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Livestock SA represented at fracking inquiry

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Thank you for the opportunity to present today from a Livestock SA perspective.

I am feeling a lot of pressure from people earning a living in the South East, given the importance and well documented concerns surrounding unconventional gas and fracking. These people are the 2400+ members Livestock SA represent, and as such, I have opted to read a statement. My time assisting with Livestock SA's submission and this subsequent presentation should have been more detailed. Time constraints are applied by the increasing pressures of our capitalistic society where farmers - with finite resources - are constantly required to do more with less. This is part of the reason why regional communities are declining, resulting in less people to pick up the volunteer work load. If only we could apply more fertiliser, trace elements, and most importantly more water, at the same rate that "the system" adds pressure to our lives. The cyclic services sector, with its wage increases matching consumer price indexation - while vital for employment - essentially passes the price of services to the last link of the chain - the agricultural sector - forcing farmers to be efficient and innovative to a point. Less money to spend in local shops has seen them disappear at about the same speed as our regional health services. Less money, and fewer and busier people, has severely undermined the livestock industries agro political influence. As the State increases emergency services levies 800-1200%, doubles the NRM Water levy in consecutive years while simultaneously dropping the axe on agricultural research and development organisations this begs the question - "How are farmers, the largest State export contributors, going to support the worlds growing appetite?"

Livestock biosecurity, once co-funded by the State to employ district veterinarians, animal health officers and fund abattoir surveillance - the basis for our "clean green image" so important for our exports. It is constantly banged on about by all levels of Government, but is now 100% cost recovered from livestock farmers. There are many ramifications with land access issues, especially given the high stocking densities, traffic (both livestock and vehicles), and biosecurity risks prevalent in the limestone coast region. Livestock biosecurity best practice is ever evolving as we encounter

events and learn more about particular pathogen life cycles. “Closed shop” enterprises – those only allowing their own vehicles access, and known bio-security status of seed stock (rams and bulls), with all generated produce being sold off farm, will almost certainly be eventually compromised by any other vehicle incursions.

Drilling contractors and mining traffic will require access through existing or newly built lane ways, all of which are used as stock thoroughfares and require hard grazing by farmers to establish suitable fire breaks. While I acknowledge Landholder Access Agreements that are negotiated with mining companies, the livestock industry is at risk of individual property owners not negotiating the level of rigor that is required of modern day biosecurity best practice measures. This will place their operations at risk, and eventually that of all their neighbors, due to the movement of vehicles from property to property.

It must be noted that when farmers consign livestock to sale yards or abattoirs, biosecurity is of upmost importance. Dedicated truck loading areas are isolated from grazing stock and always located near sealed roads for ease of truck access and to reduce potential of disease introduction. Carriers are required to have clean decks and empty effluent tanks. Livestock trucks do not drive through paddocks or areas where stock graze whereas mining companies frequently traffic within farming boundaries. It is this breach of property boundaries and subsequent movement between other properties that has a high probability of spreading notifiable and economically significant diseases, and also notifiable weeds. The two most prevalent diseases are Ovine Johne’s disease and virulent Footrot – while many weeds, such as Paterson’s Curse, Three Corner Jacks, Caltrop, Shepherds Purse, and many varieties of thistle can be physically transported by vehicles from farm to farm. These diseases and weeds are present in the states south east and incur a significant management cost to farmers and industry.

Ovine Johne’s disease (OJD) is an incurable, infectious wasting disease of sheep that can result in significant economic losses on infected farms due to sheep deaths, trade restrictions, and lost production in meat, lambs and wool. Bacteria are shed in large numbers in the manure of infected animals, contaminating pasture and water supplies and spreading infection to other susceptible sheep. Once a flock is endemically infected with OJD, it is difficult to eradicate. Annual death rates of up to 25% in sheep flocks have been observed, combined with a significant reduction in lambing percentages. Sheep manure on equipment, wheels, and contaminated run-off, can spread the infection between farms. Animals pick up the infection from contaminated pastures, water and teats. The bacteria can survive for many months, and nearly a year in shaded environments, and restricting visitor and vehicle movements onto your property is a necessity in any management program.

Footrot is another notifiable disease with regulatory support on compulsory eradication programs. It causes significant economic losses with control and eradication very costly and time consuming. Spread is primarily from sheep foot to foot on pasture or mud with vehicles and footwear able to spread infected material. Spread is usually limited to months of higher rainfall and warm conditions with the causative bacteria only surviving up to 7 days in the environment without a host. If gates are left open for access of a following vehicle (when two or more vehicles are moving from property to property) an un-controlled diseased stock movement can occur without being noticed, or reported, then bio-security breaks down.

Currently the Cattle Industry Fund, which underpins State biosecurity (conducted by PIRSA) is on an unsustainable path since current ear tag levy accrual rates are not keeping up with expenditure. It may become defunct in 2-3 years. A previous increase of the levy resulted in many producers claiming back a significant portion of this fund (allowable under the Act) and without either a further increase in the levy, or an alteration to the Act to avoid the loss of funds due to producers reclaiming levies, an essential monitoring system for our export requirements may cease. The sheep industry fund is also on the same perilous course and simply put cannot cope with an increase of the

above notifiable diseases. At a cost of \$1.1 million dollars for farmers or approximately 18c a sheep for the OJD monitoring and subsidized vaccination program, further levy increases to cover footrot (\$400,000) and OJD expenditure will reach an untenable level for producers.

We must all – producers and Governments - face up to the fact that most areas of agriculture in Australia are well able to provide food for the upper and middle class echelons throughout the world due to our clean, green image. People desire, and are happily paying a premium for food produced in clean and green environments. Consistency of supply and a long history of high quality food that is heavily regulated by leading world class domestic and export demands have allowed the Limestone coast to capitalise on lucrative niche markets. However, a recent example where this process fell down was when Russian authorities banned Australian beef imports in 2014, citing the discovery of the hormonal growth promotant trenbolone acetate in the meat.

While the Australian Government described the ban as more about politics, publicity about anti-fracking movements, use of reclaimed fracking fluids for irrigation, or perception of any breakdown of any element of our clean, green image can very easily deter customers and damage long established trade to these valuable markets. In 2012 Egypt banned a consignment of 16,000 cattle due to the presence of HGP's and in Australia in 2010, Coles banned all beef with HGP's. This week, non-organic, free range, grass fed beef, with no chemical residues, antibiotic use or growth hormones, is providing conventional farmers in the South East a 50 cents a kilogram advantage over mainstream yearling comparable beef carcasses – on a 550kg steer this equates to a \$137 advantage.

There are concerns about the potential for toxins to enter the food chain and make their food unsafe ranging from benign to heavily toxic. Natural heavy metals (lead, mercury, cadmium, chromium etc.) and also barium, bromide, strontium, arsenic and radioactive substances have been found in the Cooper Basin. Were there any accidental spills or inadequate disposal this could be very damaging for our regions reputation and if detected during residue testing. In July 2014, Beach Energy disposed of untreated drilling water by spraying it on a number of properties.

So how would you stand if residue testing finds contaminants in your beef? Who would be liable if a neighbour had signed an agreement but you hadn't. Mining company or the producer? Meat and Livestock Australia funded a project for the Cattle Council and lot feeders Australia which was completed in March 2013. The engaged legal firm provided advice on who would be liable for any contaminants being found in cattle and of course the liabilities of producers when completing an NVD. At the time the views expressed that this was a serious concern for beef producers and it was hoped that the project would provide a resolution. However the legal firm contracted to do this work, which was funded by MLA producers' money, upon completion the report stated that it should not be released. Cattle Council said the information in the report was legally sensitive due to the fact that it advises liability therefore the report itself should not be released. This is a crucial component of this debate and if Livestock SA can obtain this document we would like to present it as evidence.

Mining absolute guarantees are not possible but there is existing knowledge from research on aquifers and groundwater models that should make it possible to estimate the risks and uncertainties of adverse impacts. While I have a lot more confidence in today's regulatory measures in Australia, best practice is only good until a number of failure incidents force the need for revisions, and with good reason, we remain sceptical as to who will be around to "foot the bill" for remedial work should fracking gas extraction proceed.

In the 1950's and 60's, the Government's Mines and Energy Department requirement, and "best practice," for artesian bores used for stock, domestic, or irrigation water, was a single steel casing driven into rock layers, and then an un-cased bore-hole to the water bearing aquifer – until they

began leaking outside the casing, and into the upper aquifers. So “best practice” became a steel casing into the final clay layer, and a single slotted steel casing into the aquifer – until they began failing due to corrosion in highly saline aquifers. “Best practice” then became steel surrounded by cement – until they too failed. Then “best practice” became two steel casings with a pressure cemented layer separating them, and fitted with an appropriate sized sand screen – until they also started to fail. In the late 1990’s “best practice” became the use of two non rusting PVC casings, with a pressure cemented layer separating them. All non-complying bores were abandoned after being pressure cement sealed, or were recommissioned nearby under the new criteria – at very considerable Government and landholder expense. Will this new system be sufficient, or will “best practice” be revised yet again? Time in service will be the only way to answer this question. If this is the ultimate solution for accessing artesian water, it will not be “third time lucky”, nor “fourth time lucky,” but “fifth time lucky – and watching!”

Now while failures in livestock bores went un-noticed for quite a period, and wasted and contaminated a valuable resource to some extent with saline water, it did not give rise to the loss of such a demonstrated valuable resource as contamination from the unconventional gas industry could. Nor did it cause the potential exclusion of contaminated produce from lucrative world markets, and possibly threaten the safety of the Food Bowl of South Australia.

What the repeated failures of “best practice” associated with accessing the confined aquifer did do, and quite rightly so, was to alert the residents of the Limestone Coast to the potential of failures of current “best practice” of the fracking process, should that be adopted. And please don’t dismiss this by saying how much smarter and more sophisticated we are now than we were on five occasions in the past, because that is what was stated regularly during that period of trial and error. Nor try to justify it by saying there are already plenty of abandoned exploration wells that are not leaking (currently) because that is no guarantee against future failures. At least one exploration well – abandoned and concrete back-filled under Mines Department supervision failed when Western Mining were undertaking coal exploration on one of their leases, as have a number of their abandoned shallower bores. Failure at such depth may take a long time to become apparent, but it will surely be expensive to fix when detected. What is the lifetime of a well after mining companies have adequately ameliorated sites to DSD standards? In 500 years will cement and steel casings remain intact to mitigate problems of vertical movement between saline and freshwater aquifers? I note that a 2013 Japanese research investigation by Yamaguchi et al forms much of the South Australian Governments defence of well integrity and long term durability which suggested sound results over a simulated 100-1000 year period. Despite DSD also stating that little data exists about long-term durability, a simulation of CO2 levels at 50, 60 and 70 degrees Celsius for varying depths somehow gives high levels of confidence despite Panax Geothermal (Now Raya Group) operating on the same Penola trough detecting 171.4 degrees Celsius in a 1000m intersection in the Pretty Hill Sandstone – some 100 degrees more than the simulation and when combined with CO2 is a major factor in cement break down and failure. This extensive data was obtained from 28 petroleum wells with the maximum depth of 4000m. The Penola trough is acknowledged as having certainty for geothermal activity.

Risks to human health, water supplies, soil and livestock systems are being revealed in an avalanche of information. While risk is stated as low by the Department for State Development, multiplying the number of unconventional gas wells by a low figure does still result in undesirable events. It is the unknown impact of these events that in our most profitable agricultural region could easily outweigh the calculated royalties collected. And I reiterate that little data is available about long term well durability.

Yet we simply want to exploit a low profile gas reserve in a highly populated and valuable landscape underpinned by our rich volcanic soils and a groundwater resource that is the envy of farmers across the world – and for what reason, because roads, gas transmission and electricity distribution networks are close to the end user? Because State “growth” is flagging and the present short term

political life cycles demand successful balance sheets to appease perhaps unrealistic demands and political promises? Risk becomes less of a deterrent as State economic conditions further decline and as such, having a government department as the regulator and promoter does not give our farming community much confidence.

What can be gained from American studies where millions of people and farmers alike live in close proximity to fracked wells under varying compliance and monitoring regimes? They had very little knowledge when rapidly expanding the gas industry on human health impacts which includes both social, mental and physical wellbeing. Let's learn from these studies so we don't have to use the people from the Limestone Coast as an experiment. Fracking in the Cooper basin was deemed ok, but fracking in close proximity to Adelaide is not. Why is it ok to exploit the populace area of Penola for example and not wait 10-20 years to learn from the US and obtain accurate data? The resource is not going anywhere and will only appreciate in value given the finite nature of the world we live in. Best practice will only get better.