

fracking inquiry

From: Alex Read [REDACTED]
Sent: Monday, 14 August 2017 2:38 PM
To: fracking inquiry
Subject: additional resources ALEC
Attachments: ALEC presentation supplementary references.docx

Dear Fracking Inquiry,

Attached is a list of resources requested by the panel during the ALEC presentation on the 3rd of August. The resources will substantiate the position taken in that presentation on the issues of emissions, well failure, environmental law, social licence and ecology of the Sturt Plateau.

Warm regards,

Alex Read

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Additional references for the Scientific Inquiry into Hydraulic Fracturing in the NT

Emissions of ozone and volatile organic compounds

Jerret, Michael., Burnett, Richard., Pope, Arden., Ito, Kazuhiko., Thurston, George, et al, (2009) "Long-Term Ozone Exposure and Mortality", *The New England Journal of Medicine* 1085-95

- Demonstrated significant increase in risk of death from respiratory causes in association with an increase in ozone concentration.

Helmig, D., Thompson, C., Evans, J., Boylan, P., Hueber, J., & Park, J. (2014) "Highly Elevated Atmospheric Levels of Volatile Organic Compounds in the Uintah Basin, Utah." *Environmental Science and Technology* 48(9) 4707-4715.

- Study demonstrates strong causal link between gas emissions, accumulation of air toxics and significant production of ozone in the atmospheric surface layer.

Ahmadi, Mahdi., & Kuruvilla, John. (2015) "Statistical evaluation of the impact of shale gas activities on ozone pollution in North Texas" *Science of the Total Environment* 536: 457-467

- Evaluation of impact of shale gas activities on ozone trends through directional and temporal analysis demonstrated higher rates of ozone production in the shale gas region.

Vinciguerra, T., Yao, S., Dadzie, J., Chittams, A., Deskins, T., Ehrman, S., Dickerson, R. (2015) "Regional air quality impacts of hydraulic fracturing and shale natural gas activity: Evidence from ambient VOC observations" *Atmospheric Environment* 110: 144-150.

- Ethane concentrations have significantly increased as a fraction of nonmethane carbon emissions as a result of growth in hydraulic fracturing which has lead to greater ozone and PM 2.5 concentrations.

NOAA, Oil and Gas Wells Contribute Fuel for Ozone Pollution, Tuesday, January 15, 2013 <http://research.noaa.gov/News/NewsArchive/LatestNews/TabId/684/ArtMID/1768/ArticleID/10000/Oil-and-Gas-Wells-Contribute-Fuel-for-Ozone-Pollution.aspx>

- Established causal connection between increased VOC concentrations in the Atmosphere and Gas activities, including propane.

Thomas Forslund, (2013) "Associations of Short-Term Exposure to Ozone and Respiratory Outpatient Clinic Visits – Sublette County, Wyoming, 2008-2011" *State of Wyoming Department of Health*.

- Concluded that: "Results from this study suggest an association between ground-level ozone concentrations and clinic visits for adverse respiratory-related effects in the magnitude of a 3% increase in clinic visits the day following every 10-ppb increase in 8-hour max ground level ozone (pg 16)"

Infant Mortality

Busby, C., & Mangrano, J. (2017) "There's a World Going on Underground – Infant Mortality and Fracking in Pennsylvania", *Journal of Environmental Protection* 8, 381-393.

- “Babies born in the 4 years after fracking expansion (2007-2010) in those counties of Pennsylvania with most wells were 28% more likely to die in the first month than babies born in those counties in the 4 years before fracking began (2003-2006).”

Bore integrity

“Bore Integrity, Background Review” *Independent Expert Scientific Committee on Coal Seam Gas and large Coal Mining Development*, Commonwealth of Australia 2014.

- Notes almost complete lack of public data on bore integrity issues relating to CSG, “The level of (decommissioning) compliance is not measured by regulators and at the time of writing information on completed bore decommissioning was not in the public domain (43)”.
- Identifies knowledge gaps in bore data for Australian projects and offers recommendations for future research.

Beetaloo Basin

Simon Fulton, & Anthony Knapton, (2015) “Beetaloo Basin Hydrogeological Assessment” CloudGMS

Lake Woods and Sturt Plateau ecology papers

Fleming, M.R., K.A. Johnson, P.K. Latz and J.R. McKean. 1983. “A biological survey of Junction Stock Reserve and Newcastle Waters Pastoral Lease on the Barkly Tablelands”. Unpublished report. Conservation Commission of the Northern Territory: Alice Springs.

Jaensch, R.P. (1994a). “An inventory of wetlands in the sub-humid tropics of the Northern Territory. Report to the Australian Nature Conservation Agency”. Conservation Commission of the Northern Territory, Darwin.

Jaensch, R. and Bellchambers, K. 1997. “Waterbird conservation values of ephemeral wetlands of the Barkly Tableland, Northern Territory. Unpublished report to Australian Heritage Commission and Parks and Wildlife Commission of the Northern Territory”, 76 pp.

Pitts B. (1990). “Longreach Waterhole Vegetation Survey and Mapping”. Internal Report, CCNT: Alice Springs, NT.

Pitts B. (1994). “Vegetation Communities of Longreach Waterhole”. Internal Report, CCNT: Alice Springs, NT.

Environmental regulatory reform

- Two-part reform process, 1: environmental assessment and 2: other ancillary acts, like the *Waste Management and Pollution Control* and *Water Acts*.
- Outlines a positive vision for the NT to establish a system that is comparable to other jurisdictions.
- Removing the role of discretion and transferring to single approval process away from sectoral approval.

- No strategy for implementing the principles of ESD or ensuring it is applied in the law rather than merely considered.
- Major concern: That policy is not accompanied by a commitment to significantly increasing the resources and political will for adequate and robust enforcement and compliance procedures.
 - EPAs own admission: NT mining contamination legacy issues a consequence of limited efforts at compliance, enforcement and monitoring. This is due to insufficient Government resourcing and institutional will. The current NT regulatory culture does not prioritise adequate enforcement and monitoring of environmental licencing and mining activities.
 - The new regulatory system will only be as effective as the political will and resourcing allows it to be:

NT EPA, (2014) "Recommendations on the Environmental Assessment and Regulation of Mine Sites"

Social Licence

Curran, G. (2017) "Social licence, corporate social responsibility and coal seam gas: framing the new political dynamics of contestation" *Energy Policy* 101:427-435

- Discusses various conceptions of the social licence and its relationship with democracy and community opposition to a CSG project.
- "In our case at least, the company's narrative of reassurance, deliver through deployment of social licence, was eclipsed by the community's more resonant democratic one".

Publications from the Australian Panel of Experts on Environmental Law

- Outlines the framework for best practice, robust and progressive environmental law that addresses the underlying causes of environmental degradation.

Recommendations for the next generation of environmental laws:

https://static1.squarespace.com/static/56401dfde4b090fd5510d622/t/58f99d3c9de4bb35974ae5a5/1492753725897/APEEL_recommendations.pdf

Foundations of environmental law, best practice values, objectives and norms:

https://static1.squarespace.com/static/56401dfde4b090fd5510d622/t/58e5f852d1758eb801c117d8/1491466330447/APEEL_Foundations_for_environmental_law.pdf

Climate

Law/Policy: https://static1.squarespace.com/static/56401dfde4b090fd5510d622/t/58e601246a496356f0261aa6/1491468587851/APEEL_Climate_law.pdf