks, J. Sheehan and B. Kocjan</i>	688–694
A framework for inclusion of faults in coal seam gas risk assessments <i>T. A. Murray and W. L. Power</i>	695–698
Late Permian–Early Triassic depositional history in the southern Bonaparte Basin: new biostratigraphic insights into reservoir heterogeneity <i>R. Owens, A. Kelman, K. Khider, T. Bernecker and B. Bradshaw</i>	699–706
Gas sources and concentrations in Surat Basin shallow aquifers: a field sampling method comparison, and isotopic study <i>J. K. Pearce, S. D. Golding, P. Hayes, K. A. Baublys, H. Hofmann, S. J. Herbert and G. Gargiulo</i>	707–713
Petrophysical analysis of the unconventional reservoirs of the Lennard Shelf and Fitzroy Trough in Canning Basin, Australia <i>V. Shelokov, R. Hull, T. Rudge and P. Richmond</i>	714–719
Estimating porosity and permeability in the Springbok Sandstone, Surat Basin (Queensland), using new wireline log-based workflow <i>K. Sobczak, H.-G. Holl and A. Garnett</i>	720–725
Permian source rocks of the onshore and nearshore Carnarvon Basin <i>C. M. Thomas</i>	726–730