

COAL SEAM GAS AND THE LANDHOLDER

The Queensland Experience

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Throughout Queensland wherever significant coal deposits underlie the landscape, coal seam gas companies are invading properties. The Surat Basin in southern Queensland, the Bowen Basin in Central Queensland and to a lesser extent the Gallilee Basin in the Central West are the main locations for this rapidly escalating activity.

Explosive growth of the coal seam gas industry has brought about this greatest ever State-sponsored invasion of private land – certainly the greatest in Queensland and probably in Australia. The pressure on landholders and the environmental concerns are so great that an unprecedented number of landholder and community groups have sprung up, all focusing the message primarily on the State Government and gaining strong media coverage in the process. Agents and others are reporting buyer resistance to properties affected by coal seam gas activity.

Queensland has vast energy resources in coal and coal seam gas – unfortunately those resources are predominantly located under our best and most productive cropping and grazing land and within the Great Artesian Basin. From our history of mining, especially coal mining, we are used to the land-use conflict but even so woefully unprepared for the enormous scale of conflict and disturbance now created by coal seam gas (CSG) development.

Exploitation of the coal seam gas began in a small way in the 1990's, then took off about 2002 when explorers began to show the gas could be extracted reliably and economically.

The seeds of the current environmental crisis over the threat to the Great Artesian Basin were sown by the State Government which, from the beginning, gave CSG projects rubber-stamp approval for unlimited groundwater extraction and disposal by the crudest of methods - evaporation. Yet the Government knew, or should have known of massive environmental risks such as -

- dewatering of the coal seams typically produces water (“associated water”) that is not only saline but extremely sodic (so that it destroys soil structure)
- even after desalination by reverse osmosis, the associated water remains sodic
- water inevitably seeps from typical evaporation ponds to contaminate soils and shallow aquifers and the streams into which they discharge
- extracting massive volumes of groundwater to release the gas could not fail to affect both groundwater and surface water resources as a whole
- disposal of the associated water by evaporation, or by reverse osmosis treatment meant that millions of tonnes of salt residue would accumulate
- because the “make-good” provisions enacted in 2004 failed to provide for proper baseline assessment and monitoring of private bores, the protection promised to existing bore water users would be unenforceable

Belatedly, in 2008, the Government began recognizing the risks and developing a more disciplined water management policy. As it stands today its preferred methods of associated water disposal are –

- re-injection (which is not yet happening);
- treatment for agricultural, industrial or potable use; or
- use untreated if there is no detrimental effect.

The infamous evaporation ponds were required to be phased out within three years.

Preferred means of disposal of salt are –

- processing to produce saleable product (eg. soda ash)
- injection as brine into suitable underground structure
- disposal as waste to ocean outfall, or as salt to licensed regulated waste facility, or as salt to purpose-built facility owned by the CSG operator

Growth and Transformation

Domestic markets for gas are limited and relatively unrewarding financially, so gas producers initially turned to value-adding projects such as building their own power stations.

At the big end of town, as the vast scale of the recoverable resource became apparent, the local CSG companies were overtaken by mergers and then acquisitions by major global gas giants with plans for liquefied natural gas exports (LNG). Down on the farm, in the space of several years we had hundreds and hundreds of rural properties affected by exploration and gasfield development.

LNG and the Surat Basin

As many as seven projects aiming to pipe coal seam gas to Gladstone and process and export it as LNG are on the table. State Government planning for the LNG boom within the past year has been based on:

- LNG production of 50 million tonnes a year
- capital expenditure of \$40 billion
- creation of 18,000 jobs
- construction of 10,000 gas wells over some 10,000 square kilometers (10 million hectares)
- Between 120 and 350 gigalitres (350,000 megalitres) of “associated water” a year extracted.

But those estimates don't include the many existing and future CSG wells and their associated infrastructure that are not connected with the LNG projects – estimates of the total number of gas wells go as high as 40,000. And to this list the planners should have added thousands of kilometres of gas pipeline, many gas processing plants, many compressor stations, thousands of kilometres of water pipeline, many storages for associated water, numerous water treatment plants etc. etc.

However on present indications, as the euphoric expectations of the China boom are overtaken by reality, it seems amalgamation of some projects is inevitable and LNG development in this initial phase may come back to two or perhaps three export LNG projects.

But despite even the Global Financial Crisis and the LNG rationalization there is no sign of gasfield exploration slowing – hundreds and hundreds of individual properties are affected in that race to establish all those thousands of gas wells. Many hundreds more properties are affected by gas pipeline developments. At least three companies are currently in the field seeking to acquire pipeline easements from the Surat Basin to Gladstone and numerous other gas pipeline projects have been recently built or are underway or planned.

Landholders, towns and private individuals around the Surat Basin rely heavily on bores – one official estimate is 2,700 artesian and 15,000 subartesian bores. Most of those bores draw from aquifers above or below the Walloon Coal Measures from which the gas and associated water are drawn.

The State Government now acknowledges that dewatering the coal seam will affect the pressure balance and allow water from other aquifers to migrate up or down to fill the gap, but neither the Government nor anybody else can say to what extent the water supply aquifers will be affected.

It does the Government no credit that only after approving wholesale CSG development have they accepted the reality that nature will ensure the water pressures adjust to the massive change when such vast volumes of water are removed. The CSG companies are equally to blame because they stoutly maintained that water supply aquifers were securely isolated from the coal seams by impervious layers.

The Walloon Coal Measures are a vast system stretching hundreds of kilometres east to west and recharging at the edges or outcrops. Much of the dewatering will occur a very long way from the recharge zones. Drainage of water supply aquifers will not be limited to the areas of actual gas extraction - over a long time, as water in the coal seams flows towards the dewatering areas the extent of affected coal seams, and consequently of affected water supply aquifers, will expand.

Our Legislation

I am not familiar with your NSW petroleum legislation and my remarks relate only to the Queensland legislation. The majority of the phenomenal expansion of coal seam gas activity has occurred since commencement of Queensland's Petroleum and Gas (Production and Safety) Act in December 2004.

And in response to very strong grass-roots complaint from landholders, the State Government is presently legislating a new Land Access Code which is uniform across all Resource Acts (mining, geothermal, greenhouse gas storage). From a landholder's point of view in dealing with exploration and gasfield development (in particular for "advanced activities" which have a significant impact) the essential features of the Act and the new Code are:

- Before entry a "conduct and compensation agreement" must be settled by negotiation – or if no agreement after 20 business days, either party may invoke mediation.
- If there is still no agreement after mediation, either party may apply to the Land Court to have compensation determined – the entry and activities may proceed once the application is made.
- The Code covers Good Relations and Conduct Conditions.

Make-Good

The Queensland Government's statutory make-good scheme is a lemon – by itself it will be unenforceable. There is no provision to require that the necessary baseline assessment and monitoring of individual private bores is carried out. Furthermore, the Government's make-good triggers (a drop of 5 metres in standing water level in rock aquifers and 2 metres in alluvial aquifers) –

- a. are a simplistic measure which falls far short of the evidence required to demonstrate an adverse effect; and
- b. will only be derived from the CSG operator's monitoring of its own bores and not necessarily relevant to private bores.

Without specific, meaningful evidence of adverse effect on individual private bores, the landholder will simply not have the evidence to enforce the claim for reinstatement or compensation. The baseline assessment and monitoring work needs to be comprehensive (measuring the true capacity of a bore and its water quality and not just the standing water level) and that needs to be done by an independent, suitably qualified person.

Landholders will not be protected unless they insist that the CSG companies enter into private make-good agreements. I have a model agreement which is working well in a coal mining situation and can be readily adapted for CSG. Copies of it are available for the asking. It contains full details of the appropriate testing and monitoring processes.

In the absence of either a private make-good agreement or an undertaking by the CSG operator to carry out the necessary baseline assessment and monitoring and to give the landholder the data, those who want make-good protection can only get it by engaging their own groundwater expert.

Compensation

The heads of compensation defining the tenement holder's liability are:

- Loss of possession of the surface
- Loss of value of the claimant's land
- Loss of use of the land or any improvements on it
- Severance of any part of the claimant's land
- Any cost or loss to the claimant arising from conduct of the activities
- Any consequential damages suffered by the claimant.

The holder of a petroleum tenement effectively has an easement – that is a right to share use of the land with the owner - over all of the land covered by the tenement. It can conduct its authorised activities on any part of the land.

The big, contentious compensation issue for coal seam gas is loss of property value. That is partly because in the 5½ years since the current Act commenced, no petroleum compensation cases have been determined by the Court so there is no judicial precedent to give guidance on the application of the 2004 provisions. Loss of value was not included in the compensation provisions of the old Act.

However, there is official recognition of the loss of value due to CSG development. The Department of Environment and Resource Management, which is responsible for land valuations, has adopted benchmark reductions in unimproved capital value of up to 20% where a whole grazing/cropping property is affected by CSG development.

The workings of this unique class of compensation are understandably a mystery to landholders, whose vulnerability is all the greater because few if any of the people drafting compensation agreements for the CSG companies have any first-hand experience in litigation on it and the same applies to most solicitors advising landholders.

Petroleum companies operating in Queensland steadfastly opposed inclusion of the current compensation rights in the 2004 Act. In particular they opposed compensation for loss of property value – and I am very reliably informed that when the new Act commenced those companies collectively swore not to pay for loss of value.

The attitude of today's CSG companies towards the landholders' right to compensation is not open and constructive as it should be – it varies from mean and dismissive, to reluctant acceptance provided the rates are only nominal. I only know of one company which up-front offers payment for the landowner's management time which is usually considerable, for example in consultation, negotiations and field supervision.

CSG projects require wells tapping the coal seams on a grid pattern, usually about 750 metres apart. Every well is served by a gas pipeline, a water pipeline and a gravel road, sometimes also a powerline – and where the gathering lines meet there are water ponds, water treatment plants, gas processing plants, compressors etc. "Danger" signs are everywhere, crews and equipment are always present and the owner's quiet enjoyment of the property is lost.

Because the infrastructure and the activities that go with it are so intrusive, it is absolutely undeniable that CSG projects affect both the market value and the marketability of properties, but there are valuers aligned with the CSG companies who have denied that. They need to watch out – section 93 of the Criminal Code makes it a misdemeanor punishable by three years gaol if statutory compensation is not valued faithfully, honestly and impartially.

As the scale of gasfield development increases, a property can become unsaleable. I often advise clients who are faced with the early stages of CSG development to sell while they still can.

Sometimes the CSG company responsible will buy the property (but usually only when it wants to locate processing and compression facilities there) and by then that company may, in reality, be the only potential buyer.

We desperately need the Queensland Government to adopt the provision in South Australia's Petroleum Act whereby if petroleum development reaches the stage where it affects operation of the property, the owner may apply to the court to have the property compulsorily transferred to the petroleum operator at market value plus an amount the court determines for disturbance.

One characteristic of gasfield compensation makes it inherently a contentious and difficult issue - the disturbance to the property is usually a progressive impact over a number stages - firstly exploration

and, if the resource is proven, commercial gas production. That contrasts to compensation for a mining lease which involves one-off loss of a specific area of land for a specific time, for which compensation is far more readily measurable.

In trying to settle compensation for each new stage, especially when it is still exploration (under an Authority to Prospect in our scheme) the owner does not know and the petroleum operator usually won't disclose the ultimate extent of development and disturbance, so the owner is forced to assess the currently proposed activities in isolation.

The secondary problem is that it may only be later, for example when addressing compensation for commercial production activities, that the owner is able to demonstrate loss of value of the property for the new activities and for the cumulative effect of past activities. I've learned the hard way that the petroleum operator is likely to claim that there is no such loss of value, or that if there is such loss it occurred back in the earlier stages for which the owner signed agreements acknowledging being fully compensated and waiving all further rights to claim.

Another difficult area of compensation assessment is disturbance to grazing and cropping from CSG wells, roads, pipelines, pumps and motors – plus all the activity, movement of strange machines and vehicles, noise, heavy transports et. Drilling, flaring, fracking, workovers, monitoring. Areas lost to cropping and extra working time can be calculated, but lost grazing is very much a matter of judgement and open to argument. CSG companies claim that their presence on the land can be reduced because they are installing telemetry to monitor the wells, but they still seem to have people doing the rounds every day as well as those heavier mechanized works.

Typical CSG company agreements have (at least until recently when some at least have apparently heard the message) contained "time bomb" clauses. These are so worded that they may be interpreted as stretching the very modest amounts of exploration compensation into gas production under a petroleum lease and extending right to the end of each well's production life. Yet the landowner would have been told, or allowed to believe, that he or she was only agreeing to short-term compensation "for drilling a well". There may be issues of false and misleading representation.

Such agreements are a wealth hazard. A landholder signing one of them is likely to find that if the exploration leads to commercial gas production, the property will be heavily devalued (perhaps by millions of dollars) or even made effectively unsaleable, against which the small annual payments per well per year will be a pittance.

Some practical ways of making CSG production more sustainable

Water

- all associated water must be immediately re-injected within its aquifer of origin unless required for immediate beneficial use, regardless of cost
- associated water may only be held if stored in water tanks, or where that is impracticable due to volume, in double-lined (polythene + clay) dams

- accumulated salt must be only be disposed of in purpose-built permanently secure storage (a public waste facility or one on land owned by the CSG operator) or else in the ocean
- fracking of wells should not be permitted other than in circumstances where the risk of contaminating groundwater or causing aquifer leakage is minimal
- CSG operators must make available and pay for independent baseline assessment and monitoring services for private bores located in, or in proximity to, gas tenements
- legislation must guarantee enforceable make-good protection for owners in the event that water resources are damaged by CSG operations

Land

- disturbance and loss of productivity must be minimized by reducing the number of vertical wells by methods including the use of lateral drilling
- vertical wells must be placed where they cause the least possible disturbance to land use
- good quality cropping or grazing land must only be tapped for gas extraction by lateral drilling feeding to vertical wells located only on margins, headlands, access tracks etc.
- gas and water pipelines (both gathering and export) must be routed along road corridors where possible, and within properties along the route causing the least disturbance, regardless of cost

Compensation

- legislation to provide that if CSG operations affect use of a property, the owner may apply to the court to have the property compulsorily transferred to the CSG operator at market value plus a court-determined amount for disturbance
- legislation to provide that, whenever a CSG operator proposes new activities on a property, the operator must give the landowner full disclosure of the planned or potential CSG development on that land

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Further Information:

www.basinsustainabilityalliance.org

www.futurefoodqld.com.au

www.dme.qld.gov.au