

Ticking the Box:

Flaws in the Environmental Assessment of Coal Seam Gas Exploration Activities



ISSUES PAPER



Environmental Defender's Office NSW

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Cover photo: Dewhurst 8 exploration wells, Pilliga, May 2010

About the EDO

The EDO is a not-for-profit community legal centre specialising in public interest environmental law. We help individuals and community groups who are working to protect the natural and built environment.

EDO NSW is part of the Australian Network of Environmental Defender's Offices (ANEDO). Each ANEDO member helps to protect the environment through law in its State or Territory.

EDO NSW has an active program of casework, legal outreach and law reform. In addition, we provide free initial legal advice to the community.

Currency of information

The information in this paper is current as at November 2011.

Executive Summary

The coal seam gas (CSG) industry in NSW is expanding rapidly. At the same time, the community is becoming increasingly concerned that the legal regime that regulates the exploration and extraction of coal seam gas does not ensure a thorough environmental assessment of such activities.

In our view, the legal process applying to CSG exploration lacks independence and rigour in terms of the assessment of potential environmental impacts. As a result, the Reviews of Environmental Factors (REFs) provided to comply with this process are of poor quality, and often constitute a fairly generic lists of impacts. The community at present has little recourse through the law to address these failures. This paper is aimed at outlining the nature of the problem and to illustrate, through some case studies, the deficiencies in the legal process. In light of these problems, legal reform to the assessment of CSG exploration is necessary.

Expansion in CSG exploration in NSW

CSG exploration has been expanding in NSW at a considerable rate. As a result of NSW Government initiatives, there has been an unprecedented level of petroleum exploration activity within NSW. Over \$20 million was spent in 2003-2004, and \$30 million in 2004-2005 on this type of exploration.¹ In 2007-2008, CSG production in Queensland and NSW grew 40%.² The number of petroleum exploration licences issued in NSW has risen from 11 in 1993 to 30 in December 2005.

NSW contains sedimentary basins with extensive coalfields, and therefore considerable potential for vast coal seam gas resources. The main coal basins in NSW extend from Wollongong, South of Sydney through the Hunter and Gunnedah basin, north-west from Narrabri to the Queensland border. There are five main coalfields in the Hunter, Newcastle, Southern, Western and Gunnedah areas, as well as small coalfields near Oaklands and Gloucester.

There are currently eight CSG projects awaiting project approval under Part 3A of the *Environmental Planning and Assessment Act 1979* (NSW) – in the Narrabri gas field, as well as the Illawarra and Camden Gas projects.³

Since 2004, most of the production has occurred in the Sydney Basin near Camden by Sydney Gas Company (now in a joint venture with AGL), where there are over 80 wells and three petroleum production leases. Metgasco is actively exploring in the Clarence-Moreton Basin near Casino.

There are major markets for gas around NSW and overseas, further driving the present expansion in CSG exploration in NSW.

¹ Department of Primary Industries, at www.dpi.nsw.gov.au/minerals/resources/petroleum/activity-in-NSW .

² "CSG –Firing up Australia's gas industry", Gas Today, May 2008.

³ See planning website at www.planning.nsw.gov.au.

Laws that apply to CSG exploration

CSG exploration and mining in NSW is regulated by the *Petroleum (Onshore) Act 1991 (P(O) Act)*. “Petroleum” is defined to include “any naturally occurring gaseous hydrocarbon”, which appears to include methane.⁴

A petroleum exploration licence (**PEL**) grants its holder the “exclusive right to carry out such surveys and other operations, and to execute such works, as are necessary to explore the land comprised in the licence for petroleum”.⁵

The P(O) Act does not contain any environmental assessment requirements. Rather, these are set out in the *Environmental Planning and Assessment Act 1979 (EP&A Act)*.⁶ No other requirements of the EP&A Act apply.⁷

Most CSG exploration activities will qualify as State significant development and the environmental assessment provisions relating to State significant developments will apply.⁸ However, sometimes a CSG exploration activity will fail to qualify as State significant development. Where this is the case, the activity may not require development consent. In such cases, a different type of environmental assessment occurs – under Part 5 of the EP&A Act.

The State significant provisions of the EP&A Act have only commenced in October 2011. It is too early to comment on how robust and adequate these provisions are. For this reason, this paper will focus on the provisions set out under Part 5 of the EP&A Act which have been in place for many years.

When an activity is assessed as a Part 5 of the EP&A Act, the decision-maker must “examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity”.⁹

When considering the environmental impacts of the activity, the decision-maker is legally required to take into account a number of factors, including:¹⁰

- (a) any environmental impact on a community,
- (b) any transformation of a locality,
- (c) any environmental impact on the ecosystems of the locality,
- (d) any reduction of the aesthetic, recreational, scientific or other environmental quality of value of a locality,

⁴ P(O) Act, s.3.

⁵ P(O) Act, s.29

⁶ P(O) Act, s.46. See EP&A Act, Part 4.

⁷ P(O) Act, s.47

⁸ EP&A Act, Part 4, Division 4.1. See State Environmental Planning Policy (State and Regional Development) 2011, Schedule 1 to determine which CSG activities will be assessed as State significant development.

⁹ EP&A Act, s. 111.

¹⁰ *Environmental Planning and Assessment Regulation 2000*, cl. 228

- (e) any impact on the habitat of protected fauna (within the meaning of the *National Parks and Wildlife Act 1974*),
- (f) any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air,
- (g) any long-term effects on the environment,
- (h) any degradation of the quality of the environment,
- (i) any risk to the safety of the environment,
- (j) any reduction in the range of beneficial uses of the environment,
- (k) any pollution of the environment,
- (l) any environmental problems associated with the disposal of waste,
- (m) any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply,
- (n) any cumulative environmental effect with other existing or likely future activities.

In practice, the environmental assessment for the purposes of Part 5 of the EP&A Act is usually done through a short “Review of Environmental Factors” (**REF**), which is prepared by the proponent. The Department of Primary Industries (**DPI**) is responsible for approving the REF (discussed further below). If the REF reveals that an exploration activity is likely to have a significant impact on the environment, the proponent must provide the Minister for Resources and Energy with a more detailed Environmental Impact Statement (**EIS**) – also discussed below.

Limited requirements for compliance, consultation or transparency

The case law of the Land and Environment Court indicates that the environmental assessment that takes place under Part 5 must be rigorous.¹¹ However, in *Drummoyne MC v Roads and Traffic Authority* (1989),¹² Stein J stated that the question to be asked is “Did the respondent examine and take into account to the fullest extent *reasonably practicable* all matters affecting or likely to affect the environment by reason of the activity?” His Honour went on to note:

In my opinion the length of deliberation and the detail of the consideration must, to some extent, be conditioned by the actual proposal. And when examining the considerations one must have regard to the context of the proposal and the environment which is likely to be affected by the proposed activity. That is not to say that the examination of the committee need not be a thorough one, nor indeed that it need be a minute examination of every conceivable affectation on the environment without regard to reasonable practicality.

In *Prineas v Forestry Commission of New South Wales* (1984),¹³ the NSW Court of Appeal held that strict compliance of an EIS with the regulatory requirements was not necessary for a valid decision to be made, but “substantial compliance” was adequate for a valid decision.

¹¹*Warren v Electricity Commission of NSW* (LEC case no 40389/89).

¹²67 LGRA 155, at 158.

¹³53 LGERA 160.

Given substantial compliance with the legal requirements is acceptable, it is difficult in many cases to argue that the deficiencies or omissions of an REF or EIS will amount to an inadequacy sufficient to invalidate an approval.

There are no legal requirements for the Minister to undertake consultations or publicly advertise a Part 5 activity, prior to a decision being made. The REFs are only published after the exploration has been approved.

Given the REFs are prepared by the proponent, there is understandable public concern that the information they contain is designed to achieve a positive outcome for the proponent. The public is not entitled to comment on the REF (indeed, the public is not even entitled to see the REF until after a decision has been made on the activity). There is therefore no opportunity for public scrutiny of the REF which may reveal important inaccuracies or omissions.

The validity of such decisions suffers as a result of this lack of transparency and opportunity for public scrutiny and involvement in the decision making process.

Lack of comprehensive assessment of local environmental impacts

The NSW Office of Environment and Heritage (**OEH**) does not have a specific role in examining REFs. In their own words, “companies do not need to undertake comprehensive environmental assessments to determine what environmental values are present on exploration or lease areas, or what impacts they will have on the environment.”¹⁴

The OEH has acknowledged that CSG exploration has significant impacts on the environment.¹⁵ Firstly, companies often need to construct surface infrastructure, including access roads, pipelines and other works that can fragment existing land uses and wildlife habitat. Secondly, the actual recovery of CSG creates other environmental problems. Methane is held within coal seams by water pressure, and the water must be removed to extract the gas. The extracted water is highly saline and can contain different contaminants and therefore must be disposed of responsibly. The groundwater extraction can also deplete natural groundwater reserves and aquifers.¹⁶ Further concerns exist in relation to the hydraulic fracturing (**‘fracking’**) process.

Adequacy of departmental assessment of REFs

As noted, the Department of Primary Industries (**DPI**) is the agency responsible for assessing and approving REFs. Communities have questioned whether DPI undertakes a proper assessment of the REFs when lodged. To our knowledge, no EIS has been required for any CSG exploration licence application, even in areas such as the Pilliga, Putty and Wollombi where exploration is occurring in sensitive environmental areas where threatened species exist. Nor have any exploration activities been delayed because the REFs have been found to be inadequate or inaccurate.

¹⁴Department of Environment and Climate Change (as OEH then was), Minute for Executive Meeting, EPRG Coal Mining Project, 28 May 2008.

¹⁵Ibid, pg. 39.

¹⁶Ibid, pg. 39.

Many communities have expressed concern to the EDO about the deficiencies in the environmental assessment process for CSG exploration. We have documented below a number of case studies outlining these deficiencies to highlight the problem with the assessments.

No merits challenge to REF adequacy

The difficulty for these communities is that, despite the REFs often having considerable deficiencies, there is no ability to challenge the *merits* of the environmental assessment. Unless an issue is missed entirely, there would be little redress through *judicial review* proceedings in the Courts. Despite the fact that many REFs contain misleading or sometimes incorrect information, there has been no prosecution of any companies for these offences. This is because the law requires the company involved to know the information is misleading and false.¹⁷ Given the significance for local communities of the decisions that rely on this information, we believe a stricter standard should apply.

¹⁷ EP&A Regulation, cl. 283

Case study 1: Santos Glasserton Pilot wells – Liverpool Plains-Gunnedah Basin¹⁸

Santos is proposing exploration drilling under PEL 1 to assess the CSG potential of the Gunnedah basin. It includes three new pilot wells known as Glasserton 2, 3 and 4 that are located on privately owned land.

There are many inaccurate statements made in the REF.¹⁹

One of the major concerns is that it states water will be extracted from the Bluevale subcatchment.²⁰ The Bluevale subcatchment is located between Gunnedah and Boggabri. The Glasserton project is located at the Yarraman/Goran Lake basin and not the Bluevale subcatchment. This is a serious error given the sensitivity of the aquifers in the area to drilling activities.

The REF claims that the Pilliga Nature Reserve is located 50kms west of the Glasserton site.²¹ The Pilliga Nature Reserve is located some 150kms to the north west of Glasserton and is not in PEL 1. The REF does not mention the close proximity of Goran Lake which covers over 6000 acres to the north of Glasserton. It is a significant ephemeral wetland and supports a wide variety of rare, endangered and vulnerable species.²²

Social and economic impacts, including consultation

The statements made in the REF about the social and economic impacts of the development also seem misleading.²³ As a measure of transparency, Santos should have revealed that the landholder who owns the property where exploration is occurring is a director of the company Carbon Minerals. Carbon Minerals is a subsidiary of Australia Coal Bed Methane which holds exploration leases over the Liverpool Plains. The wells at Glasserton 3 and 4 are located on the boundary of the property. The location of these two wells will impact upon the neighbouring properties in a number of ways. Drilling into the fragile aquifer system will alter the pressures within the aquifer and may divert water away from existing stock and domestic bores. Any construction on the fragile floodplain will result in impacts upon the floodplain. The establishment of a gravel pad, extra roads and sump ponds will create water diversions onto the plain and result in erosion and water run-off, which will affect the seedbed of the neighbouring paddock and beyond. If sump ponds are not correctly constructed, and there is run-off of the magnitude seen in the heavy rains of 2011, it is likely that the soil will be sterilised from flooding.

The REF also failed to substantiate comments that the “impacts on landholders will be negligible”.²⁴ The residents of a nearby homestead Rowena, within 400 metres of the accommodation camp, have not been notified of Santos activities. Given the location of the

¹⁸The community group involved in this issue is the Caroon Coal Action Group – see www.ccag.org.au.

¹⁹Santos, Review of Environmental Factors, Glasserton Pilot wells-Drilling and Completions PEL 1 - Gunnedah Basin, 19th October 2010.

²⁰Ibid, pg. 56.

²¹Ibid, pg.45.

²²<http://www.nrm.gov.au/nrm/nsw-namo.html>

²³ Santos, Review of Environmental Factors, Glasserton Pilot wells-Drilling and Completions PEL 1 - Gunnedah Basin, 19th October 2010, pg. 62

²⁴Ibid, pg. 5

homestead, they are subjected to increased dust and noise from construction, drilling and vehicle movement, night time lights and 24 hour activity.

The REF states that Santos will consult with the Local Aboriginal Land Council but the REF inaccurately identifies the relevant LALC as the Red Chief LALC when in fact the Local Aboriginal Land Council is the Walhalow Land Council.

Air quality

The REF also claimed that the impact of the exploration activities on air quality will be negligible, localised and insignificant.²⁵ However, Santos did not provide estimates of the amount of diesel used to power the drill rigs and the resulting greenhouse gas emissions before making such a claim. Santos also failed to mention fugitive emissions which are common in all drilling operations at such depths.

Water risks

The REF also states that adverse effects on water resources will be negligible. It is not possible to make such a statement as the impacts of CSG drilling on water resources are simply unknown. The aquifers in this area are part of a 'fractured basin' which allows for water seepage in a vertical manner. The local community has serious concerns about impacts upon the water quality through contamination of introduced chemicals via drilling muds and cross-aquifer contamination. Community members were apparently advised at a consultation at Spring Ridge in 2009 that of the 30,000 litres of driller's mud used, between 0% and 100% of will not be recovered (which seems to indicate that the likelihood of contamination is 'unknown'). The REF also states there will be no significant use of, or impact on, natural resources including groundwater.²⁶ Yet fresh water is required in the drilling process, and Santos has not given a clear indication from where this water will be sourced.

Cumulative environmental impacts

The REF claims there will be no significant cumulative environmental impacts, which is a significant unknown. Dust, noise, erosion and damaged aquifers leading to the escape of groundwater are significant environmental impacts for any farmer. There are also comments in the REF about the impacts being temporary, however this seems misleading, given that if a viable resource is found, the impacts are likely to continue with the production phase.

Waste and chemicals

The REF did not set out proper processes for dealing with the driller's mud and other wastes and the chemicals used in the exploration process. The aquifers in the area are used for not only irrigation but stock and domestic consumption, so there are real concerns about whether chemicals could be absorbed into the food chain. Santos has not supplied

²⁵ Santos, Review of Environmental Factors, Glasserton Pilot wells-Drilling and Completions PEL 1- Gunnedah Basin, 19th October 2010, pg. 5

²⁶ Ibid.

estimations of the quantities of chemicals used or, indeed, well depths to allay these concerns.

Case study 2 – Macquarie Energy drilling at Putty

Macquarie Energy, a subsidiary of Dart Energy, has drilled one bore hole near Putty to investigate the potential CSG resource within PEL 460 held by Macquarie Energy.²⁷



Photograph from recent protest at Putty (at <http://putty.nsw.au/pics>)

Stakeholder consultation

The community at Putty only became aware of the drilling when they were contacted about providing accommodation for drilling contractors. The community has several concerns about the REF for the drilling and lack of notification of the approval of the REF.

In particular, the community was concerned about the claim in the REF that Macquarie Energy is undertaking a program of community and stakeholder engagement and will continue with this program until all works have been completed.²⁸ Macquarie Energy had no consultation with relevant community organisations during the REF process. The Putty Community Association is a well-established organisation in the area with 114 members. Their monthly newsletter goes to members and non-members and is the best way of informing the community. No one in the community was officially informed of Macquarie Energy's intentions.

The Addendum to the original REF stated that Macquarie Energy would consult with Singleton Shire Council prior to commencing any works.

Singleton Council's Planning and Regulatory Services were not notified of the works.

²⁷ Macquarie Energy, PEL 460 Review of Environmental Factors Drilling Operation, October 2010.

²⁸ Ibid, pg. 4.

Access arrangements

The REF also claimed that Macquarie Energy had a land access arrangement with the landowner regarding access, compensation and rehabilitation. The community understands that a land access arrangement with the landowner was never finalised. The landowner took the document to his solicitor who advised him not to sign it.

Bushfire risk

The REF appears misleading in stating that the bushfire risk of the area had been taken into account and an Emergency Management Plan would be implemented. The community is concerned that there is only one road into Putty and therefore one road out. A fire can cut off this escape route very quickly. If a fire breaks out at the site and is not controlled, it could quickly spread into the surrounding National Parks. Fires in the National Parks have been known to burn for weeks. The clandestine location of the Wollemi pine forest is believed to be in the National Parks near Putty.

Adjacent landowners and condition of the environment

The REF contained incorrect information about adjacent landowners which was based on old data. Similarly, the comments about surface water in the REF noted that the Putty Creek area had been cleared and riverbanks damaged, as a result of historic agricultural land use and uncontrolled grazing. It also claimed the area was sparsely settled.

The area is no longer sparsely settled, with most of the land subdivided into 100 acre lots. Land owners are increasingly fencing off Wollemi and Putty Creeks to exclude stock and protect and restore fragile riparian areas. Some have also have introduced rotation grazing and planted trees to rehabilitate the riverbanks. Many land owners are members of Landcare and are keen to preserve the wetlands in the Putty Valley and have spent hours of voluntary time eradicating weeds in the creeks.

Licensed bores

The REF states that there were no known bores licensed for the extraction of groundwater in the immediate area. This is incorrect, as licensed bores for extracting groundwater are nearby.

Heritage Issues

The heritage study undertaken to inform the REF was limited and relied on databases as opposed to the heritage values of the area. The REF noted that a search was undertaken using the NSW Heritage Office Heritage (**OEH**) Database on 8 October 2010 for Putty and no records of registered State Heritage items were identified. A search of the NSW OEH Aboriginal Heritage Information Management System (**AHIMS**) was conducted to identify any known indigenous heritage items recorded near the proposed core hole site. A review of the Singleton Local Environmental Plan also showed no records of heritage items of significance identified for Putty.

There are, however, significant heritage items in the area. Due to Putty's isolation and the community's attitude to preservation, it has not been considered necessary to seek Heritage

Listings for old buildings or the remaining parts of the first road built north of Sydney, the Bulga Road, which opened in 1823 (before the Great North Road which was started in 1826). The location of many Aboriginal cave paintings in the Putty Valley and the Wollemi National Park are known to property owners, scientists and rangers.²⁹

Traffic impacts

The REF notes that the core hole site would be accessed via existing access tracks and would include the arrival and departure of drilling contractors daily, and the intermittent delivery of materials. The drilling contractor would have several heavy vehicles such as the drill rig and ancillary equipment. Most would remain at the drill sites until the completion of each hole. Given the rural and relatively remote nature of the drill site, and temporary duration of the proposed works (traffic levels would return to normal conditions once the drilling at each site has completed), traffic impacts were not considered significant.

In response, the community noted that a memorial for truck drivers killed on the Putty Road is at Milbrodale. The road is narrow and very windy and is favoured by motorcycle and car clubs. Many of the roads within Putty have blind corners and are too narrow for two vehicles to pass. Fully loaded logging trucks use this road already.

²⁹ See http://www.australiaforeveryone.com.au/aborsites_wollemi.htm

Case study 3: Eastern Star Gas exploration in the Narrabri-Pilliga region³⁰

Eastern Star Gas is currently undertaking exploration activities under PEL 238 and Petroleum Assessment Lease 2 (**PAL2**) in the Pilliga scrub area, known as the Narrabri Coal Seam Gas project. The exploration is occurring on both private land and public land, including the Pilliga State Forest and the Pilliga State Conservation Area.

Lack of cumulative impact assessments

One of the issues with the REFs conducted for this project is that they have been viewed in isolation in relation to each part of the exploration activities. For example, separate REFs have been done for each area of the exploration, and other REFs have been done for associated activities.³¹ The entire activity in PEL 238 and PAL2 has not been assessed in accordance with the EP&A Act and Regulation.

Flora and fauna surveys

In many cases the REFs have been based on targeted flora and fauna surveys. In relation to the Dewhurst 8 lateral production pilot, the REF states that the predicted impact of the activities was based on survey reports which were sufficient to understand the impacts of the proposed exploration. These surveys occurred over a very limited geographic area and were not undertaken in the vicinity of the production pilot site.³²

Heritage issues

The cultural heritage surveys for the exploration are also ad hoc. At least one of the REFs for the Tintsville Water management works did not include any cultural heritage surveys or assessments, and the activity was not discussed with the local Aboriginal community. The REF stated that existing Aboriginal heritage databases indicated that the proposed locations did not present any risk to known sites of Aboriginal heritage significance.³³

Out of date information

The REFs have not been updated when the exploration works change. For example, the water treatment works at Bibblewindi, show that the water extraction is 1ML per day from 9 producing wells. There are now over 20 producing wells in the area, and the REF has not been updated. Enquiries from landholders to the Department of Primary Industries indicated that companies can just write a letter to vary the REF. However when this occurs it is not published, so it is difficult for the community to know what procedures are being followed.

³⁰ Groups working on this issue including the Wilderness Society, Nature Conservation Council of NSW and Northern Inland Council for the Environment as well as nearby residents.

³¹ Such as the Tintsville Water Management Plan.

³² See report by TWS, NCC and Northern Inland Council for the Environment, "Under the Radar-How Coal Seam Gas Mining in the Pilliga is impacting matters of National Environmental Significance" pg. 25

³³ Eastern Star Gas, Tintsville Water Management Plan, Narrabri Coal Seam Gas Project, PEL 238, February 2010.

Rehabilitation

It is also apparent that the conditions regarding rehabilitation as set out in the REFs are not being followed by Eastern Star Gas.³⁴ There has been no successful rehabilitation of abandoned drill holes and there are serious weed incursions at almost every core hole site, as shown in the photo below.



Photo of Dewhurst 5 exploration - abandoned well, Pilliga Eastern State Forest, June 2011

³⁴ See report by TWS, NCC and Northern Inland Council for the Environment, "Under the Radar-How Coal Seam Gas Mining in the Pilliga is impacting matters of National Environmental Significance", pg. 26.

Case study 4: Sydney Gas Operations- Hunter Corehole drilling near Wollombi

Sydney Gas, in a joint venture with AGL, is aiming to extract CSG in the Hunter region. It proposed six core hole drill sites within PEL 267 at Rothanal near Belford, Roughit, Wollombi, Paynes Crossing, Maison Dieu and Mt Thorley. In April 2008, they submitted an REF to the Department of Primary Industries that dealt with exploration at five of those drill sites. The comments below are focused on the REF so far as it dealt with the Wollombi drill hole, about 1.2 km south of Wollombi village.

Flood risks

There is some mention in the REF of flood issues under the heading 'climate'.³⁵ It notes that an increased rainfall rate and reduced ground cover can result in a higher risk of soil erosion. There is no mention of any of the area covered by the exploration work being flood prone or the possibility that access to the site could be restricted by flood conditions.

Residents have advised that the site was under water in 2008, and such flooding could prevent access to the site to ensure that de-watering and other conditions were met. Flooding in the area is not an isolated incident, and a thorough investigation of the Wollombi area should have uncovered this possibility.



Photo by Peter Ferminger of Wollombi 01 Proposed drill site (WAGE website)

³⁵ GHD, Sydney Gas Operations Pty Ltd, Hunter Corehole Drilling Program (five sites) Review of Environmental Factors for PEL 267, April 2008, pg. 20.

Heritage issues

The REF also found that there is no significant evidence of any historical activity or other potential non-Indigenous heritage items within the proposed access routes or core hole drilling sites around Wollombi.³⁶ This assertion is incorrect, because Wollombi is a historic village classified as a Conservation zone under the *Hunter Regional Environment Plan (Heritage) 1989*. The Plan also identifies various areas such as Mulla Villa as of regional environmental significance. The entire valley is also classified as a listed visual landscape by the National Trust. Wollombi is also of significant importance to Indigenous people because it is used as a meeting place. There are also 17,000 mapped paleo-art sites in the area.

Yet none of these issues have been raised in the REF. There could also be significant cumulative impacts on the heritage values and the conservation area because of increased traffic and clearing in the area, but these were not considered in the REF.

Water

There are significant concerns about the type of exploration undertaken, and whether that will impact on groundwater and hydrogeology. The REF states that the access roads and core hole sites could interrupt the existing hydrological regimes.³⁷ There is also mention of the impacts on watercourses in the area of the core holes, as well as a discussion about run-off from de-watering activities.³⁸ There are some limited comments to the effect that groundwater contamination would be avoided as all core holes would be cased-off, and there is no need for any specific mitigation measures. Such an approach seems to overlook the significant environmental issues associated with drilling and managing waste water from CSG exploration.

Bushfire risk

The Wollombi area is susceptible to bushfires. There is no mention of bushfires in the REF and what impact that may have on the exploration activities.

Surrounding land uses

There is some information in the REF about surrounding land uses at Wollombi. The REF notes that the area is surrounded by paddocks used for agriculture and grazing activities.³⁹ There is no mention of surrounding tourist uses. There is adjoining tourist accommodation at Mulla Villa, as well as adjoining rural residential parcels that are dependent on tourism generated by the convict trail and wine trail. This information is not mentioned in the REF, and may mean that it is arguable that the cumulative impact on tourism and rural residential uses has not been properly considered under Part 5 of the EP&A Act.

³⁶ GHD, Sydney Gas Operations Pty Ltd, Hunter Corehole Drilling Program (five sites) Review of Environmental Factors for PEL 267, April 2008, pg. 52

³⁷ Ibid, pg. 43

³⁸ GHD, Sydney Gas Operations Pty Ltd, Hunter Corehole Drilling Program (five sites) Review of Environmental Factors for PEL 267, April 2008, pg. 22-23

³⁹ GHD, Sydney Gas Operations Pty Ltd, Hunter Corehole Drilling Program (five sites) Review of Environmental Factors for PEL 267, April 2008, pg. 4

Conclusion

Taken together, we believe these case studies highlight a systemic lack of rigour or seriousness in the environmental assessment of CSG exploration projects under Part 5 of the EP&A Act. This is unacceptable, particularly at the very time these activities are expanding rapidly in NSW.

As we understand it, recent amendments to the assessment process for major developments,⁴⁰ will ensure that most CSG projects including exploration will now require a full Environmental Impact Assessment.⁴¹ While this situation will be an improvement, it is vital that there are further reforms to the EP&A Act and the P(O) Act, and associated regulations to ensure that these assessments are rigorous and accurate.

In particular, there is little independent environmental assessment of the real impacts of exploration on the environment. Nor is there any ability for the OEH to regulate these developments under pollution or threatened species law. In fact, the recent planning reforms have perpetuated the system whereby the OEH only provides 'advice' on these projects at the full assessment stage – and is not able to stop inappropriate impacts from occurring once the activity has been approved. Importantly, CSG companies face little penalty if they do not undertake vigorous and factual assessments.

Without further reforms to address these issues, communities will continue to feel frustrated about the lack of rigour of these assessments, particularly when exploration is authorised on freehold land.

⁴⁰ Formerly Part 3A, EP&A Act; now State Significant Development under Part 4, Div. 4.1.

⁴¹ See draft *State Environmental Planning Policy (State and Regional Development) 2011*, NSW Department of Planning and Infrastructure, Sept 2011.