

Submission to the Northern Territory Hydraulic Fracturing Inquiry

Rohan Sullivan – Birdum Creek Station

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I would like to relate my experience over the last 2-3 years as a pastoral lessee in the Northern Territory who has actually been impacted by petroleum exploration activities. I emphasize the word actually, because many if not most of the loud voices in the hydraulic fracturing debate have not had any shale gas exploration activity on their properties.

Our pastoral lease, Birdum Creek, is near Larrimah, approximately 180km south of Katherine. The property was purchased in 2002 and is owned jointly by myself and my wife Sally, and our neighbours to the south Tom and Bev Stockwell. The property is 76,300 ha and is run in two halves, with the Stockwells operating the southern half and ourselves the northern half. My comments mainly relate to the northern half.

We were not affected directly by any exploration activity until 2013. Prior to that, the main focus of activity had been further south-east around Daly Waters. Any view I may have formed about the impacts of exploration activities was only from second or third hand information. This mainly revolved around interference with day to day station activities such as mustering, watering cattle, damage to infrastructure such as roads and fences, spread of weeds along new seismic lines or roads and the potential for fires. On the other hand, it seemed there may be opportunities to provide services or carry out work for the exploration companies.

Exploration company, Pangaea, was granted exploration permits (EPs) over the Sturt Plateau district including Birdum Creek in January 2013 and started making contact with property owners to formalise access arrangements for an exploration program. Resistance developed fairly quickly as individual pastoralists objected to the lack of input into the proposed access arrangements and a perception of being rushed.

Landholders also wanted the opportunity to be involved in carrying out some of the preparatory work rather than bringing in interstate contractors.

Initially it was not clear who we were actually supposed to be dealing with. There was a seismic contractor, and the initial contact with landholders was made by contractor staff who did not have any authority to negotiate different arrangements. Some of the local group had been through the experience of the Alice-Darwin rail construction and did not want a repeat of divide and rule tactics and lack of communication or accountability.

These problems were only resolved when the pastoralists as a group nominated a spokesperson to negotiate directly with the company to address issues of concern. Ultimately, an agreement was reached with Pangaea. Legal advice was provided by a lawyer of the groups' choice but paid for by Pangaea. The agreement reached between Pangaea and the group has formed the basis for a strong, functional working relationship with new written agreements required for each years activities.

The extent of the exploration activity has reduced over the 3 year period from an initial 20 + properties down to approximately nine. This will probably reduce further if the program resumes.

My assessment of the relationship now is that the majority of pastoralists in the district are either neutral or supportive of the exploration program. Some people hold the view that the potential value of the resource is such that the development of a gas/oil field will ultimately go ahead should the exploration program prove successful. However there are people who still have concerns, particularly about the potential impacts on water.

In general, the local pastoralists see the activities associated with the exploration and potential development as a means of fast-tracking public infrastructure development in the district and generating economic activity in the region. Pastoralists do not have rights over minerals or petroleum, but do see potential benefits from the building of infrastructure including access roads and water supplies (dams and bores) on properties which can revert to the pastoral lessee on

completion of the exploration or development program. This may help to compensate for the inevitable disruption to normal pastoral activities.

The Western Creek Road runs west from Larrimah and services 6-7 properties directly as well as linking to other regional roads. This road was badly impacted by heavy truck traffic during the construction of the Alice-Darwin rail line and was not repaired afterwards. Local people have been putting up with sub-standard access for years and lobbying the NT government to provide adequate maintenance and upgrading. However this has been extremely slow and dependent on small allocations of funding which never seem to go very far.

When Pangaea indicated their intention to upgrade and seal the Western Creek road as part of their development program, there was strong support. Work was due to commence in 2016.

There was understandable anger when the NT Labor party announced their intention to proceed with a moratorium on hydraulic fracturing should they form government after the next election. The impact of this has now become apparent with Pangaea suspending their 2016 program worth \$100m, including commencement of the Western Creek Rd upgrade.

It is likely that upgraded communications infrastructure (ie. mobile coverage) would also become available as part of Pangaea's activities. Currently Larrimah has no mobile coverage at all.

Water

Water has always been a critical issue on the Sturt Plateau. There are no permanent streams and very few natural waterholes. Underground water is present but not easy to find and there have been many unsuccessful bores drilled.

Pastoralists are understandably protective of their underground water supplies and any activity which potentially threatens these is regarded with suspicion. However, during the course of the drilling program on the Sturt Plateau, most of the local pastoralists have become familiar with the techniques used to isolate the water bearing strata from the drill hole to prevent leakage and

contamination. Pangaea and the drilling contractors have been quite open in allowing local landholders to visit and tour drill sites.

The main concern is about the amounts of water potentially used for hydraulic fracturing and the effect of this on stock water supplies. Pangaea have installed monitoring equipment in bore holes however their water usage to date has mainly been for domestic purposes.

During the course of their seismic and drilling program, Pangaea have identified and mapped a deeper aquifer which was previously only poorly known. Water quality in this aquifer is reportedly lower than needed for stock or domestic usage but suitable for use in hydraulic fracturing. It is now possible that no water will be required from the aquifers we draw our stock water from. In fact, there may be opportunity to source treated water for on-property use.

Pangaea have also had extensive LIDAR coverage of the area done to assist with the design of the Western Creek Rd. An added benefit of this coverage is that Pangaea now can produce a map of ground elevation over extensive areas of the Sturt Plateau including Birdum Creek. This will enable the most efficient placement of dams and excavated tanks to capture runoff water for use in either their drilling and fracking operations, or for pastoralists to use for development of dams for stock water.

Other issues

From my point of view the main problems in having the exploration activity on my property are associated with planning. The placement of planned seismic lines can change depending on drilling results and vice versa. Having a major seismic program means lots of new gateways need to be installed in fence lines which is really just another job to do even though we are compensated for the time and expense.

At present our half of Birdum Creek is in a relatively undeveloped state and requires more fencing and water points. It would be far better from my point of view for Pangaea to get in and conduct

their exploration and development activities before we construct more of our own infrastructure. Even with the best will in the world there will be misunderstandings and communication problems and rather than deal with the inevitable disruption and drama, it would be far better to get it over and done with.

I can understand the concerns of people who have more highly developed properties. The more infrastructure on a property the bigger the task of managing the impact of exploration activities particularly seismic.

To date we have had over 100km of seismic lines, 1 exploration well and 3km of gravel road put in on Birdum Creek north. The only issue to arise was when Pangaea's contractors watered the Western Creek Rd to stop dust and were stopped by the Dept. of Infrastructure because they didn't have a permit to work in the road corridor!

There is much made about the impact of multiple well pads and other gas infrastructure on pastoral land. My understanding is that horizontal drilling techniques now allow multiple holes to be drilled from one drill pad. These holes can radiate out in all directions from the vertical for up to or exceeding 1.5km. So potentially, a 200*200m (4ha) drill pad could extract gas from under an area of 8 sq. km (800 ha).

Extrapolated to the rest of Birdum Creek north (360 sq. km), the whole property could be developed for production with 45 wells covering an area of 180ha total or 0.5% of the property area. Other infrastructure would include pipelines to connect the wells to a central point and a compression station, but even if this doubled the area it would still be only 1% of the property and cattle can still graze where the pipelines are laid underground.

If the property was to host a conventional oil or gas field then the number of wells required would be vastly increased. The Kern River oil field in California has 8000 wells in an area of 10000 acres. There is no way that any other land use could co-exist with that. This may be an extreme example,

but many of the images shown by anti-fracking activists of closely developed gas or oil fields are actually conventional fields. Horizontal drilling and hydraulic fracturing allow a much lower density of well pads and the technology is developing continuously so the footprint may be reduced further.

From my point of view, if there is to be any sort of mining or petroleum activity on Birdum Creek, I would prefer an unconventional gas/oil field over a conventional field or an open cut mine any day.

Rohan Sullivan

Birdum Creek

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