Unconventional Gas Mining
Planning and managing in a coexistence scenario

Preparing a Land Access Agreement (LAA) or similar legal paperwork may be daunting. Well documented baseline information about your property is required, as well as a long, hard think about your farm business plans. You also need to consider your farm’s future physical requirements; and the lifestyle you want to maintain or create longer-term on the property.

Each of the lead State agricultural groups strongly recommend that farmers seek independent legal advice as early as possible in negotiations. This is important as some regulated parameters, limits and restrictions can be waived by mutual agreement in a LAA.

Information sheets developed by agricultural industry groups in NSW and Queensland provide good general guidance for farmers on what to negotiate with gas companies, taking into account the practicalities of operating a commercial farm together with lifestyle and privacy (See Further Information section).

In this Fact Sheet we will highlight some dairy-specific matters to consider.

Contact from the gas company
You may be contacted by a gas company in person, by letter or other means. Requirements for a company to notify of their intention to access your property, and notification periods, vary across States (see Fact Sheet Unconventional gas mining – Overview of regulatory safeguarding and research).

The notice should explain the area where access is required and the intended activities. Importantly, farmers should establish a point of contact for the gas company, and agree on a preferred method of communication, including ongoing updates and how to report any damages or incidents.

When contacted, a farmer should request a LAA explaining, as a minimum, the pre-exploration studies to be undertaken and reported (some will be mandatory anyway), insurances and securities. A written LAA is legally required in NSW and Queensland for both exploration and mining stages. In Victoria, a written compensation agreement is required for mining access only.

Contact your milk company
It is highly recommended that if you are notified of any intent to explore or develop unconventional gas, contact your milk company to discuss any food safety considerations or requirements for ongoing transport access.

Baseline studies
Having baseline information for future reference and rehabilitation is highly recommended. These studies establish the conditions of your property and the environment before exploration and development. This makes it easier to measure any damage or estimate compensation, if necessary.

Baseline assessments can include:
- Photographs or formal evaluations by independent technical specialists.
- Land value.
- Condition and extent of buildings, structures or farm improvements such as fences or dams.
- Quality and quantity of ground and surface water; and,
- Condition and location of natural features such as contours, soils, pastures and native vegetation.

Current farm business figures should also be assessed such as annual milk production (as a seasonal break-down), annual pasture production (ie, quality, utilisation) and seasonal cropping yields.
What you need to consider

To plan for any coexistence and best protect their business, a dairy farmer needs enough information to understand the extent of the operations intended by the gas company. This information includes understanding the potential impacts of hosting a gas well on your property. (See Fact Sheet Unconventional gas mining – Impacts and opportunities for dairy).

Developing a farm plan that identifies both natural and infrastructural assets is worthwhile. Once overlaid by the proposed gas mining infrastructure, potential conflicts can be highlighted and discussed with the gas company as part of the land access agreement.

For example, ask yourself, will there be impacts on:

- The operation of the dairy shed, feed pads, farm machinery, fodder storage, stock watering or irrigation equipment?
- The way you manage your daily and seasonal routines, including labour to accommodate these changes?
- Stock, such as loss, injury or disturbance?
- The level of administration and reporting required to comply with farm Quality Assurance (QA) programs (eg. chemicals associated with mining brought on to farm)?
- The family’s enjoyment of the property (eg. gas well heads visible from the house or dairy)?

To help minimise any potential impacts, consider:

- Restricting well location to paddock corner, or on less developed land such as turn-out blocks or paddocks for dry cows;
- Not allowing wells to be located within a certain distance of the house and other major farm buildings (beyond the setbacks required by law);
- Asking the gas company what it will do to minimise soil and other physical disturbance on the drilling sites and maximise the success of site rehabilitation; and,
- Scheduling access to suit seasonal and daily routines.

Access Routes

Cow laneways must be left clear and in good condition for moving cows and machinery. Proposed gas mining access routes therefore need to minimise impacts on usual farming activities and minimise lane degradation that can lead to cow lameness and health issues such as mastitis.

Mining company access must also mitigate dust that may cause biosecurity issues in the dairy shed and damage pastures and crops. Importantly, access needs to consider the property owners’ lifestyle, by limiting noise and respecting privacy.

For example will the access routes:

- Run along existing fence lines or existing access routes?
- Result in increased traffic near the dairy shed, house, or along routes children use to catch school buses?
- Restrict movement for milk tankers or delivery trucks to the farm?
- Cause issues about gates being left open/not closed?
- Need to be upgraded to carry the proposed number and type of vehicles?
- Cut across laneways?
- Cut across utility supply lines (power, telephone, water)?
- Cut across irrigation infrastructure or stock water supply?

Pipeline gathering systems to remove the gas and water from the well are usually buried about 1m deep along access routes. Their effect on any existing underground infrastructure also needs to be evaluated.

A CSIRO project called “Shared Space” has run discussion groups in regional Queensland over 12 months, where farmers have shared their experiences in dealing with CSG companies on their land.

A common concern was the intrusion on their workplace and family home during infrastructure construction and production. Issues with vehicle noise, lighting and dust were of greatest concern (Pers. Comm. Dr Neil Huth, 16/06/2014, CSIRO).

Surprisingly, the location and footprint of the infrastructure itself was less of an issue and in many cases the farmers believed that through negotiation and understanding with the CSG companies, there were opportunities if infrastructure was installed in the right place (Pers. Comm. Dr Neil Huth, 16/06/2014, CSIRO).

A GISERA research project called “Gas farm design” is looking at how to design farms for mixed land use, concentrating on broadacre grazing properties in Queensland (GISERA, 2014).

What are the management considerations?

Rapid vehicle movements in the daily use of access routes, and associated increase in traffic, may stress or panic livestock, potentially causing lameness. Stock may also be at increased risk of straying or being unable to reach water should gates not be left “as found”. Increased traffic can also mean increased dust potentially reducing pasture palatability.

Other broader impacts may include:

- Farm biosecurity: increased risk of spread of weeds, plant and animal diseases;
- Compromised ability to meet market or other compliance schemes, such as QA programs for dairy food safety;
- Pest animals encouraged by food sources from drilling sites and new access routes;
- Bushfire or other emergency management risks; and,
- Farm security: vehicles should be authorised and carry evidence of such approval.

These issues can be addressed in the LAA negotiation stage through site access protocols.

LAA considerations could include:

- Preferred access routes to avoid sensitive areas or identification of prohibited access, such as calving paddocks with biosecurity measures in place;
- Speed restrictions when moving past the house and dairy or through the main milking areas;
- Restricting access to avoid times when the milking herd would be using laneways or irrigation is underway;
- Restricting access during particular seasons such as silage and hay harvesting;
- Instructions to ‘leave gates as found’;
- Guidelines about behaviour around stock and driving carefully to minimise disturbance to fodder crops and pastures;
- Right of way for cows and farm machinery;
- Rules about wet weather access when soils, fodder crops and pasture are most at risk of compaction and spoil;
- Minimising the disturbance to production and environmental areas (e.g. avoid clearing);
- Weed hygiene procedures for vehicles, especially heavy machinery; and,
- Keeping records and reporting all chemicals brought onto the farm, including how they will be used and stored.

An LAA should also incorporate an emergency management plan in case of flood, bushfire and incidents associated with mining activities. The company must also provide a Workplace Health and Safety plan for the site.

What are the Quality Assurance (QA) program considerations?

It is important that dairy farmers discuss all QA requirements with their milk company as soon as they are notified by a gas company of any intent to access the farm, and keep the milk company informed during subsequent discussions with the gas company.

QA programs may need to be amended where unconventional gas mining activity is taking place. While some changes may be required to maintain milk safety, others may be prudent purely to allay market and consumer concerns. Considerations may include:

- Should fracture stimulation (fracking) be planned, the Fracture Stimulation Management Plan (FSMP), or similar, should be supplied to the farmer and milk company. The FSMP specifies any additives to be used, concentrations and contains relevant Material Safety Data Sheets (MSDS);
- Increased milk and water testing for chemical residues;
- Increased testing of fodder and pasture crops for chemical residues;
- Withholding periods for areas either purposely irrigated with treated produced water or if accidental discharge has occurred;
- Identified biosecurity safety zones for stock;
- Mining activity emergency management plans; and,
- Increased levels of documenting and reporting.

QA programs are also addressed in the Fact Sheet Unconventional gas mining – Water quality and quantity and Fact Sheet Unconventional gas mining – Frequently asked questions.

Protecting the Environment

At the beginning of negotiations, farmers need to be aware of the environmental approval conditions for granting exploration or development licences. The extent and content of these varies greatly across each State (See Fact Sheet Unconventional gas mining – Overview of regulatory safeguards and research).

Gas companies may also have to adhere to other subordinate licence and permit conditions depending on the activities undertaken on a property. For example, if they are going to disturb declared vegetation or interfere with a watercourse, the licence may be subject to State vegetation and water laws intended to protect these natural assets.

All environmental conditions will require mandatory reporting and compliance auditing at specified intervals by suitably qualified specialists. Some States require that these professionals are certified by relevant government agencies.

Detailed Environmental Management Plans (EMPs) will also be required, covering produced water, community engagement, pest and weeds, traffic, noise and vibration, air quality, flora and fauna, waste management and rehabilitation. In these plans, companies commit to environmental limits and parameters, and adopt best practice outlined in standards and environmental guidelines. In Victoria, a Work Plan or Operation Plan (dependant on gas mining type) is prepared to cover the content of an EMP required in other States.

It is recommended dairy farmers address the following environmental considerations in any LAA:

- Prevention measures to avoid contamination of water, soils, vegetation and air;
- If and how surface water will be sourced from the property;
- How vegetation or pastures will be managed, including clearing, stockpiling, reinstatement and rehabilitation;
- When and how any spills will be reported to the farmer so that appropriate emergency response procedures can be actioned;
- A monitoring and reporting plan for water, soil, air and noise testing, and how the farmer can access and assess this information;
- How wastes will be stored, managed and removed from the farm (including hydrocarbons); and
- How chemical usage and storage will be communicated to the farmer.

- The gas company should be required to abide by relevant codes of practice in relation to well integrity, fracture stimulation and gas flaring.
Rehabilitation

Rehabilitation must form part of an access or compensation agreement. In NSW, Queensland and Victoria, gas companies are required to rehabilitate areas disturbed by activities and must lodge security bonds to cover likely rehabilitation costs before any activity starts. The security is not returned until all obligations have been met and rehabilitation adequately completed.

While gas wells only require a small surface area, drilling the well requires a much larger area. Laying gas and water pipes, and building access roads also disturb the surface. Rehabilitation works take place after the well establishment phase (drilling) and again after wells have ceased operation.

Landholders affected by Gas Transmission Pipe (GTP) activities, the major pipeline which transports gas between processing and/or transport facilities, may experience substantial lineal disturbance during construction. GTP ‘Rights of Way’ are typically 40 metres in width, reducing to 20 metres once rehabilitation is complete. These major pipelines are subject to the pipeline industries own code of environmental practice (APIA, 2013)

Under regulated rehabilitation guidelines in each State, rehabilitation must occur to a standard equal to or better than the original condition, unless otherwise agreed with the landholder. Under these obligations, a rehabilitation management plan must be developed where the company will commit to certain post project land-use objectives.

A LAA cannot contradict any of these legal requirements but can personalise the legal obligations to ensure beneficial outcomes at the farm level. For example, farmers should specify the types of paddock preparation, treatment and seed species used to rehabilitate pastures.

Well Abandonment

Although it may seem sometime in the future, a farmer needs to consider what they want for their farm after gas well operations cease. An LAA should specify how the well or associated infrastructure will be suspended and how this area of the property will remain safe for humans and stock.

When a well is suspended, the practice is to seal the shaft to prevent leakage and provide for adequate rehabilitation of the surface area. For both production wells and exploration wells, the shaft is cemented from bottom to surface, or a cement plug is set down inside the casing above the uppermost hydrocarbon production zone.

The plug is then pressure tested to ensure no leakage, and topped with a 1-tonne set down weight which sits below the ground surface. The wellhead is not removed until the cement plug is in place and the site has been marked for correct location. At all stages of abandonment, complete records must be kept and submitted to regulators (NSW DRE, 2012 & QLD DNRM, 2013).

Third party and community impacts.

Farmers negotiating land access agreements should also consider potential impacts beyond their property. Neighbours may be concerned about mining activities affecting their farming operations and quality of life. The broader community may have mixed feelings, with some worried about potential environmental effects and issues such as increased traffic, and others welcoming jobs, economic activity and the potential for gas companies investing in community benefit projects.

Further Information

A full set of dairy fact sheets and a comprehensive contact list for each State is on www.dairyaustralia.com.au.