



27th June 2013

Professor Mary O’Kane
Chief Scientist and Engineer
NSW Office of Chief Scientist and Engineer
SYDNEY NSW 2000

Sent by email to csq.review@chiefscientist.nsw.gov.au

Dear Professor O’Kane

Re: Supplementary submission to our submission of 26th April: Independent Review of Coal Seam Gas (CSG) Activities in NSW, focussing on its impact on Human Health & Environment

I write on behalf of the Scenic Hills Association. The Scenic Hills fall within AGL’s proposed Northern Expansion (Stage 3) of the Camden Gas Project. We have been actively involved with the Camden Gas Project for more than three years and have represented this area on its Community Consultative Committee since November 2010.

We wish to respond to commentary on the Camden Gas Project made by Dr Philip Pells in his submission to you (“Submission”) entitled *On the Cynicism of the Public to Information provided regarding Coal Seam Gas Operations – a Gloucester, NSW example*, which Dr Pells kindly forwarded to us. In that submission Dr Pells wrote the following:

‘It was stated that AGL had operated the Camden gas field since 2001 and this should give the people of Gloucester great confidence in respect to safe operations in the Gloucester basin.

‘The truth is that the Camden gas field had been owned and operated by Sydney Gas since 2001, and AGL only bought Sydney Gas in 2008.

‘The writer has gone on record, in public, noting that the location of the existing AGL operations at Camden is appropriate for extraction of CSG, in relation to groundwater systems, that the wells are not visually intrusive from the ground and from the air, and that AGL appears to operate a technologically and professionally competent operation. But this does not mean that Camden is a direct analogy for a CSG field in a completely different geological, surface water and agricultural environment such as at Gloucester. One simple example of the difference is that AGL have stated (EIS for proposed Camden North extension) that no future wells in Camden will involve hydrofracturing, whereas at the meeting on 16 May, the manager of AGL stated that hydrofracturing (fracking) would be used in all the wells at Gloucester.’

We accept the key point that Dr Pells is trying to make here: that AGL cannot draw conclusions about Gloucester from its operations at Camden due to differences in the geology, surface water and land use. However we are concerned about the way in which Dr Pells makes his arguments using Camden as a

contrast, the inaccuracies in some of the information presented about Camden and the conclusions that could be drawn from this for the Camden Gas Project area (“Camden” or “Camden area”)¹.

Dr Pells made similar commentary at a community forum at Picton in the Wollondilly Shire on the 29th April 2013, and on the ABC’s 7.30 NSW on the 22nd February 2013 where he stated, in relation to aquifer protection (7.30 NSW): *“In my opinion the Camden area is probably one of the better if not the best areas for coal seam gas extraction in NSW so, I find it a little bit unfortunate that what from the scientific point of view appears to be a good area to...extract this resource is now under significant pressure and what appears to me to be a very uncertain area with potential downside is going ahead.”*

It is not our intention to distort Dr Pells views by taking them out of context or misconstrue what he has stated, but we are concerned that some of his statements lend themselves to this. We also note that Dr Pells states in his Submission that he is *‘actually in favour of CSG extraction in appropriate locations.’* We are concerned, taking commentary from these different sources into account, that he might mean the Camden area. It is this that we want to address in this supplementary submission.

Before proceeding with our arguments, we wish to state that we have limited knowledge of the Gloucester area and our commentary below should not be taken as an endorsement of coal seam gas mining there. Our concerns are purely with Dr Pells’ comments on the Camden Gas Project:

1. The Camden area is a ‘good’ place to extract CSG

Dr Pells’ usage of the terms ‘good’ or ‘appropriate’ (a good/appropriate place to extract CSG), when not immediately *qualified* by Dr Pells, can give the impression that, as an accepted expert in coal seam gas mining impacts, he supports coal seam gas mining in the Camden area. His comments about the *visibility of the wells* (which has nothing to do with ‘groundwater’) and the *non-use of fracking* in Camden North (which is incorrect) reinforce that impression. Casual commentary is now coming back to us suggesting that Dr Pells’ views are starting to get traction, *without qualification*. We therefore feel that if it is *implied* and/or *perceived* that this view comes from an expert, and it is indeed getting traction with decision makers, then it is important that the models and data used to support this view be open to full scientific scrutiny, and that groundwater impacts be understood in the context of other problems from CSG mining, particularly since the Camden Gas Project is in Sydney’s residential growth corridor and its further expansion would also take it into Sydney’s water catchment. We note that at the Wollondilly forum Dr Pells did make the distinction between his own area of expertise and other problems with CSG mining, however this was ‘muddied’ by other commentary (such as well visibility)².

2. Spin and the misuse of science

Dr Pells’ Submission explains, in relation to the Gloucester project, how the ‘spin and misuse of science’ by AGL and other informational errors can undermine public confidence. We agree, and that is why it is

¹ The Camden gas field that AGL refers to falls into three local government areas - Camden, Campbelltown and Wollondilly Shire and is known as the Camden Gas Project. We assume that Dr Pells, in referring to “Camden”, “the Camden area” and “the Camden gas field” is referring to the same thing as AGL, and that “Camden North” is the same as the “Northern Expansion”.

² We have covered the full context of other problems associated with CSG mining in the Camden area in our submissions to the Department of Planning, so will not repeat these here. This submission will only deal with Dr Pells commentary on Camden.

disconcerting that Dr Pells, having noted AGL's tendencies, appears to us to have accepted AGL's statements and data in relation to the Camden Gas Project and not seen how his own claims about Camden might undermine confidence in his views here, as follows:

a. AGL's track record in operating a coal seam gas project

Dr Pells suggests that AGL cannot claim experience from running the Camden Gas Project since 2001 because *it only bought Sydney Gas in 2008*. We agree that AGL's claims are contradicted by the fact that AGL management only took over when AGL acquired Sydney Gas in 2009, but this does not apparently apply to operational staff. The Camden Gas Project became a joint operation between Sydney Gas and AGL from late 2005 and AGL says that about 80% of its Upstream Gas Division staff is from Sydney Gas.

We make a different case that AGL cannot claim it has been safely running the Camden Gas Project since 2001, basing our arguments on other grounds (see Section 6 of our submission to the NSW Department of Planning on the Northern Expansion 7th February 2013). These grounds are in contrast to Dr Pells' view that AGL appears to operate *a technologically and professionally competent operation* at Camden.

b. Use of fracking in the Camden Gas Project

Dr Pells says AGL's EIS for the proposed Camden North [Northern Expansion] states that *no future wells in Camden will involve hydrofracturing*. Dr Pells does not provide a reference for this and we are unable to find where this comes from. In its Environmental Assessment for the Northern Expansion, AGL makes it clear that it will frack (Main Report, Section 4) and has further detailed its fracking operations in its Amended Environmental Assessment (Main Report Section 3.4.2). AGL reconfirmed earlier this year that while it did not frack its *horizontal* wells, it would frack the *vertical* wells in the Northern Expansion, which it predicted could be up to 20% of the wells, possibly more.

AGL has also made statements in relation to the future fracking of its *horizontal* wells (email attachment of 18th April 2012 sent to the CCC) as follows: *'although it is extremely unlikely and not current practice to fracture an SIS [horizontal] well, AGL cannot guarantee that it will never fracture an SIS well in the future.'* The reason AGL gave was that such a guarantee *'would not allow the company to evolve with technological advances'*. AGL had previously stated in the same attachment that *'[i]n October 2007, AGL in partnership with the CSIRO conducted research on two early SIS wells that were drilled into a low permeability area. The objective of this technical R&D was to determine if gas production could be achieved by further stimulation of a low permeable horizontal well. The trial was conducted and deemed unsuccessful. As such, fracturing technology is not considered suitable for horizontal wells.'*

AGL has fracked more than 80% of the wells in the Camden Gas Project to date and this is consistent with information provided in the Chief Scientist's report on fracking to the Hon. Chris Hartcher last year. In this report Professor Peter Cook was quoted as saying that fracking was more likely to occur in the Sydney and Gunnedah Basins (in NSW) where the Permian coals are relatively impermeable³.

³ Professor Peter Cook, Cooperative Research Centre for Greenhouse Gas Technologies (CO2CRC) and University of Melbourne, quoted in the Executive Summary of *Report for the Office of the Chief Scientist and Engineer of New South Wales*, 23rd April 2012.

In summary, if Dr Pells has raised the issue of fracking in his Submission because he believes that fracking is a risk to groundwater, then this risk also applies to the Camden Gas Project – albeit that with the current technology, less fracturing would initially occur here than in Gloucester (which could be because horizontal drilling is not suitable for Gloucester, or simply that AGL is able to pursue the cheaper option of vertical drilling)⁴. If, on the other hand, Dr Pells is merely highlighting AGL's differential use of fracking as an example of differences in the geology, then the evidence for this is not correctly stated and the point needs to be clarified for those of us less scientifically qualified.

c. Low visibility of wells in Camden

Dr Pells also appears to endorse the suitability of the Camden Gas Project for CSG extraction by suggesting that the wells are not visually intrusive. We feel this is misleading as it suggests a low impact on residents in the area, ignoring the significantly larger environmental footprint of these wells during drilling, laying of pipelines and access roads, and the activity associated with truck movements and rig movements during drilling, fracking, re-fracking and well maintenance workovers, and noting the closely settled nature of the Camden area. It also ignores the current proposal by AGL to cluster wells (and the associated activity) – up to six per cluster in the Northern Expansion proposal.

d. Adequacy of Camden groundwater models, data validity & unclear assumptions

We have a number of questions about the model used by Dr Pells in arriving at his conclusions about the Camden area, which has not, as far as we know, been made available for peer review. It is our understanding that the model is a conceptual model and relied in part on data gathered by AGL. We have already expressed our concerns in our prior submission about the reliability of data gathered by the industry, but there are further issues here. According to Dr Gavin Mudd of Monash University, AGL has never carried out any scientifically acceptable monitoring of shallow and deep aquifers in its existing gas production fields at Camden (Stages 1 & 2) and therefore can make no claim about groundwater impacts when it has *no data*⁵. AGL only started gathering groundwater data using dedicated bores in one location - being the most northern point in the Northern Expansion area - in late 2011 in anticipation of getting approval to extract gas in the area and needing to comply with the new regulatory regime. Currently there is no CSG extraction in the Northern Expansion area. We further note that AGL had previously explored the area without taking a prior baseline measurement, and the exploration wells were plugged and abandoned when AGL started gathering its data. AGL now justifies its groundwater monitoring here on the basis that it is downstream of its existing gas fields despite concerns about the distance of these monitoring bores from the producing gas fields. Exactly what data Dr Pells relied on, and the validity of that data is unknown.

Further, to our knowledge, AGL has not carried out any comprehensive hydro-geological mapping of the Camden Gas Project area. As such, AGL stated in its Amended Environmental Assessment for the Northern Expansion (Main Report, p. 35) that AGL's Phase 1 Groundwater Assessment and Conceptual

⁴ Note that AGL, in its Environmental Assessment for the Northern Expansion has not committed to the number of vertical wells vs. horizontal wells, such that the amount of fracking here would remain unknown until after approval of the project.

⁵ Dr. Gavin M. Mudd, *Environmental and Groundwater Issues and AGL's Hunter Coal Seam Gas Project*, Final Report to the Hunter Valley Protection Alliance, February 2010, p. 6. Dr Mudd made similar comments on the ABC's Four Corners "Gas Leak" 1st April 2013 and at a Campbelltown Community Information Forum on the 13th February 2013.

Hydrogeological Model (for the Northern Expansion) '*identified that the possibility cannot be ruled out that major fault zones could provide a hydraulic pathway through claystone horizons and that some shallow groundwater impacts may be observed in close proximity to those structures.*' We are concerned that comments made by Dr Pells at the community forum and ongoing commentary from AGL suggest that some collateral damage in a place like Camden is both assumed and accepted with these conceptual models without regard for exactly what might be damaged at the surface. In that regard, we are concerned that there is a view that only Strategic Agricultural Land (as defined by the NSW Department of Planning) has value but not historic properties located in the Camden Gas Project area (many of them state heritage listed and irreplaceable) or land reserved for agriculture in the Sydney Basin. Indeed we have been left with the impression that community concern for these assets (and any flow-on health and economic effects) is regarded as being based more on 'emotion' than logic. Scientific arguments need to have their assumptions openly stated so that they can be appropriately interpreted and justified.

Finally it is our understanding in speaking to Dr Pells that his comments about Camden were only meant in a *relative* sense with regard to the *extent* and *timeframe of impacts* on groundwater i.e. how rapidly the impacts would occur when compared with *some* other parts of NSW, such as Gloucester. This has not been made clear in his Submission, or on 7.30 NSW (the editing of which is the ABC's) or at the Wollondilly forum, but we believe that it is critical to the scientific substance of the argument. Once the argument is qualified in this way it raises deep concerns yet again about the assumptions behind this which do not appear to place much value on downstream, long term impacts and inter-generational equity, particularly as AGL claims that the aquifers here '*probably run into Sydney Harbour*', and noting Dr Mudd's view that AGL does not have the groundwater data or hydro-geological assessments to adequately assess the groundwater impacts and risks associated with coal seam gas mining in Camden.

We admire Dr Pells for his tireless work in supporting areas where groundwater impacts are likely to have immediate and dire consequences for those living there, particularly in a country like Australia with its history of droughts and reliance on groundwater systems. However we feel that arguments for individual areas can be made on a standalone basis without assuming that CSG must go *somewhere* and a Sophie's Choice trade-off made with other communities - particularly when that choice may be based on partial data and/or data that have not been made available for public scrutiny, and/or where assumptions are not clearly stated. We also believe that all arguments in the CSG debate, no matter which side they support, should be subjected to the same scientific rigour and that the *science* of coal seam gas extraction is not confined to groundwater alone.

Yours sincerely



Jacqui Kirkby
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