



Inquiry into Unconventional Gas (Fracking)

Livestock SA welcomes this Inquiry into Unconventional Gas (Fracking) in the South-East of South Australia. We request that Livestock SA be invited to appear before the Committee when it visits the South-East. It is vital that the Committee hear the concerns of the South-East Community, and take independent advice regarding any risks raised with them.

Livestock SA represents South Australian sheep, beef cattle and goat producers. Currently Livestock SA has over 2,000 members, about a quarter of who farm in the South-East, showing the importance of livestock production from this part of the State. These producers are rightly concerned about the effect fracking may have in this region.

Livestock SA advocated an independent inquiry into Beach Energy's gas projects in the South-East. This was initially agreed, with the South-East Local Government Association (SELGA) proposed to be the mediator of an independent inquiry. Details of the proposed independent reference group are attached (Attachment 1). The Minister for Mineral Resources and Energy rejected this process after all commodity and industry groups had committed to this process and instead requested Beach Energy to organise and fund a Roundtable, which removed all impartiality. Livestock SA was invited to be represented on the Roundtable and, while we were concerned about being involved, it was decided that Livestock SA should participate. David Smith was nominated as our representative.

The decision to have this Parliamentary Inquiry by the Natural Resources Committee will at least now allow a degree of independence. It is requested that the Committee hold as many hearings as possible in the South-East to allow those in the South-East, particularly livestock producers to voice their opinions on allowing fracking or more intensive conventional gas extraction utilising more populous well pads. There are many ramifications and land access issues, especially given the high stocking densities, traffic (both livestock and vehicles) and biosecurity risks in the region.

Terms of reference

In addressing its terms of reference, Livestock SA asks the Committee to consider the value and importance of agriculture in the South-East.

The Australian Government's *Agricultural Competitiveness Green Paper*, on page 78, clearly sets out the need to maintain prime agricultural land and clean water resources in the context of gas extraction (Attachment 2). The South Australian Government also needs to have the same commitment to protecting the rights of farmers and the integrity of prime agricultural land and water resources.

In relation to the South-East, the Annual Report of Regional Development Australia for the Limestone Coast for 2013-2014 raises the need to protect these resources:

It is widely acknowledged across the Limestone Coast region that our key natural assets, a diverse economy and the management structure for innovative and sustainable use of groundwater resources, provide a real opportunity for population growth and for the region to markedly increase its contribution to State and National development.

Minister Koutsantonis has even acknowledged the importance of the natural resources in the South-East, when he argued in the media in relation to the threat to agriculture from mining for the need to maintain areas “like the Coonawarra”.

And the South Australian Government recognises that “Premium food and wine produced in our clean environment and exported to the world” is an economic priority for the State.

PPSA ‘Mining and Gas Statement of Principles’

Livestock SA is one of the six commodity members of Primary Producers SA (PPSA). The other five members are Grain Producers SA, the Horticulture Coalition of SA, Pork SA, SA Dairyfarmers Association and Wine Grape Council of SA.

Mining and gas exploration and developments on primary production land have become issues for many primary producers. A number of concerns have been raised with PPSA and the commodity associations. To date, these concerns have been raised particularly from the South-East (Limestone Coast), Yorke Peninsula and Eyre Peninsula regions. The PPSA NRM Committee has met with staff from the Department of State Development, with responsibility for the regulation of mining and gas activities. PPSA has subsequently developed a statement of principles relating to mining and gas issues. (Attachment 3).

Unconventional gas exploration was a key topic for discussion at a meeting of PPSA, Livestock SA, Grain Producers SA, the Wine Grape Council of SA, the Horticulture Coalition of SA and SA Dairyfarmers Association in Penola on 15 April 2014, attended by Hon Leon Bignell, Minister for Agriculture, Food and Fisheries. Stuart Sharman (Limestone Coast Grape and Wine Council) provided an insightful presentation on issues arising for wine grape growers from unconventional gas proposals.

Livestock SA’s concerns

The development of further gas exploration and fracking potential in the South-East of South Australia and the potential to conflict with livestock production is of ongoing concern for Livestock SA. Farmers supplying both domestic and overseas markets are very concerned that they may be forced to include information on National Vendor Declarations (NVDs) which could jeopardise these markets.

No matter how good regulatory measures are, there are still very real risks for our industry. Are these risks at an acceptable level now or will the Government risk the \$3 billion dollar South-East State GDP contribution that is solely dependent on underground water resources?

All towns in the prescribed Lower Limestone Coast Water Allocation Plan area are reliant on the underground water resource for drinking water. Accidents occur within all industries that were not meant to happen. Despite the low risks quoted by the resources industry, increasing the magnitude of an operation significantly increases the proportionate risk of a well failure or accidents whereby risk becomes a reality. The risks associated with well leakage or failure are further magnified when the South Australia-Victoria Border zone groundwater investigation found that there is significant vertical movement of water between our aquifers demonstrating continual interconnectivity (S. Mustafa & J. Lawson, Department for Water 2011). Any contamination is therefore not likely to be contained to one aquifer. Compounding this problem is the many layers of hyper-saline aquitards that will be drilled through, along with potential release of radioactive isotopes and undesirable contaminants that could potentially be mobilised within the rock strata.

Short term gas well extraction life cycles of 15 to 30 years should not outweigh risking centuries of guaranteed high quality and high volume agricultural produce from this region. The combination of multiple drill holes per well pad, slick water, horizontal drilling, high volume and high pressure fracture stimulation which has been practiced since 2007 is still in its infancy. There is mounting evidence in the American

Marcellus shale basin that gas well integrity and cement lifetime presently do not appear to be at acceptable levels. This needs to be addressed by the Inquiry, given that underground conditions of geothermal activity and a history of volcanic activity in the South-East provide conditions which are conducive to rapid cement failure (D. Mavroudis, PIRSA 2001).

As the aforementioned methodology is yet to be adequately assessed in South Australia despite recently being commissioned within the Cooper Basin, Livestock SA recommends a halt to further developments as we should not be experimenting on agricultural land. Professor Tony Ingraffea (Cornell University) and Louis Allstadt (ex Vice President Exxon Mobil) warn that time is the true litmus test for well longevity. Sufficient time and adequate base level groundwater testing has not been conducted to assess impacts to the Cooper Basin. This issue may be a legacy for South-East farmers, local residents and Government to resolve 20 to 50 years in the future, once the gas companies have long departed and are not even required by current legislation to ameliorate any damage caused. Gas resources will still be present in decades to come at which point we will have had time to re-assess the technology's viability via the impact shale gas extraction has had worldwide.

Land access issues are more prevalent in the South-East due to livestock density and intensive grazing practices. Disease spread from the movement of vehicles between properties can have far greater impacts both spatially and in intensity. This is not pastoral country where slight slip-ups might go undetected. Furthermore close examination of the gas fields on Google Maps depicting Barrow Island Western Australia reveal well pads from 400m down to less than 200m apart covering almost the entire southern half of the island. An even closer examination reveals wheel tracks criss-crossing randomly between pads, whilst this has appeared to have occurred during the well drilling phase and although the gas field is now "mature" and they now seem to be using the established tracks, the damage to the vegetation and soil structure is still quite evident from the aerial photography. This insensitive impact on South-East properties would be economically crippling for producers. In addition, the linking of wells with pipelines and new roads and the necessary easements is not well understood. The practice of laying the pipes directly on the surface which appears to now be the case in many gas fields would be an intolerable inconvenience costing primary producers and even reducing access for wildlife.

Summary

The use of new unconventional gas extraction methodology has changed in the last decade and is still being developed. While the known threats are addressed, this submission does not list the many documented cases of failure and contamination caused by shale gas extraction in other countries. Of particular interest is that resources companies and the State regulator commonly dismiss this problem as being caused by "cowboys" within the industry. If Beach Energy and Santos have documented cases of less than desirable outcomes for the environment that involve hydrocarbon spills and release of radioactive material into potable aquifers, are they reputable companies? Have other Australian States, all of which claim having the best regulatory framework, failed in these instances?

Livestock SA opposes any industrial development if there are known unquantifiable risks to a significant water resource that underpins some of the State's most valuable agricultural land. We welcome the Parliamentary Inquiry, and the opportunity for the Committee to get true independent advice on all risks raised with them by the South-East community and primary producers.

S. Mustafa & J. Lawson. "South Australia-Victoria border zone groundwater investigation: Results of the pumping test program", Science, Monitoring and Information Division Department for Water. August 2011

D. Mavroudis, PIRSA 2001, "Risks Associated with Drilling and Well Completion Practices in the Cooper/Eromanga Basins"

**Independent Reference Group for Petroleum in
Unconventional Reservoirs in the South East of South Australia**

Terms of Reference

Objectives

The Independent Reference Group for Petroleum in Unconventional Reservoirs in the South East of South Australia has been established as an impartial body to:

- Focus on potential environmental, social, health and economic impacts and benefits relating to oil and gas exploration and development activities in unconventional rock reservoirs in the South East of South Australia.
- Identify and address (or establish mechanisms to address) questions, concerns and issues relating to such impacts. To this end this may entail identifying relevant research and studies that may require to be commissioned.
- Provide a forum for stakeholder engagement on all concerns and issues relating to oil and gas exploration and development activities in unconventional rock reservoirs in the South East of South Australia.
- Provide relevant information to assist the regulator in advising the Minister for Mineral Resources and Energy on all Statements of Environmental Objectives (SEO) assessments and approvals for activities in unconventional rock reservoirs in the South East of South Australia, all in accordance with Part 12 of the *Petroleum and Geothermal Energy Act 2000*.
- Inform the Minister for Mineral Resources and Energy on state policy in relation to oil and gas exploration and development activities in unconventional rock reservoirs in the South East of South Australia.

Membership

The membership comprises of an Independent Chair or Co-Chairs appointed by the Minister for Mineral Resources and Energy and nominated representatives and their nominated proxy from key government and non-government organisations including from, but not limited from the following:

1. Energy Resources Division, Department of State Development (member and secretariat).
2. CSIRO (member and possible Chair or Co-Chair)
3. Environment Protection Agency South Australia (member)
4. Department of Environment, Water and Natural Resources (member)
5. Department of Primary Industries and Resources (member)
6. South East Local Government Association (member)

7. South East Natural Resources Management Board (member)
8. South East Health Advisory Council (member)
9. APPEA (member)
10. SACOME (member)
11. Primary Producers SA (member)
12. Doctors of the Environment (member)

Secretariat support will be provided by Energy Resources Division, Department of State Development to assist in delivering the groups objectives.

Deliverables

The reference group will achieve its objectives through:

- 1) Appropriate stakeholder and community representation
- 2) Appropriate expert advice on identified issues
- 3) Commissioning relevant studies and research as required. Funds would come from existing budgets.
- 4) Collating and disseminating relevant and technical information as appropriate
- 5) Identifying necessary baseline and ongoing monitoring for potential impacts as appropriate.

Meetings and Governance

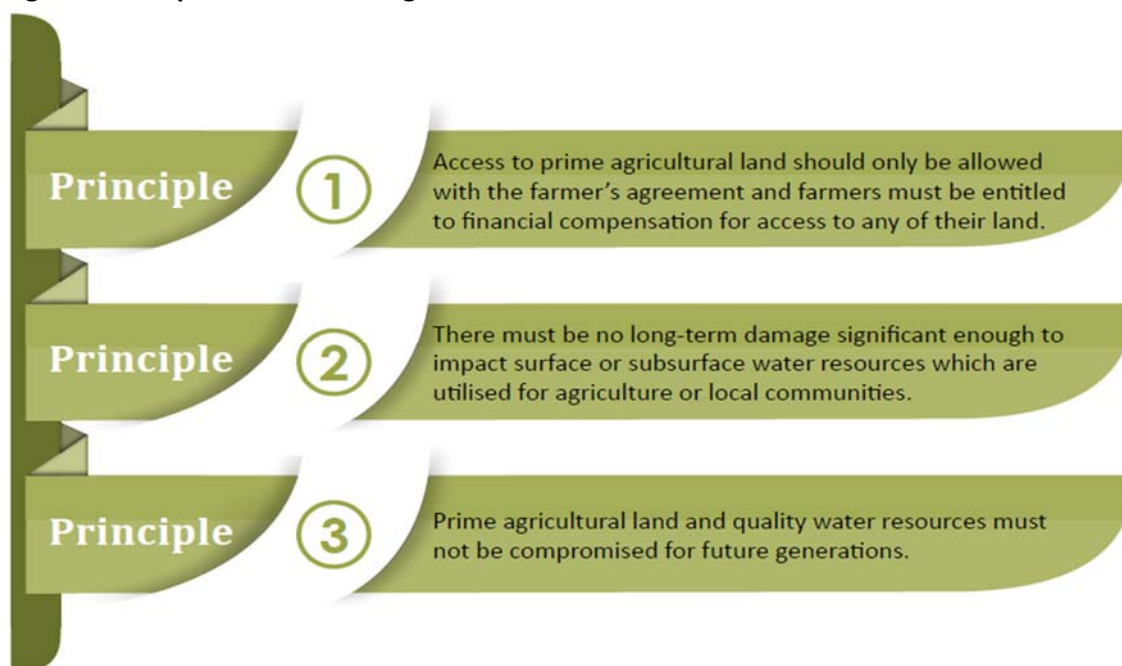
The reference group will:

- 1) Be chaired by an independent person or persons appointed by the Minister for Mineral Resources and Energy.
- 2) Secretariat will be provided by the Department of State Development Energy Resources Division.
- 3) Meet on a monthly basis initially to establish itself and its work priorities.
- 4) Meet thereafter as required to monitor key milestones.
- 5) Not be responsible for the funding of any research or any other studies or work necessary to be undertaken to fulfil its objectives.
- 6) Remain as a standing committee until such time the Independent Reference Group concurs all tasks and projects have been completed to an extent that the Group has delivered or will deliver outputs aligned with its objectives.

From the Australian Government's *Agricultural Competitiveness Green Paper*, page 78

Prime agricultural land and clean water resources are key assets for farmers, local communities and the nation as a whole. The Australian Government is committed to protecting the rights of farmers and the integrity of prime agricultural land and water resources. Farmers are entitled to a fair return for access to their land. This has the potential to benefit farmers through higher returns than would otherwise be earned from the property. Sustainable local communities and a lasting positive legacy from resource extraction must be built. In order to build and maintain coexistence the following principles should be at the heart of coal seam gas development (Figure 21).

Figure 1 Principles for coal seam gas



Source: Adapted from The Coalition 2013



Mining and Gas Statement of Principles

It is vital that decision-making on mining and gas projects is underpinned by a robust knowledge base and that local communities are well informed to determine their own positions on proposals. Local communities should have their interests respected and not overridden or ignored by outsiders.

PPSA supports the following principles:

- The profitability and long-term sustainability of food and fibre production must not be compromised.
- Australia's reputation for safe, clean quality food must not be compromised.
- Water resource quality and quantity should not be compromised.
- Social, economic and environmental outcomes must not be compromised.
- A long-term view must be taken in assessing mining and gas proposals, considering any possible long-term impacts and seeking to prevent significant negative impacts over a long timescale.
- The key to productive relationships between agriculture and mineral and petroleum industries is relationships built on genuine trust and goodwill and appropriate community engagement.
- Landholder rights impacted by mineral and petroleum licences must be protected by strong regulatory frameworks.
- Land access agreements should recognise landholder and occupier property rights, and the negotiations must be respectful of farmers.

Community engagement must be consistent with the following principles:

- Transparency and full disclosure;
- Early and ongoing collaboration;
- Inclusiveness;
- Ethical and responsible business practice;
- Integrity and appropriate behaviour;
- Capacity building; and
- Listening and responding to community concerns.

Any land access agreements should include:

- Appropriate recompense for the full range of costs;
- Clear agreements with landholders regarding the disposal and acquisition of any exploration or extraction licence;
- Mining practices including compliance with drilling legislation and regarding the use of chemicals;
- Biosecurity requirements;
- WH&S requirements;
- Rehabilitation of land;
- Appropriate long-term insurance and bond arrangements;
- Arrangements for normal agricultural operations; and
- Any and all conduct while operating within the landscape.

Legislation

It is noted that the *Mining Act* provides specific protections for primary producers, whereas the *Petroleum and Geothermal Energy Act* focuses largely on the development of a Statement of Environmental Objectives (which can include financial or socio-economic objectives).

It is recommended that:

- Greater equity needs to be achieved between water management policies for agriculture, horticulture and viticulture and for mining, gas and forestry activities. Mining and petroleum exploration and extraction activities must not compromise water resources for other industries and future generations.
- Section 9 of the *Mining Act* should be amended to state “land that is lawfully and genuinely used as a yard or garden or for agriculture, horticulture or viticulture” so that the definition comprehensively covers agricultural, horticultural and viticultural operations (including grazing).
- PIRSA, PPSA and affected landholders should be included with the bodies (or people) to be consulted on the Statement of Environmental Objectives under regulation 12 of the *Petroleum and Geothermal Energy Act*.
- Consideration should be given to provisions for landholders in close proximity to mining and gas operations, who are impacted by the operations.
- Provisions in either Act relating to public notification by newspapers should be amended to include notification of key stakeholders (which would include PPSA) by more modern methods (e.g. email).
- The Minister must be certain that there is no damage – and that there is likely to be no damage which occurs, or is discovered, in the future as a result of the mining/gas activities – before approving the relinquishment of licences and releasing bonds. Landholders should not become liable for any negative impacts of mining or gas activities.
- There should be appropriate appeal provisions and mechanisms in place.
- Costs for dispute resolution (including legal, valuation and other costs) should be covered by the mining or gas proponent up-front or as they arise.
- Penalties must be of an appropriate magnitude, proportionate to risks, and to impose an adequate disincentive for negative impacts.
- Compliance reports are published by DMITRE for activities under both the *Mining Act* and the *Petroleum and Geothermal Energy Act* in a timely manner.
- Important documents such as Environmental Impact Reports, Statements of Environmental Objectives and Programs for Environment Protection and Rehabilitation, as well as licence conditions, should be publicly available and readily accessible.
- Mining and gas/petroleum legislation should be reviewed from time to time, with reference to best practices in other jurisdictions.
- Land use planning decisions should be made by the relevant planning authorities. Mining and gas activities which do not comply with development plans should not be exempt from planning approval requirements.