David Campin (d.campin@uq.edu.au)

PhD Candidate,

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David Campin has worked as a regulator, environmental/engineering consultant, corporate environment manager, and fresh water ecologist, over a forty year career in Australia, US, UK and New Zealand. Over the last ten years he has focused on researching, developing and publishing technical regulations for the unconventional sector, in particular mitigating the potential impacts of hydraulic fracturing. He is currently a full-time scholar at The University of Queensland having commenced a PhD in 2015 entitled *The governance of hydraulic fracturing in unconventional resources: the elements, form, and effectiveness of the regulations.* He was awarded an Australian Postgraduate Award, funding his research direct from the Commonwealth Government and independent of any third parties, particularly relevant given the contentious nature of the topic. The focus of his research is to examine the structure and form of hydraulic fracturing regulations (32 themes) from 12 jurisdictions across the globe and endeavour to relate regulatory form (prescription through to performance based) to compliance effectiveness.

In 2010, he won a prestigious Queensland International Fellowship and spent six months working with the USEPA Office of Water, in the Office of Science and Technology, Washington, DC, reviewing pretreatment requirements for coalbed methane produced water and shale gas flowback. During this time he gained first-hand knowledge of upstream unconventional operations in the US sedimentary basins in the Appalachians, the Rockies and in the South. He presented a comprehensive paper on the potential impacts and regulation of hydraulic fracturing to the Annual Conference of the Society of Petroleum Engineers (SPE) in New Orleans in 2013 and a subsequent paper examining the scientific evidence behind hydraulic fracturing regulations to the 2016 SPE Health, Safety, Security, Social Responsibility and Environment Conference held in Stavanger, Norway. He published a chapter on hydraulic fracturing regulation in the recently released substantial book "The Handbook of Shale Gas Law and Policy" (http://intersentia.com/en/handbook-of-shale-gas-law-and-policy.html). An outline of the approach taken in developing his research was presented in a paper to the 4th Energy Transitions conference in Joensuu, Finland in 2016 "Gaining Understanding of the Effectiveness of Hydraulic Fracturing Regulations". In April 2017 he present a paper "Cracking into Fracking with the Institutional Grammar Tool" at the first International Conference on Energy Research and Social Science in Sitges, Spain.

Aside from working with the USEPA he also spent four months working with the UK Environment Agency examining approaches to environmental risk management in 2006. He is currently the Australia/New Zealand representative on the Environmental Protection and Safety Panel of the *International Ocean Discovery Program* (www.iodp.org), responsible for approving scientific openocean scientific drilling programs across the world's oceans. He has also authored and co-authored over a dozen peer reviewed papers across a range of environmental issues, notably occurrence of dioxins in industrial waste waters, ultra-trace chloro-organics, land-use planning using ecological constraints, and fish toxicology; ten government publications; and presented over thirty conference papers.

Confirmed Candidate, Doctor of Philosophy, The University of Queensland (due early 2018) Master of Engineering Technology, University of Southern Queensland, 2007 Bachelor of Science, University of Waikato (NZ), 1973 Member: The Society of Petroleum Engineers