

**BULGA GAS EXPLORATION PROJECT
COMMUNITY CONSULTATIVE COMMITTEE**

MEETING No. 16

HELD AT BROKE COMMUNITY CENTRE ON 28 OCTOBER 2009 AT 2:00PM

MINUTES

Attendance

The Hon. Pam Allan (PA)	Chair
Mr Steve Cozens (SC)	NSW Department of Industry & Investment
Mr Hugh Upward (HU)	Community Representative
Mr Barry Smith (BS)	Community Representative
Mr Stewart Ewen (SE)	Hunter Valley Protection Alliance (HVPA) – President
Councillor Alison Howlett (AH)	Singleton Council
Mr Bob Kennedy (BK)	Community Representative
Mr Geoff Sharrock (GS)	Community Representative
Ms Siobhan Barry (SB)	AGL Representative
Mr David Kelly (DK)	AGL Representative

Apologies

Councillor Paul Nicholls (PN)	Singleton Council
Ms Julie Moloney (JM)	NSW Department of Industry & Investment

By Invitation

Mr Mike Roy	AGL – Head of Gas Operations
Mr Chris Holmes	AGL – Senior Geologist
Mr John Darr (JDarr)	AGL – Land Officer
Mr John Ross (JR)	Parsons Brinckerhoff – Ground Water Group Manager
Prof. Garry Wilgoose	Independent BCCC Water adviser – University of Newcastle
Dr Gavin Mudd	HVPA adviser – Monash University

Minutes

Ms Pha Tran (PT)	AGL
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Meeting Opened at 2.00pm

ITEM	DISCUSSION	ACTION
16.1	Welcome and Apologies	
16.1.1	Welcome by the Chair – PA	
16.1.2	Apologies as noted above. PA – advised that JM will not be attending future meetings, SC will now represent on behalf of the department. Thanks to JM for her efforts, she was with the committee from its first meeting and her contribution has been greatly appreciated.	
16.2	Declarations of Interest	
16.2.1	PA – No further declaration of interests other than the ones raised in previous meetings.	
16.3	Minutes of the Previous Meeting	
16.3.1	PA – put forward to members for the Minutes of the previous meeting to be discussed later in the meeting, along with matters arising. Agreed with members.	

16.4	Correspondence	
16.4.1	<p>PA – would like members to note that Councillor Tony McNamara has withdrawn from the BCCC.</p> <p>Representatives for Singleton Council will now be AH and PN</p>	
16.4.2	<p>SE – raised water licence issue. It was noted in 18 May Minutes that AGL was going to provide details of the water licence. To date he has not received any details.</p> <p>SB – advised that details have been reported in previous meetings. SB has copies of standard conditions attaching to AGL’s licences which she is happy to provide.</p> <p>As the licence is not in AGL’s name, SB is reluctant to provide the entire licence to members due to privacy reasons. (<i>standard conditions handed out to members</i>)</p> <p>SE – indicated that he found this unusual that AGL is not in a position to table the licences and that it is not in AGL’s name.</p> <p>PA – advised that this matter can be discussed later in AGL’s report.</p>	
16.5	Report from John Ross	
16.5.1	<p>PA – invited JR to provide update to members on water monitoring. (<i>Parsons Brinckerhoff presentation handed out members</i>)</p> <p>Slide: PB Scope and Work Program</p> <p>JR – advised that they have completed the first four tasks on this slide.</p> <p>Still to do:</p> <ul style="list-style-type: none"> - Recovery water levels, sampling and analysis (<i>sampling expected first week of November</i>); and - Final reporting. <p>Slide: Agreed Terms of Reference with Peer Reviewer</p> <p>JR – advised that first six tasks have been completed.</p> <p>Still to do:</p> <ul style="list-style-type: none"> - Completed two WQ sampling events – one during the test and another after water levels have recovered; and - Compare pre and post condition of the aquifers. <p>Slide: Site Locality Plan</p> <p>JR – slide just to show sites again - advised that during pumping test only took samples from HB02, while monitoring the surrounding bores.</p> <p>Slides: Pumping Test Program Events</p> <p>JR – explained sequence of events and advised that test went longer, for 12 days rather than the expected 7 days (reason being unsure what the actual drawdown’s were in the HB02 well so the test went longer and pumping was at an increased rate during last 24 hours). Two data loggers installed but unable to download during the test. Hole had to be pressurised which meant there was no internal access. Sono loggers were used to measure water level drawdown but with gas in the annulus it was difficult to get any reliable measure of drawdown..</p> <p>Water quality – the continuous water quality (WQ) probe worked well except that the location had to be changed after the first 36hrs – the salinity, temperature showed consistent results.</p> <p>A full set of water samples were taken every day. Day 12 samples have been sent to respective laboratories. Selected samples taken on days 1, 4 and 8 have also been sent for analysis.</p> <p>Slide: Some initial results – September HB02 WL data</p> <p>JR – this graph is for the mid September sampling event on HB02, drawdown evident in this graph is what we’re expecting. It’s very steep to start with (indicating relatively low permeability) and the recovery curve (when the pump is turned off) is a lot slower and doesn’t recover to its original level – suggesting water is coming from storage within the coal seam and very slow recharge.</p>	

	<p>Slide: Groundwater levels – BM01 monitoring bore traces</p> <p>JR – These graphs are from the BM01 monitoring bore sites. This was shown at last meeting and have been updated with pumping test plots.</p> <p>The water level has remained static. No drawdown in rock aquifers. Slight decline in alluvial aquifers but its been very dry leading up to the test. Nothing to indicate drawdown effects.</p> <p>Slide: Some initial results (manual water levels)</p> <p>JR - Manual water level measurements on monitoring bores – expanded vertical scale. Nothing that looks like drawdown curve from HB02 well in this data. Slight variations can be explained by high and low pressure systems in the weather pattern over the test period.</p> <p>Slide: Some initial results (In line Water Quality) – Broke HB02 Inline EC and Temperature</p> <p>JR - Water quality 5500 EC – reason for graph being the way it is – salinity is temperature dependent.</p> <p>Trends – no freshening of the water throughout the test – salinity is consistently at 5500-5600 EC (at 25C) - no leakage above or below.</p> <p>Slide: Some initial results (In line Water Quality) – Broke HB02 Inline pH and Temperature</p> <p>JR - Consistent – no evidence of different WQ types coming in. Pumped water is consistently about pH8.1</p> <p>Very slight variations in pH on the 10 and 16 October, there was an increase in gas flows at these times</p> <p>Slide: Recovery Monitoring Program</p> <p>JR – this slide outlines the work to be done - Continue consultation with Garry.</p> <p>Will take full sample of water from HB02 and all monitoring wells for recovery monitoring. Final water quality sampling event for this exercise.</p> <p>Early December, expect to get most WQ results. Isotopes will be (at best) just before Christmas – more likely early 2010.</p> <p>Slide: Conclusion and Questions.</p> <ul style="list-style-type: none"> - Nothing in the monitoring water level data to suggest that there is any drainage or connectivity with deep aquifers during pumping test. - Nothing in the (inline) water quality data from HB02 to suggest that there is “fresher” water draining from upper aquifers. - Appears that conceptual model is sound and that aquifers are disconnected. 	
16.6	Discussion of the Report	
16.6.1	<p>PA – in relation to presentation slide on page 5, can JR explain the pH jump?</p> <p>JR – gone up 8.1 to 8.3 max. Does not understand why pH would do that.</p> <p>MR –CO₂ would have an impact but is not sure.</p> <p>JR – will need to look into that.</p> <p>PA – suggested that JR to into that further.</p> <p>JR – will research further for the final report.</p>	
16.6.2	<p>JR - Carbon 14 results for HB02 (baseline) now available– PB pushed them through and the age is greater than 50,000 yrs. Beyond the age of the Carbon 14 testing method.</p> <p>CH – can we adopt other testing techniques if necessary?</p> <p>JR – yes.</p> <p>MR – how does that compare to earlier results?</p> <p>JR – most of the rock aquifers were 15-18,000 years old. Most alluvium was in the range of decades to a few hundred years old.</p> <p>GW – other age techniques can be tricky ... between 100 thousand to 200 thousand is a difficult time range.</p>	

	JR – thought chlorine 36 may be suitable for this period – will investigate further.	
16.6.3	<p>HU – what is the water extraction rate?</p> <p>MR – depends on how many wells in an area. When the flow rate increased on the last day, gas had begun to flow into the well. From gas production standpoint it is encouraging when you see that. Typically in a gas well, water production gradually reduces over time and gas production increases.</p> <p>HU – Is it a reasonable volume of water?</p> <p>MR – Usually takes about a 3-6 month period.</p> <p>SB – we are currently doing some planning around the expected water volumes, we can come back to you with information.</p> <p>HU – In Queensland there's a problem with water storage and use of evaporation ponds to dispose of groundwater.</p> <p>MR – There is 10-20 times more water produced in QLD CSG projects.</p> <p>CH – can't build any more evaporation dams in Queensland.</p> <p>SC to look into the issue of future evaporation dam advise at later meeting.</p>	
16.7	Garry Willgoose Report	
16.7.1	<p>GW: have been speaking with JR, mostly on pump test and operational issues.</p> <p>GW – JR sent through available information on Friday – pump test only giving info on area around the well. No info outside that area.</p> <p>GW – 100m around the well is the likely area of influence over a 10-12 days test.</p> <p>PA – what is the process?</p> <p>GW – won't know until pump test analysis is done.</p> <p>GW – issue of broader scale – pump test doesn't demonstrate leakage on the broader scale. Just demonstrate leakage (or lack of leakage) during the test and for this area.</p> <p>Did speak to SB and JR – get hold of seismic test results to assess geological structure. Agrees that in Terms of test – nothing to suggest leakage.</p> <p>BS – what does that mean to the community?</p> <p>GW – what's the scale of water extraction? Depends on how much water pumped out, in terms of demonstration of no leakage, there be no guarantee that there is no leakage where there is different geology or fractured ground. There can be no guarantee that there will never be any leakage anywhere.</p> <p>BS – if there is no guarantee ... that is a serious concern.</p> <p>JR – higher risk areas may be geologically or mining disturbed area that may pose higher risks. We can get 90% of the information we need from this test.</p> <p>HU – high risk areas, what about faults in that area, if they're further than 100m?</p> <p>JR – monitoring the water quality in the observation wells will assist, if there are changes in quality then there may be some leakage, if there's no change can be confident the confining layers are not breached. Chemistry analysis on that monitoring will give an indication.</p> <p>AH – at the end of the day there is no guarantee?</p> <p>JR – no one can give guarantee for every square metre of the area but with the continuing monitoring early warning systems will be in place....</p> <p>BS – can't accept that there is no guarantee for such a small area.</p> <p>AH – that is not acceptable to us ...</p> <p>PA – haven't got to the end of the process ... would like to see other techniques.</p>	
16.7.2	<p>GW – I haven't raised this before as most of the discussion involved pump test, going forward can look at other techniques, it's a risk assessment exercise.</p> <p>AH – need a SWOT analysis of it.</p> <p>JR – take a mega litre (ML) of water out of the coal seam aquifer then that ML will eventually be replaced by lateral or vertical flow, monitoring will pick up quickly any such changes and management and mitigation measures can be put in place to control</p>	

	<p>the situation.</p> <p>The permeability of the coal is fairly low ... turning off a well within a well field may be one such option to stop any drainage and water coming from above - might see a small percentage in decline, recharge comes from rainfall, its not long term damage ... haven't got that high risk geologies here, its different from the United States. It all comes down to monitoring. We need to do a risk assessment to address any concerns.</p> <p>GW – biggest risk here is that it's adjacent to the Bulga mine where geologies are now highly disturbed.</p> <p>BS – DoP?</p> <p>AH – This is a unique area, would be interested if GW could get that data on mining induced impacts.</p> <p>JR – suggested people look at the Southern Coalfield (DoP) enquiry from 2008 (link to be provided in minutes). Good description on the impacts of mining on water resources and natural ecosystems, what the cracking from subsidence does and the impact on catchments.</p> <p>http://www.planning.nsw.gov.au/PlanningSystem/Independentplanningassessmentandreviewpanels/coalminingintheSouthernCoalfieldFinalReport/tabid/111/Default.aspx</p> <p>AH – would be interested in reading that but that is a coastal area.</p> <p>PA – what are the steps? (SC) ... in terms of the process.</p> <p>SC – all coal projects come under part 3A – project has to carry out all studies as required id by all government agencies and the coal project will have to look at those issues.</p>	
16.7.3	<p>GS – evaporation pond, could that water be put to reuse? Water trees?</p> <p>CH – that's just an example, we won't be doing evaporation ponds here.</p> <p>GS – Can you give us an indication on what is happening in Camden with water?</p> <p>CH – the coal seams traditionally dry, we do fracture stimulate, would inject water as part of fracing – Mike, what's the average?</p> <p>MR – typically, changes from area to area, 8 to 10kilolitres (kL). We do monitor and sample water. There has been water boreholes drilled and there is no evidence of any cross flows to date. The strata in Camden is quite similar to the Hunter and at Camden we have faulting as well, its tightly faulted</p> <p>CH – with our seismic exploration we concentrate on tracking faults because faults limit the gas production.</p> <p>GS – where does the water go?</p> <p>MR – goes to an approved disposal site.</p> <p>SE – how many wells in Camden?</p> <p>MR – about 70 wells are producing.</p> <p>HU – open cut mines, they are big sumps of fractured rocks where water can flow in. Is there a higher risk of connection through the coal seams? Because the seams at the open cut are above, can the water flow down and connect that way?</p> <p>MR – would if we have darcy permeability or higher, but what we have in the coals here is much, much less than that, it would have to be, as an estimate off the top of my head, 1000 yrs before water can migrate.</p> <p>JR – talking thousands of years and potentially tens of thousands of years for the water to move down a coal seam through natural processes</p>	
16.7.4	<p>BK – when finished analysis, we will have a view on water quality? In terms of water coming out of the holes, what sort of toxins can we expect?</p> <p>JR – aren't too many this is just a brackish to saline groundwater, some heavy metals but that's all naturally comes with slight brackish, salty water – its lower end of the salinity range for coal measures. The fresher the water the lower the concentrations of heavy metals ...</p> <p>BK – management of those water ... how do you manage that?</p> <p>JR – all waters have to be contained. It depends on the final land use, re-use or disposal ... there's a whole range of re-use options</p>	

	<p>BK – next test is extraction test</p> <p>CH – water handling ... wouldn't expect any greater volume ...</p> <p>SC – that's the role of DII in the part 5 approval.</p> <p>BK – part 5 doesn't give the community any protection.</p> <p>SC – when production well test are</p> <p>BK – we don't that there is an extraction test permit</p> <p>SB – There is a current approval under Part 5 for us to flow test on the HB01-2 wells. Still required to contain that water, its written into the consent conditions.</p> <p>BK – if extraction done, it will need similar safe guards</p> <p>AH – worried about heavy metals ... would like to see more info on SWOT analysis. Would be interested to find out, because in this area we are very worried about heavy metals in the air and water.</p> <p>GW – they are the two that is the problem with ground water. That's in most areas ... most aquifers have this ... issue that</p> <p>AH – is there any documentation on heavy metals extraction?</p> <p>GW – not exactly.</p> <p>AH – can you do it on a cumulative impact basis when doing risk assessment?</p> <p>PA – thinking maybe someone to come in next year from DECCW to come along to the meeting.</p>	
16.7.5	<p>PA – what will JR bring at the next meeting?</p> <p>JR – drawdown graphs for HB02 and latest water chemistry for HB02 and monitoring bores...</p> <p>PA – GW can you come?</p> <p>GW – not sure but will check</p> <p>PA – suggest to bring this up at the next meeting</p> <p>BK – what is the proposed steps from here by AGL to inform the community about the outcome of these tests?</p> <p>PA – SB can cover that during her report.</p> <p>SE – How much water in Camden a day?</p> <p>MR – 30kL</p> <p>SE – How many trucks a day? When does desalination come into it?</p> <p>SB – that is something we are looking at and planning for, just guessing until we have the logger and details from the pump test. Can calculate this based on pump test information and give more information.</p> <p>MR – the water quantity does not justify the desalination option, it consumes a lot of power.</p>	
16.4.2	<p>PA – water licence issue – SE?</p> <p>SE – We believe AGL should be able to table the water licence ... maybe the chair can assist here.</p> <p>SB – I really don't think there is more that can be added. We have appropriate licences as noted earlier, we are happy for the BCCC to monitor our compliance and we handed out the standard conditions</p> <p>PA – I know that there's been correspondence; is it possible to get a formal response? To get something drafted and circulate.</p> <p>SB – Can do.</p> <p>BS – does the chair have the ability to ask the government body the question whether AGL has a current water licence?</p> <p>SB – licence for 12 bores (we have 9) ... fully licenced under conditions similar to the one handed out. Happy to give other compliance details, like the drilling report, tabled at a previous meeting.</p> <p>PA – if BS wants her to pursue, would like to have AGL letter first before going further</p>	AGL to write advising situation on water bore licences

	down that path AH – are the water licence held under AGL's name? That's the info that the committee wants to know.	
Break: 3.28pm		Recommended: 3.46pm
16.3	Minutes of the Previous Meeting	
16.3.3	PA – what was decided on 14.7? Deletion of the fact that we don't want AGL letter circulated. Another sentence about the ICAC - extract that quote from the Council letter. Motion: Pending amendment to item 14.7, it was resolved that the minutes of the previous meeting be accepted. Motion Carried AH – the minutes of every BCCC are on the Councils website. PA – AH to go to Mark and the General Manager at Singleton Council. AH – Tony saying that the minutes aren't there. PA – I need to talk to the general manager ... AGL put it on their website. Singleton Council to put Minutes on their website.	Revise item 14.7 of previous Minutes PA to discuss minutes on Council website with GM
16.8	Report from AGL	
16.8.1	Health and Safety Safety planning and site layout pre-work for pump test on HB02, site inductions done for personnel, contractors and visitors, including BCCC members for pump test. Installation of eyewash station at Spring Mountain vineyard.	
16.8.2	Windermere and Spring Mountain Drilling Proposal REF expected to be submitted to DII this week. (<i>Large maps of proposal shown to members</i>). Will not be applying for 24hr drilling. No archaeological / heritage issues at Monkey Place (Spring Mountain), and no significant ecology. All proposed holes located on existing disturbed areas, mostly weeds. Cultural heritage material was found at 2 sites at Windermere and those areas have been marked in the cultural heritage letter. A couple of sites require barriers to be put up to meet noise criteria. The committee will be sent copies of the REF. AH – advised that the Wanaruah Local Aboriginal Land Council has written a letter to AGL's CEO and also copied to a few people. PA – will circulate Wanaruah Local Aboriginal Land Council letter. SB – that will be submitted with the REF to the DII as part of the community comments on the proposal. AH – can we get a copy of AGL's letter in reply? SB – Can do PA – DECCW will look at the REF? SB – That will depend on the Department, on who they wish to send it on to get comments. PA – suggested SC to circulate the letter to DECCW	PA / SB to circulate letter PA / SB to circulate reply
16.8.3	Ongoing neighbour meetings. Planning to do a monthly report in the Cockfighter and if members would like to have a look at drafts, SB is happy to send it. On water monitoring program communication, once the results from the logger are available, suggested maybe a newsletter or perhaps a letter from JR and / or GW to place information in the Cockfighter. Happy to circulate ideas to members in relation to reporting. Method of communication we are considering is by letterbox drop, website and / or notice boards. PA – suggest that maybe the take home message come from JR?	

	<p>SB – ok with that.</p> <p>GW – happy with this proposal but does not want, in any way, to be seen as working for AGL.</p> <p>BS – Any publication if it references or makes comments on behalf of or from BCCC that those involved be able to sign off before anything said publicly.</p> <p>SB – AGL isn't looking on making statement on behalf of the BCCC, under the BCCC Charter, the chair is the only person able to make comments on behalf of BCCC.</p> <p>BK – need to make sure that we see it</p> <p>GW – if there is something to do with water he would like to know before it goes out, previously has been contacted by media and was unaware.</p>	
16.8.4	<p>Property Management</p> <p>Have been removing abandoned vineyard areas and this is being done in consultation with Brian McGuigan.</p> <p>Looking at future water storage options for the vineyard; maintenance of irrigation infrastructure; continuing with progress on general repairs and house keeping maintenance on all the properties.</p>	
16.8.5	<p>Future activity</p> <p>Working on what our plans would be for gas pilot testing for HB01 and HB02, expect to have more details at the next meeting.</p>	
16.8.6	<p>AGL's AGM</p> <p>AGL's AGM is on tomorrow and any information will be released to the ASX when the market opens tomorrow which is publicly available.</p> <p>BK – advised that he is not concerned of the information to the ASX. His concerned is that information is not passed on to the committee. BK does not want AGL to do the same thing as SGL.</p>	
16.8.7	<p>Land Group Terms of Reference (TOR)</p> <p>Draft TOR prepared by the group handed out to members.</p> <p>Met on 23 October and came up with a very draft TOR and methodology for looking at mapping.</p> <p>Next meeting will be on 20 November 2009. Following that meeting, proposing to present a series of series of maps to members at the next BCCC meeting for approval.</p> <p>PA – any comments from members?</p> <p>None. TOR accepted.</p>	
16.9	<p>Report from Community</p>	
16.9.1	<p>SE – GM has been doing work on behalf of HVPA.</p> <p>GM – had reviewed reports that have been made available at Camden and EIS for Bulga.</p> <p>The key issue is we have multiple processes going on. The evidence is still hard to interpret. Some of these processes can take many years. GM takes these things cautiously and believes it requires a lot more monitoring.</p> <p>Second, natural variations of data in the ground water. They show increases and also decreases, will need to see why.</p> <p>In terms of Camden, some of the issues that GM has identified are that the water is very low. There is claim that there is no impact but indicated that there is no monitoring on shallow groundwater. GM sent an email to SB and JR and would like to follow up what is actually monitored.</p> <p>His approach is to be very cautious. We cannot say that if there is no data, there is no problem. Need to make convincing argument.</p> <p>SE – part of that will lead on to the sub-committee for example land use, exploration and if there is any production and what sort of risk we face. We're keen at the next meeting that the sub-committee would put that on the table for close analysis.</p>	

	<p>DK – will GM pass on a copy of that report?</p> <p>GM – that is up to HVPA</p> <p>SE – can provide once report is finalised.</p> <p>GM – hoping to finish within the next couple of weeks. Have read most of the report. Just need to do a few more things to finalise it.</p> <p>GW – would also like to obtain a copy of that report.</p>	
16.10	Report from Council	
16.10.1	<p>AH – No further matters or issues to raise as they have been raised and discussed during this meeting. Thanked members for attending at the last meeting.</p> <p>SB – Was hoping to get PN contact details</p>	AH / PA to email PN details to SB
16.11	Report from Geoff Sharrock – Sydney Basin Groundwater Conference	
16.11.1	To be discussed at the next meeting.	
16.12	General Business	
16.12.1	No further business.	
16.13	Next Meetings	
16.13.1	<p>30 November 2009 – confirmed</p> <p>PA – would like to try to keep the meeting from 12pm to 1pm followed by lunch at BK's home.</p> <p>SE – queried whether the time allocated would be sufficient given discussions today.</p> <p>PA – advised that timing is flexible.</p>	<p>PA/SB to arrange with BK</p> <p>Members to RSVP to PA by email.</p>
16.13	Proposed Meetings for Next Year	
16.13.1	<p>1 February 2010 – confirmed, venue - Bulga.</p> <p>PA – meetings set for intervals during the year as follows:</p> <p>17 March 2010 – TBC</p> <p>28 April 2010 – TBC</p> <p>16 June 2010 – TBC</p> <p>Members agreed.</p>	
16.13.2	No further issues, meeting closed 4.24pm	