

Major Projects
NSW Department of Planning

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Date: 23 February 2011

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Submission to the Assessment of the Apex Energy Illawarra Gas Project Additional Borehole Modification Application

To whom it may concern, thank you for the opportunity to comment on the Apex Energy application to expand its current Gas Exploration Project.

My understanding is that this project was approved by Director General Sam Haddad, following delegation by then Planning Minister Christina Kenealy in September 2009 under Part 3A of the NSW Environmental Planning & Assessment Act 1979. The original project application was made in 2007 and the delegation took place in March 2009.

Tony Kelly is now the NSW Planning Minister and he has recently acknowledged that "*...exploration for a coal mine doesn't really disturb the soil whereas an exploration for coal seam gas is basically the same as if you actually go ahead and get the gas out.*"

Clearly the assessment of the exploration well proposal should include an assessment of that well then becoming a production well. It would be folly to approve a gas mining exploration well without assessing whether the project area was suitable for subsequent gas extraction by horizontal hydraulic fracturing or fracking. Apex Energy documents indicate that fracking would be used at the well for which approval is being sought, well AI19, should that well prove commercially viable. An application by a commercial enterprise for an exploration well in an area known to contain methane gas is in effect an application for production mining in that area. Further, as is now recognised in the US and UK, the full project envelope and its likely cumulative impacts have to be taken into consideration, and not just the individual well being considered for approval. A 'case by case' approach is inadequate, irresponsible and not in the public interest. A recent edition of the ABC Four Corners documentary series has highlighted the 'foot in the door' approach of gas mining companies.[1]

Following a report from the Department of Environmental Protection, the New York State Assembly in late last year called a halt to shale gas mining in New York's catchment areas, while the US Environmental Protection Agency undertakes an investigation into the impacts and risks.[2] Similarly, a report from the Tyndall Centre at Manchester University has called for a halt on shale gas mining in the UK[3], and the UK Energy and Climate Change Committee has just begun an inquiry into shale gas mining in the UK.[4] Shale gas and coal seam gas (CSG) mining have in common the technique of horizontal hydraulic fracturing, or 'fracking'. Apex documents show that the company will use fracking at the A19 well and other wells should they prove commercially viable, as is anticipated. While the National Water Commission (NWC) has flagged its concerns and states "*Potential impacts of CSG*

developments, particularly the cumulative effects of multiple projects, are not well understood.”[5], to date there has to date been no formal and independent federal or state investigation onto the impacts and hazards of fracking. The federal Water Minister Tony Burke has been given advice from his department warning the industry could damage water supplies and cause land subsidence.[6] A study of CSG mining in Queensland by J.P. Morgan suggested the environmental costs arising from the industry may undermine its viability.[7]

The Apex project variation application has been lodged in an atmosphere of increasing community awareness of the impacts and risks of coal seam gas mining. A moratorium on coal seam gas exploration and mining in the Illawarra, NSW and Australia should be put in place until an independent and comprehensive inquiry establishes the requirements and boundary conditions for environmentally safe and financially viable operations. The broader impacts of gas mining must also be considered, including the green-house gas footprint.

Impacts and Hazards

The impacts and hazards associated with CSG mining and fracking are increasing well known and are increasingly causing public concern and indeed alarm. This reflects the disturbing insights provided by the award winning film length documentaries Gaslands and Split Estate, and a high level of local media coverage of the issues. The impacts and hazards include:

- Aquifer contamination by fracking fluid additives and contaminants leached from strata, including naturally occurring radioactive materials. It’s recently been reported[8] that only two of the more than twenty chemicals used for fracking in Australia have been assessed by the national industrial chemicals regulator. In NSW there is currently no regulation of fracking.
- Catchment contamination by so called produced water returned to the surface for storage or treatment. The amount of fluid returned varies between 15 and 80 percent of that injected.
- Drainage of surface waters and aquifers. Departmental advice to the federal government expresses concern that the Great Artesian Basin aquifers may not recover for 1000 years.[9]
- Sourcing, use and contamination of very large volumes of water that will subsequently require treatment. Each stage in a multi-stage hydraulic fracturing operation requires some 1 to 2 megalitres of water and the entire multi-stage fracturing operation for a single well requires around 9 to 29 megalitres of water. A single site might have six production wells, requiring between 54-174 megalitres of water for the first fracking operation. The fracking may later be repeated.
- High levels of truck traffic associated with water delivery and/or its removal for treatment.
- Rig noise in the vicinity of dwellings.
- Methane gas emissions from leaking wells, inadequate capping of abandoned wells, ground fissures, storage tanks and gas pipelines.

- Methane is a highly flammable gas and the Apex Energy gas wells are in a high conservation value area that will suffer increasing numbers of severe bush fires as a result of global warming.
- Methane is some 21 times more potent a green house gas than is carbon dioxide.

Illawarra Context

The new well is identified as AI19 and is located within the upper reaches of the Forest Gully catchment, and is within a Sydney Catchment Authority Special Area. The envelope of the Apex Energy project submitted in 2007 (07_0103) encompasses PEL 442 and PEL 444 and CCL703 through a joint venture agreement with Peabody Energy. Apex documents from 2010 relevant to and discussing the joint venture and its future confirm Apex aspirations to mine gas in CCL703, with the cooperation of joint venture partner Peabody.[10] These plans include pipelines and a gas fired power station near Darkes Forrest. CCL703 includes the Metropolitan mine expansion area approved in 2009, and this area lies under Woronora Dam and its catchment water ways, including the Waratah Rivulet. The now damaged Waratah Rivulet has in the past supplied about 29% of the water flow to Woronora dam.

The project for which Apex Energy is now seeking an expansion was approved in 2009, the same year that the Metropolitan Coal Project proposal to expand the Helensburgh coal mine was approved, again following delegation by then Planning Minister Keneally. That is, both projects were being assessed by the Department of Planning at much the same time. Although in the same area of the Illawarra, neither project assessment and approval makes reference to the other. It is now widely known that the Metropolitan Mine expansion proponents, Peabody Pacific, are joint venture partners in the Apex Energy project and that Peabody have sought to keep their association with the gas mining project hidden from public attention in order to avoid scrutiny and hindrance to their project application and mining activities in the area.[10][11] This included the temporary withdrawal from the Apex Gas exploration Project application of three well sites on areas operated by Peabody, specifically to avoid any “ ... *possible disruption to the then Metropolitan mine Part3A (now approved)*” and “ *Subsequently Peabody asked Apex if it would remove the three planned wells on CCL703 from its application so as not to provide added complication for the mine in its planning approval process.*” The intention being to reinstate those three wells at a later date. That the two projects were each considered for approval in isolation, knowing their relationship, reflects a serious lapse of responsibility on the part of the NSW Department of Planning.

The response from Apex[12] to the Sydney Morning Herald reporting of the Apex, Peabody and Department of Planning discussions, directly contradicts Apex documents, and so calls into question their credibility.

The Southern Coalfield Inquiry (SCI) and the 2009 NSW Planning Assessment Commission review of the Metropolitan Coal Project (MCP) make clear the damage caused by longwall mining in the Illawarra, and this includes ruptured and drained watercourses, and the release of methane and carbon dioxide gases. The 2009 mine expansion review notes “*The environmental consequences for watercourses impacted by subsidence can be severe. There*

is abundant evidence of this in the reaches of the Waratah Rivulet that have been undermined by previous longwalls.” The Waratah Rivulet is within CCL703, where Apex Energy aspires to mine gas, including the use of fracking.

Gases released by mining activity travel upwards through any cracks in the strata and may escape from surface fissures. Where the cracks emerge under surface waters, gas bubbles can be seen. The Southern Coalfield Inquiry documents include photographs of gas bubbling out of the Cataract and St Georges rivers.

The southern coal fields suffer both conventional and non-conventional subsidence, and the MCP review makes it clear that non-conventional subsidence is poorly understood and cannot be reliably modelled or predicted. The expansion of the Metropolitan mine is therefore an experiment being conducted in an important catchment area with little real understanding of the acknowledged risks. The introduction of gas mining in the same region will compound the manifest risks associated with longwall mining, and an assessment of a gas mining project must surely include any compounding or multiplier effect arising from coal mining in that same region.

Not only must the full project envelope be taken into consideration when assessing the Apex project modification application, the full context of the project must be taken into consideration and this includes coal mining operations and impacts in the area.

The MCP review notes *“The potential loss of catchment yield was a strongly contested issue that could not be resolved beyond doubt on the information available. However, the Panel’s view is that the risk of any significant loss is very low unless a major geological discontinuity is encountered during mining that provides a direct hydraulic connection between the surface and the mine workings. This is considered unlikely.”* The introduction of fracking in the same area may well provide a sufficient geological discontinuity. The current low level of the Woronora Dam has resulted in speculation of mining related damage[13], and the Metropolitan Mine is known to contain high volumes of water. Fracking in the same area compounds the risks to the Illawarra water catchment.

Green House Gas Emissions

The recently released Tyndall report[3] on shale gas mining in the UK observes *“If carbon emissions are to reduce in line with the Copenhagen Accord’s commitment to 2°C, urgent decarbonisation of electricity supply is required.”* Investment in gas fired power stations, with a likely working lifetime of more than 20 years, will delay the introduction of renewable energy sources and so hinder or oppose rapid reductions in GHG emissions. Gas combustion can only be a low carbon energy source if coupled with carbon capture and storage technology (CCS) and there is little or no prospect of that being deployed on the scale required in the short to medium term, if at all. The Tyndall report points out that in an expanding global economy gas fired power stations are more likely to augment than replace coal fired power stations. It’s also worth noting that the Federal Governments Cleaner Future for Power Stations programme does not include gas fired power stations.

While electricity generation from gas combustion produces around half as much carbon dioxide as does coal combustion, recent preliminary full life cycle studies suggest any potential benefit is significantly undermined, and perhaps negated, by energy consumption for well operations, truck movements, produced water treatment, and the leakage of methane gas from well sites, surface fissures, containers and pipelines. Referring to the same study, the World Coal Association recently made the same observation in a submission to the shale gas inquiry initiated by the UK Energy and Climate Change Committee and now underway.[14]

Apex plans recognise that CSG and goaf gas in the new Metropolitan Mine workings have high levels of carbon dioxide. They would mix this gas with gas having higher methane content from other Apex mining sources. Doing so would add to the green house gas burden of the Apex gas.

NSW Regulation of Coal Seam Gas Mining

Coal seam gas mining and fracking are essentially unregulated in NSW. There is a restriction on well placement; CSG companies cannot drill a well closer within 200m of homes or within 50m of orchards, vineyards, rivers or streams. However, this does not include horizontal drilling which may extend several hundred meters from the central well. While Premier Keneally proclaimed “*tough new rules for coal seam gas exploration*” in December 2010, in reality they are largely ineffectual and change little:

- The requirement for the NSW Department of Industry and Investment to only "take into consideration" Department of Energy Climate Change and Water recommendations is much the same as was previously required of the DoP and is entirely inadequate. Given the risks, DECCW should have a matching approval role.
- There is no significant change to community notification and consultation processes.
- There is no requirement for documents to be made public, such as new work plans and the Review of Environmental Factors documents. Fundamentally the approval process remains opaque.
- There is no commitment to ban the use of BTEX fracking fluid additives; these additives have been banned in Queensland.
- There is no commitment to develop legislation governing CSG mining.
- There is no commitment to halt CSG mining while a cumulative environmental impact assessment is made for each of the effected regions in NSW.

Concluding Remarks

The Apex Project modification application is not just an application for an additional exploration well in the northern Illawarra catchment area. It's effectively an application for confirmation of the implicit determination made in the original Apex project approval, that the northern Illawarra is a suitable location for full production coal seam gas mining essentially collocated and undertaken concurrently with longwall coal mining. Apex documents make this clear, and a 'case by case' assessment is inadequate as experience in the US and now Queensland has demonstrated.

Previous reports and reviews have highlighted the lack of knowledge and understanding of the risks associated with these activities. Past approvals have been in effect an expression of hope that everything will turn out 'OK'. The consequences of such hope being misplaced are dire. There must be a moratorium on CSG mining related activity in the Illawarra until the risks are better understood. This assessment must include the risks to water supply and the emission of green house gases arising from all mining activity in the region – including GHG arising from domestic combustion and the combustion of exported coal and gas.

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