COMMUNITY CONSULTATIVE COMMITTEE
AGL – CAMDEN GAS PROJECT

MEETING NO.27

Held at the Camden Civic Centre, Camden on 25 November 2010 at 5.30pm

MINUTES

ATTENDANCE

Mrs Margaret MacDonald-Hill (MM)	Chair
CR David Funnell (DF)	Camden Council
Mr Michael Hingley (MH)	Campbelltown City Council
Mr David Henry (DH)	Campbelltown City Council
Mr Jai Rowell (JR)	Campbelltown City Council
Mrs Diane Gordon (DG)	Community Member – Camden
Ms Jacqui Kirkby (JK)	Community Member – Camden North
Mr Aaron Clifton (AC)	AGL Upstream Investments Pty Limited
Mr Adam Lollback (AL)	AGL Upstream Investments Pty Limited
Ms Naomi Rowe (NR)	AGL Upstream Investments Pty Limited
Mr Mike Roy (MR)	AGL Upstream Investments Pty Limited
Miss Wendy Thompson (WT)	AGL Upstream Investments Pty Limited

APOLOGIES

Mr Michael Banasik (MB)	Wollondilly Shire Council
Mr Simon Hennings (SH)	Community Member

ABSENT

Mr Michael Pring (MP)	Landcom Development Director

Meeting Opened at 5.30pm

ITEM	DISCUSSION	ACTION/ CLOSE OUT	DATE BY
1.0	**Introduction**		
27-1.1	Welcome by the Chair – MM. Introduction and Welcome to Naomi Rowe, Mike Roy and Jacqui Kirkby Jai Rowell declared he is a candidate for Wollondilly. Margaret advised committee members that she is engaged by AGL as an independent chair. Margaret declared to committee members that she is also a member of the Mine Subsidence Board and the Ministers Arbitration panel.		
2.0	**Apologies – As Above**		
3.0	**Last Meeting Minutes**		
	Moved by DF, seconded JR.		
4.0	**Business Arising**		
27-4.1	JR – *(Refer previous minutes 26-6.6)* Frac chemical information. AL advised that APPEA spec sheet information was provided to DH, and MR is present today to present further information regarding the fracturing process.		

27-4.2	AL – *(Refer previous minutes 26-6.6)* AL advised Steve Jackson is the person to contact in AGL regarding information in relation to the Leafs Gully project. AL to provided contact details to JR.		
5.0	**Correspondence**		
27-5.1	*Correspondence In* MM – 27.10.2010 – Newsletter from AC, emailed with previous minutes.		
27-5.2	*Correspondence Out* Nil		
6.0	**Reports on AGL's operations and future plans**		
	HSE Field Compliance and Operations - AC		
27-6.1	<u>Civil Earthworks</u> Rehabilitation has commenced at Elderslie 01 core hole, Menangle Park 12/23 well site, Menangle Park 05A well site and the EM26 holding dam. An additional 100 native trees have been planted at the Spring Farm 17 well site. MP12/23 gas gathering line construction works continue, and civil earthworks have been completed at the Menangle Park 03 site.		
27-6.2	<u>Drilling</u> Menangle Park 05A well site has completed its drilling program, and the rig has now moved to the Menangle Park 03 well site, where it will be located for approx the next 5 months. Ongoing consultation with adjoining landowners occurred during the construction, and will continue during drilling operations. AC showed members the location of the Menangle Park 03 well site on a map. Noise walls have been installed around this site, continuous noise loggers and attended noise monitoring is being undertaken by independent noise monitoring specialists and results are currently being analysed. Lighting assessments are being undertaken to ensure there is no impact on surrounding residents. JK – Who is used to undertake the independent noise monitoring? AC – Heggies JK – Suggested to AGL that for the sense of being open with the community, choosing words should be considered (independent vs outsourcing). AC – The company is engaged by AGL to take readings, so they would be considered an external third party specialist. JK – In terms of impacted noise is there a limit where AGL has to be concerned?		

	AC – During the environmental assessment, a noise impact assessment is undertaken based on the nearest or most affected receivers to our proposed sites. As part of the environmental assessment the typical background noise level is determined for these receivers and AGL's noise limits are established for the day, evening and night periods. For night, the noise limit is the background noise level plus 5 decibels . JK – And as the background noise increases? AC – This is known as background creep which is controlled by the regulators to prevent such from occurring . DG – For the illumination of the site what brightness is allowed? AC – The crew is on site on a 24 hour basis, so whenever it is dark, lights are required for occupational health and safety reasons. AGL has been to site on the first night to do a drive around and identify or orientate any lights to illuminate only the work area and not impact on surrounding areas.		
27-6.3	<u>Rosalind Park Gas Plant</u> Quarterly air emissions monitoring has been undertaken for RPGP operations, and AGL are awaiting the results. Quarterly noise emissions monitoring has been undertaken for RPGP operations with all results compliant. A Noise Management Sub Plan has been forwarded to the DECCW. RPGP continues to operate without significant operational issues or community complaints. JK – Does that mean no complaints at all, or no significant complaints? AC – No complaints at all. Following the recent fire brigade familiarization tour, further tours will now be undertaken.		
27-6.4	<u>General Field Operations</u> AGL's review of options for beneficial industrial reuse of produced water is still ongoing. Menangle Park 12/23 is in production test phase, which includes an enclosed flare. Flaring has been approved by the DII and DoP. Notification has been given to the local fire brigades. The flare is not visible to highway traffic. DH – Are they always enclosed? AC – Showed a picture of SugarLoaf 2 well site enclosure as an example. Typically in the past only enclosed more for visual impact, in the future, all wells to be enclosed.		

	In regards to flares, all flares are enclosed. Weed spraying is currently in progress across all field sites.		
27-6.5	<u>Community Complaints</u> Following the MP23 rig move complaint, AGL had discussions with Camden Council regarding a potential extension to the curfew along Richardson Road, but were advised that the RTA has overall authority. No complaints were received during the MP03 rig move. A Landowner contacted AGL to complain about the dust caused by vehicles travelling along MP03 access road. The water cart was en-route at the time of the complaint and has worked continuously since.		
	Community and Government - AL		
27-6.6	AL – Showed the committee an aerial shot of MP23 well site, and MP03 site location. For the MP03 well site, an extensive discussion process has been undertaken with meetings with 7 households and regular contact and letterbox drops in the Glen Alpine area, and a couple of calls have been received from interested parties. AL – In regards to the Northern Expansion this is on public exhibition, and AGL is trying to get out and do as much consultation as we can. AL – Showed members RA09, CU10 proposed locations on a map, and the Camden North proposed main spine location, along the existing canal. Also showed examples of the enclosed wellheads at production phase. JK - Does the gas from the well sites go back to the main spine? AL – Yes each well site would feed to the main spine which would feed back to the existing plant in Camden. MH – In some areas where there are no gas wells, does this give you access to anything in the red line? AL – No we need to locate our wells within the red line. The area is just the concept plan. MH – Why does the red line expand into urban area? AL – This proposal has evolved over 18 months and we did have some well locations, through consultation some of those wells have been dropped. JK - And subsurface over this area, gas anywhere within that subsurface area? AL – Within the petroleum lease, we can only seek approval within the red area, and drill from that area. JK - Up to 2500m, doesn't go beyond that?		

	MR – From the surface the well paths can be horizontal in multiple ways. There is no subsidence, and no effect on the surface infrastructure. JK - Have you looked at the natural springs? MR – We had to do a hydrological study review in the past, and the Hawkesbury is a fresh water aquifer which is a shallow one at 80-100m down, and we drill at over 700m vertical depth. JK - It won't affect any water? MR – Correct. JK – Can we have that in writing? MR – I can't put that in writing. JK - Why don't you? MR – There are no guarantees. We know where the water is, and we know where the aquifers are from our studies. I can show you in today's presentation how the process works.		
27-6.7	**Slide 1 – CSG Hydraulic Fracturing - MR** MR – Introduced himself to the committee. He has been with SGO/AGL for 11 years, and his speciality is in hydraulic fracture stimulation, working overseas and is very familiar with the process. There is a lot of concerns on how/why we do this operation at the moment. JK – Hasn't this been banned in fraccing? MR – BTEX has been banned, which was never used in this process, so they have banned a chemical that was never used as part of the CSG (coal seam gas) process. MH – Isn't there a blanket ban on fraccing? MR – There is a video out, Gasland, which is based on shale exploration, not coal seam gas. Shale has become massive in the last 4 years, with the price in the US being approx $8 to $9 per gigajoule. 4 years ago, to now effectively dropped gas prices to $3.50, because they have found out how to get gas out of shale. US regulations are very different to Australia and are not nearly as regulated so there have been some poor practices overseas. **Slide 2 – Ensign Rig 67 – ADR 200 under contract for AGL** AGL spent 18 months looking for a fully silenced and automated rig. This one is a 200,000 lb (pull back) diesel driven rig. The driller stands in the console with a joystick and can operate the rig using minimal people. The contractor spent over $10 million to be compliant with AGL requirements and to work in our surroundings.		

	Slide 3 – Horizontal Drilling – Camden Gas Project 20 wells have now been drilled horizontally without the requirement for a vertical intersect well. There can be 5 or 6 wells on each pad. The advantages are reduced land access requirements. **Slide 4 – Objectives of Hydraulic Fracturing** Inject fluid at rates above formation parting pressures to maximize the NPV on well drilling and completion investment. This will increase methane production rate, increase the reservoir economical life, increase recoverable reserves and increase well spacing (or reduce the number of wells). The reduction of wells is important in the semi rural surrounding. JK – Vertical wells are fracced, and horizontal are not? MR – Yes JK – Of the 72 wells how many will be fractured and how many will not? MR – Horizontal wells for land access is nice, as there is less surface impacts, but drilling horizontal makes it harder. There are more risks with horizontal drilling. JK – What risks, what are the risks? MR – You can have a wellbore collapse, get stuck, loose equipment such as bottom hole assembly, electronics and motor are approx $200,000. JK – Have you done a hydrological study? MR – We did in 2002-2003. JK – In Scenic Hills? You still have to do this study. MR – It is something that will be prudent to establish the best drilling method. JK – If you have studied the area well, why don't you know what drilling you will do? MR – Horizontal works for this area, but we don't want to say what will or won't work in other areas. I suspect it will work, but not 100% certain. JK – So we should assume all could possibly be fracced? MR – referred back to the slides and advised this will be in the presentation. JK – Isn't that getting into the same seam? MR – Permeability is low so we need to stimulate the well. JK – My understanding is the process is putting wells close together which is fairly new, what are the risks, wouldn't that weaken the area, what is the risk assessment.		

	MR – the conductor is 6-12m deep at 15". The conductor is cemented in, next is the surface casing which is drilled at 12 ¼", and cased with 9 5/8" casing, to a depth of 120m which is cemented in. Then the well is drilled at 8 ½ open hole, with 7" casing used for horizontal wells, or 5 ½" casing for vertical wells. Again cemented back to surface. JK – Steel? MR – Yes. And cemented back to surface. *Showed slide example.* JK – Given the wells from the last 15 years, is there any breakdown of the concrete? MR – Recently AGL bought Mosaic who first drilled in 1972-1980. The first results back from logging tools that measured the steel are very good in these wells. The preliminary results on the concrete have not been received yet. So this is a good indication that the casing will last much longer than needed. JK – Is the same concrete being used? MR – We are running special cement with preservatives to protect the cement. There are some high risk areas that could have sulphates, but not in Camden's project area. JK – Are you covering all of this in your risk assessment? MR – Yes and we measure and run logs for integrity. DH – When you decommission a well is the cement taken out? MR – We cut the steel, approx 1m below surface, and fill the whole steel pipe (casing) with cement, using a plug and abandon method. This is then detailed with the DII, Department of Industry & Investment. The procedure and result is reviewed by the DII. JK – If the knowledge is there beforehand are you covering this on site specific, currently is it very general. MR – For the Sydney basin we have access to all kinds of data, our wells are very shallow at approx 700m. Our bottom hole temperature is approx 38deg. Our wells are very simple. JK – Given the potential risks moving into Sydney, the community needs to have far more assurance than "in most" or "potentially". What are the circumstances, we need firmer language that you do know what you are doing. **Slide 5 – Typical Vertical Well Design and Perforation Mechanism** We perforate the well through the cement and steel casing which releases a small, high-velocity stream of particles (jet) that is 0.4 inch in diameter and gives access to the coal seam and wellbore. **Slide 6 – Formation Stimulation** Hydraulic Fracture is undertaken to connect cleat permeability to		

	conductive fracture, connect naturally fractured system, assure production from laminated intervals, distribute pressure drop along the fracture length and increase drainage radius. **Slide 7 – Hydraulic Fracturing** The basic concept is that fluid is pumped into the formation and a fracture is created on either side of the well at approx 180deg in the opposing direction, thereby propagating in the direction of maximum stress. It can go out from 30-150m into the coal seam depending on the job. **Slide 8 – Hydraulic Fracturing cont...** The fracture is then created, then filled with proppant, or sand to keep it open, to prevent the fracture from healing again. 99% of the injection is quartz sand. MH – What is the other 1%? MR – The other 1% is made up of feldspar, clay or impurities in the sand. **Slide 9 – How Does it All Fit Together?** The water and gel or adding proppants (sand) is mixed together in the blender, proportioned, and feed to the high pressure pumps and then into the formation. ***Slide 10 – Section Break Slide Only*** **Slide 11 – CSG Fracture Fluid Additives** Typical additives are: Water, Sand, Gelling agents (viscosifiers), Crosslinkers, Surfactants (option), Buffers, Breakers, Microbiocides, and Nitrogen. JR – What about hydrochloric acid? MR – Running acid reacts with the cement to clean the perforation tunnel out. Acid is maybe run 20% of the time at very low volumes. JR – How many wells is that used on? MR – Not many wells require acid, maybe 20%. Other additives with water are bleach or viscosifiers. The acid used is at about half the strength that you would put in a swimming pool at home. JR – There is no risk? MR – We use about 1000-2000 litres followed with ½ million litres of frac fluid, so it is spent and dilutes. JR – So is it a zero risk? MR – It wouldn't be a zero risk. JR – What risk is there? MR – You can have surface risks, such as if a hose burst and you have a spill on site, but there is soda ash on site should this occur to mitigate the		

	risk and neutralise the spill. DH – These impacts may be small but are not specified in the EA. Even though it is small what is the impact. MR – We have precautionary steps in place, we silt fence our locations, sample the dams in the area before and after, and will have precautions so if there was a spill it would be neutralized. As an example at the drill site, the diesel tanks are double lined steel. JR – What our Councillors are concerned about wasn't addressed in the EA. AL – It is addressed in the EA but the level of information might not be there. We can address the concerns as part of the submissions. JK – It is not the risk, what is the impact. It only has to happen once for it to be unacceptable. We need to know about the event. MR – We are not using toxic or dangerous chemicals. JK – Referenced the Hunter water spill. MR – We drilled a water bore, and let water run onto the land, which we were allowed to do. There were groups that wanted to make a mountain out of a molehill. What we did was acceptable by water bore standards. This was not a CSG well, but a water bore. JK – If you bring waste water to surface to be disposed, is is salty and how are you disposing? AC – A 3rd party collect our water and take it to a treatment plant at Windsor to dispose or recycle. JK – What conditions are on them? AC – They are regulated at a much higher level than AGL would impose on them. NR – They would face bigger risks if they lost their licence. AC – We like to see water as a resource, and we are looking at options for recycling or reusing the water as a resource. JR – Any benzenes? MR – Will come to that. **Slide 12 – Fracturing Fluids** The fracturing fluid consists of pre-pad fluid (occasionally), pad fluid, slurry fluid and fracturing fluids. MH – Section 75J of the Sartor approval, says a sand and water slurry. Would AGL be in breach of that?		

	MR – That would mean it effectively means we can't use the resource. I would have to review that section. I am not aware of this, suspect this is not correct. **Slide 13 – Gelling Agents** Gelling agents used are Guar organic product in its liquid form, which is also used in McDonalds milkshakes. **Slide 14 – A Fluid Situation** 99.51% of the fracturing fluids are water and sand. The other 0.49% are additives. The chemicals today are organic and are also able to protect our tubular casing. No toxic chemicals used or required. **Slide 15&16 – Chemistry Scoring Index** This index assess each chemical used in the stimulation treatment to define it numeric rating from an HSE perspective, and is intended to drive behaviour to help constantly improve the industry's environmental footprint. **Slide 17 – Chemistry Scoring Index by Category** In the past the HSE Score has been as high as 1200 for corrosion inhibitors in the industry, and presently it is dropping and is less than 200. **Slide 18 – BTEX – What is this?** BTEX refers to the group of compounds Benzene, Toluene, Ethylbenzene and Xylenes. They are naturally occurring components of petroleum products and have been found to naturally occur in coal formations in Australia. BTEX chemicals are not used as part of the fracturing process of CSG wells. JK – In this case you don't know. MR – There is approx 1 to 3 parts per billion reported by other CSG operators. Recent advances with lab equipment have been developed to record these minute amounts. JK – What is the health effect? MR – What is the health effect of filling up a car? JK – Toluene is a carcinogenic. You are not giving a degree of comfort. MR – The quantity is the amount. It is less than 1ml in an Olympic sized pool. The levels being detected are small, but technology is able to measure this today. Also, there is evidence that hydrocarbon may be natural in some coal seams. JK – There was a programme on 60 minutes where methane came up through the farmers dams. What is the difference to what they are doing and what you are doing here? MR – We are developing seams below ground, deep. Methane is a natural occurrence even at shallow depth. Can't speak for other companies in Qld. JK – Irrespective what is the difference?		

	MR – We walk 100km of our poly line with detection equipment that can pick up minute traces, and we also test around our wells. We are under numerous conditions which we continue to abide by. We also have numerous precautions that are designed to measure this. MM – NSW has more stringent controls. DF – You could provide the information that you gave us years ago. JK – Technology changes. DF – This information would be improved information. JK – Can we have a copy of the presentation? NR – We have provided a fact sheet with all the information. JK – It should be in the EA. You shouldn't be afraid of it. **Slide 19 – Hydration Unit** This unit is used to get rid of any bacteria in the chemicals using ultra violet beams. New technology to help eliminate the use of bleach or biocide. **Slide 20 – Service Companies** AGL uses companies who strive to be good stewards of the environment, and who hold strong HSE values. Independent lab work is currently underway to provide CSG producers a Quality Assurance Statement on full disclosure of chemicals used, with no BTEX. **Slide 21 – Keep in Mind** The CSG industry is under close scrutiny and the industry needs to demonstrate to the regulators and the community that it is not harming the environment including groundwater aquifers. PPL1 licence was the first national gas production in NSW ever granted in 2001. **Slide 22 & 23 – Fracture - View from a Coal Mineback** *Photo slide only* JK – It would be good to have this kind of thing in the EA. People may want the alternative. AC – This is not required by the EA. It is the regulators who set the standards. JK – The concerns shouldn't be dismissed. There is a lack of confidence in government's ability to manage process. NR – To be able to allay concerns is by way of these discussions. JK – People want stuff in writing, so if it goes wrong. MM – It's too technical, it would seem like AGL was trying to bamboozle. And it can be left to interpretation. Some of the technical interpretation		

	you take on board, could mean this. JK – Give it to us in writing in the EA. People are qualified on Council to assess. We would like to have the opportunity to have a look at it. What constitutes evidence? We're prepared to have a look at it. MM – The mining act has changed, and we are drilling within 200m. This has gone through continuous review. Exploring for gas will be harder and we are living in the information age. JK – We had promises something is safe and further down the track its not. DG – When they first ventured into the community areas it was very slow and painful and a huge learning curve. Going back 12 years this process was so raw and more risky then, now there are so many checks and balances. You can never eliminate a cause, 12 years ago there was E.coli in Sydney water. It's not a perfect world but regulations now are controlling, and using groundbreaking techniques. MR – AGL has been around for over 170years. The brand is very important and we want to do our activities diligently. We have undertaken risk assessments and risk mitigation is important. JK – This area is a heritage area which seems to be in a mini rain shadow. The dams in the area are important and we do not want water contamination or depletion. These are historic dams from the 1830's. Varoville is a model of water conservation and we are very worried about this. The Nun's Monestary is next door to the proposed wells. MR – The springs are 3-15m deeps and are very shallow. We need to demonstrate that. But no matter what we do we will still have people who just don't want us there. **Slide 24 – Existing Enclosed Producing Well – Camden** *Photo slide only* **Slide 25 – Questions** *None*		
7.0	**General Business**		
27-7.1	Nil		
8.0	**Next Meeting**		
	Thursday 24 February 2010 (tentative)		
	Meeting Closed 7.45pm		

Note:

- Item numbering in column one shows the meeting number first then the section number to allow for the actions to be tracked for close out.