

# MEETING MINUTES



MINUTES OF: AIFL Committee Meeting  
 HELD AT: Graham Clapham's farm  
 DATE: 10 March 2016  
 COMMENCEMENT TIME: 9.30am

<b>PRESENT:</b>	Darryl Phillips, Steve Hanlon, David Munro, Chris Wicks, Stewart Hayllor, Brydie Hedges, Richard McLean, Neville Wirth
	Apologies: Stuart Armitage, Jeff Bidstrup, Ian Valler, David Wolf
<b>CHAIRMAN:</b>	Darryl Phillips
<b>DISCLOSURES</b>	

		<b>ACTION</b>
<b>ITEM 1 Joint SRG</b>	<b>Welcome – Leisa Elder</b> Leisa Elder welcomed attendees and thanked Graham Clapham for inviting the meetings to be held at his farm	
<b>ITEM 2 Joint SRG</b>	<b>Acknowledgment of Traditional Owners</b> <b>Safety moment – Mental Health &amp; Sleep – Peta Tucker</b>	
<b>ITEM 3 Joint SRG</b>	<b>Arrow Update – Leisa Elder</b> <ul style="list-style-type: none"> <li>Under the shareholder agreement there are some senior management changes at five years between CNPC and Shell.</li> <li>Arrow Energy has a new CEO, Mr Qian Mingyang. (CNPC).</li> <li>The role of Arrow's Chief Financial Officer which is currently held by Mr Xuyang Guo (CNPC) will transfer to Mr Edwin Kunkels (Shell) on 1 April.</li> <li>Mr Mike Grieve (Shell - former Arrow CEO) will stay on as Chief Operating Officer.</li> <li>There may be further changes of staff in senior positions.</li> <li>The BG Group buy out by Shell has no direct or immediate effect on Arrow Energy. Arrow Energy is the operator with CNPC and Shell as the owners of Arrow Energy.</li> <li>Media has stated that Arrow has the largest reserve of uncontracted gas – Arrow will consider a range of options to commercialise it's gas.</li> <li>Lee McNicholl asked who Arrow's shareholders were.</li> <li>Leisa Elder advised that a 50/50 joint venture between CNPC and Royal Dutch Shell owned Arrow.</li> <li>Lee McNicholl asked who controls CNPC. Leisa Elder replied CNPC was approximately 80% Government owned.</li> <li>Ray Jamieson asked when a decision would be made on Arrow's uncontracted gas.</li> <li>Leisa Elder advised there would be ongoing commercial-in-confidence discussions around the commercialisation of Arrow's gas.</li> <li>Shell has now formally acquired BG, including QGC, and has stated publicly they may make some decisions by mid-April on restructure.</li> <li>Lee McNicholl made reference to the ACCC Inquiry on East Coast Gas Supply.</li> <li>Carey Bradford advised that environment costs in contracts now compared to several years ago are substantially different. Arrow believes the only way to reduce costs is to increase supply, and reduce the company's production costs.</li> <li>Lee McNicholl stated gas was cheaper years ago.</li> <li>Leisa Elder advised there are still some gas supply contracts in the market that are up to 20 years old which never contemplated significant changes in regulatory costs or declining market positions.</li> <li>Neville Wirth (AIFL Committee) asked if a landholder has both QGC and Arrow tenement over their land, how long would it be before they were dealing with just one company.</li> <li>Leisa Elder advised that it may never change.</li> <li>Graham Clapham stated that the media commented on how difficult it is in the resources sector at present. Where does a landholder sit if the resource company has financial difficulty? Leisa Elder advised that in the current climate, a resource company's social licence to operate has a high priority. Landholders CCAs are a very high priority, but she would take on notice the question of obligations in any resource company insolvency event.</li> <li>Graham Clapham advised landholders had been left high and dry in another jurisdiction where the company went broke and the landholder in that case had to sue the regulator.</li> </ul>	<p>Leisa Elder to provide information on CNPC (action closed out following meeting)</p> <p>Leisa Elder to provide information on legal standing of CCAs if a resource company experiences financial difficulty.</p>

<p><b>ITEM 4 Joint SRG</b></p>	<p><b>Project Update – Dave Munro</b></p>	
	<p><b>Daandine Expansion Project:</b></p> <ul style="list-style-type: none"> <li>• Provides a 60% increase in Daandine CGPF production capacity.</li> <li>• This included works on facilities, field infrastructure and included facility shutdowns to make safety upgrades and to connect and commission new compressors.</li> <li>• The expansion project is now in the commissioning and optimisation phase.</li> </ul> <p><b>Flaring:</b></p> <ul style="list-style-type: none"> <li>• Flare at Daandine CGPF – the size of the flare will vary up to 30m high, depending upon the amount of gas requiring to be flared at any time.</li> <li>• Flaring is regulated by Queensland Department of Environment and Heritage Protection through the <i>Queensland Environmental Protection Act</i>.</li> <li>• What is flared is mostly NO<sub>2</sub> and CO. Gas from a coal seam is almost all methane. Modelling shows NO<sub>2</sub> and CO levels from Daandine flare are well below those stipulated for protection of human health and the ecosystem in <i>Queensland Environmental Protection (Air) Policy</i>.</li> <li>• Flaring is necessary for safety and to allow works to be undertaken on the facility.</li> <li>• Neville Wirth (AIFL Committee) advised he can see a glow from his property.</li> <li>• Lee McNicholl stated that the companies are not paying royalties on flared gas.</li> <li>• Dave Munro advised that companies had an exemption of 3 million m<sup>3</sup> per well which can be flared before royalties must be paid.</li> <li>• Neville Wirth advised that there are 2 or 3 other flares around.</li> <li>• Lee McNicholl advised there is quite a lot of flaring around Miles and Wandoan. This has substantially impacted landholders near Condamine who need blackout curtains to sleep.</li> <li>• Dave Munro advised that Arrow would not be flaring during normal operations..</li> <li>• Darryl Phillips (AIFL Committee) advised that currently the Daandine Field is ramping up the amount of gas flowing to the CGPF in order to bring new compressors online.</li> <li>• Lee McNicholl stated that if the committee wanted to know how much pollutants are produced they should look at the data from the Kenya Plant. It is substantial.</li> </ul> <p><b>Kogan North Field</b></p> <ul style="list-style-type: none"> <li>• Currently a rig is mobilising to site to undertake some further drilling at the Kogan North field. Nine new 'twinned' wells will be drilled on existing well pads. These new wells will be located next to existing wells.</li> <li>• Graham Clapham asked if both the new and the old well will be producing gas and how long the existing wells had been there.</li> <li>• Cary Bradford advised the original wells had been there for approx. 10-12 years.</li> <li>• Dave Munro advised that both the new and the existing wells would be producing as they are targeting different coal seams.</li> <li>• These wells are located on Peabody owned property.</li> </ul> <p><b>Surat Greenfield Project</b></p> <ul style="list-style-type: none"> <li>• Arrow is in a value improvement phase, which includes looking at opportunities for collaboration.</li> <li>• Some proponents have infrastructure with spare capacity in proximity to Arrow tenure.</li> <li>• Ray Jamieson asked how much spare capacity.</li> <li>• Dave Munro advised that it varied across areas.</li> <li>• Dave Munro advised that supply had grown well above demand.</li> <li>• Dave Munro presented on global market trends in the oil and gas business, with a comparison to global trends in the cotton industry.</li> <li>• An overview of a Harvard Business Review article provided analysis of business strategies often adopted in an uncertain future.</li> <li>• Arrow's position is to review collaboration opportunities, and continue to work with government, regulators, landholders and communities.</li> </ul>	
<p><b>ITEM 5 Joint SRG</b></p>	<p><b>Tipton Seismic Survey program update – Carey Bradford</b></p>	
	<ul style="list-style-type: none"> <li>• The Tipton Seismic Survey was undertaken in the Tipton and Cecil Plains area between 5 February and 25 February 2016.</li> <li>• The survey was conducted over 100km of gazetted roads.</li> <li>• The survey was to map the location of the Horrane Fault so Arrow can determine the location of future infrastructure.</li> <li>• The data should provide a clearer picture of the subsurface. The report should be completed within a couple of months. After the data is received it will be used to determine modelling.</li> <li>• Ray Jamieson asked what accuracy does the survey give</li> <li>• Carey Bradford advised that vibration surveys give a seam displacement of approximately 5m.</li> <li>• Graham Clapham asked if the results will give a better idea of the location of gas</li> <li>• Carey Bradford advised that the survey provides information on the location of the fault, not location of gas.</li> <li>• Graham Clapham stated that over the alluvium, where a large proportion of the area is dry, does</li> </ul>	

	<p>this compromise data?</p> <ul style="list-style-type: none"> <li>• Carey Bradford advised that where there is contrast in density there is some reflection and loss of signal.</li> <li>• <i>Some landholders had reported no issues with the surveys, however had noted there were spot checks on equipment left on site during the night.</i></li> </ul>	
<b>ITEM 6</b>	<p><b>2016 Groundwater Drilling Program – Simon Gossmann</b></p> <ul style="list-style-type: none"> <li>• Simon Gossmann provided an overview of the ground water monitoring program.</li> <li>• Simon Gossmann advised that in 2016 Arrow’s UWIR obligations are for 11 monitoring sites and 29 monitoring points. Arrow has completed 3 new monitoring bores and has 10 sites to complete. Some of these sites are off tenure in an area directed by the department.</li> <li>• Lee McNicholl stated that there is connectivity between the Hutton and the Walloon Coal Measures (WCM).</li> <li>• Simon Gossmann agreed, but stated that there is not a high degree of connectivity.</li> <li>• Lee McNicholl asked if there is a separation between the WCM and the Springbok. Simon Gossmann advised that the Springbok Sandstone overlies the WCM. This is described on page 19 of the UWIR (2012), “the medium to fine grained, often clayey, sandstone, siltstone and mudstones of the Springbok Sandstone overlie the Walloon Coal Measures.”</li> <li>• Lee McNicholl asked what the depth of the Springbok Sandstone was at UWIR site 28.</li> <li>• Simon Gossmann provided an update on the Daleglade Connectivity Trial.</li> <li>• Data collected during irrigation season through to 24 January 2014 used by OGIA for analysis, “Walloon Coal Measures response to pumping in Condamine Alluvium does not indicate a strong hydraulic connection between the two systems”.</li> <li>• Further data collected through 2014-2015 irrigation season shows the response in all Daleglade monitoring bores is consistent to that observed in the 2013-2014 irrigation season, such that conclusions are not expected to change.</li> <li>• Neville Wirth (AIFL Committee) commented that he had not received information on the monitoring of his bore which has been in place for 4-5 years.</li> <li>• Simon Gossmann advised Neville Wirth that he would follow up to ensure any outstanding information was provided.</li> </ul> <p><b>Baseline bore assessment in a priority living area – Dalby</b></p> <ul style="list-style-type: none"> <li>• Update of the program was provided.</li> <li>• Letters are being sent to 195 registered bore owners inviting them to participate in the assessment process (21 March 2016). A notice will also be published in the Dalby Herald (22 March 2016).</li> <li>• Trudi Bartlett would like a copy of the letter and the advert and advised that the Chamber of Commerce would be happy to assist with promotion of the assessment process. Lee McNicholl also requested a copy to encourage participation within the BSA network.</li> <li>• Lee McNicholl provided an explanation of the CSG Net program. Landholders undertake monthly bore assessments and supply information to CSGCU. He stated that it was vital for landholders to participate in this scheme.</li> <li>• Lee McNicholl commented on the delay in the release of the 2016 UWIR update. The UWIR will be 7 months overdue when released, which is compromising landholders negotiations with CSG companies.</li> <li>• Simon Gossmann advised he was happy for landholders to contact Arrow for assessment results. A formal process also exists whereby landholders can contact DEHP who can direct companies to undertake bore assessments.</li> </ul>	<p>Simon Gossmann to provide formation depths to Lee McNicholl for UWIR monitoring site 28</p> <p>Simon Gossmann discussed with Neville Wirth (AIFL) and confirmed that the data in question were the results of the one baseline assessment undertaken on his son’s property in 2012. This report was provided to his son in January 2013.</p> <p>Tania Marshall to provide Trudi Bartlett and Lee McNicholl a copy of the baseline bore assessment letter of invitation – <i>sent 06.04.16</i></p>
<b>ITEM 7</b>	<p><b>Crop dusting and aerial safety – David Munro</b></p> <ul style="list-style-type: none"> <li>• David Munro provided information on a recent incident which involved a plane undertaking crop dusting on a landholder’s property within a proponent’s tenure (not Arrow). The plane hit an aerial approximately 4m above the ground level.</li> <li>• Arrow would like to work with the Arrow Intensively Farmed Land Committee and local crop dusting businesses to identify and implement strategies to ensure this never occurs within an Arrow development area. Graham Clapham noted that if CSG infrastructure was located near existing farm infrastructure, the likelihood of an incident was greatly reduced.</li> </ul>	
<b>ITEM 8</b>	<p><b>University of Queensland Centre for Coal Seam Gas 3D Water Atlas – St.John Herbert &amp; Alexandra Wolhuter</b></p> <ul style="list-style-type: none"> <li>• Alexandra Wolhuter provided an overview of the 3D Water Atlas. This atlas of the Surat Basin aims to fulfil the need to understand the groundwater system.</li> <li>• There are two versions of the water atlas, the ‘expert version’ provides government and CSG companies access to public and company groundwater data and the public version provides easy access to public groundwater data that has gone through a QA/QC procedure.</li> <li>• The water atlas is still in the development phase, testing the usability and the usefulness of the information.</li> <li>• The committee asked if the data input to the system was historical. Alexandra Wolhuter</li> </ul>	

	<p>advised that there is limited historical data available.</p> <ul style="list-style-type: none"> <li>• Lee McNichol commented that it was in a landholder's best interest to have knowledge of their own bores. Through CSG NET 400-500 bores are being reported on a monthly basis.</li> <li>• Further information on CCSG's activities – <a href="http://www.ccsq.ug.edu.au">http://www.ccsq.ug.edu.au</a></li> </ul>	
<b>ITEM 9</b>	<b>Arrow IFL Committee Membership update</b>	
	<p>In 2015, Arrow advised the committee of changes to Arrow IFL membership due to Shell secondees completing their terms with Arrow.</p> <p>As a result, Arrow proposed new committee members for endorsement by the committee;</p> <ul style="list-style-type: none"> <li>• Darryl Phillips to take on the role of AIFL Chairperson</li> <li>• Yihua Xu to join the committee as an Arrow representative.</li> </ul> <p>Arrow membership changes endorsed by all committee members in attendance.</p> <p>The AIFL Terms of Reference has been updated to reflect the new membership and remove members who have not attended nor provided an apology for three consecutive meetings; as outlined in the committee's existing Terms of Reference.</p> <p>The new membership and updated Terms of Reference was endorsed by the committee members, and is available at the following link:  <a href="https://www.arrowenergy.com.au/_data/assets/pdf_file/0014/1652/IFL-Terms-of-Reference-Endorsed-10-March-2016.pdf">https://www.arrowenergy.com.au/_data/assets/pdf_file/0014/1652/IFL-Terms-of-Reference-Endorsed-10-March-2016.pdf</a></p>	
<b>ITEM 10</b>	<b>Minutes of previous meeting &amp; actions</b>	
	<p>The minutes of the previous meeting in September have been sent to committee members and uploaded to the Arrow website. The minutes were endorsed by committee.</p>	
<b>ITEM 11</b>	<b>Arrow's Dam Integrity – Jamie Robertson</b>	
	<p>Jamie Robertson, Arrow Energy Water Infrastructure Lead provided an overview of Arrow's dam management program.</p> <ul style="list-style-type: none"> <li>• Arrow has 14 dams in the Surat region with ~21km of dam walls. Low height homogenous earth dams ranging in height from 1m to 6m.</li> <li>• Land rehabilitation program – 3 dams were rehabilitated in 2014-2015 which included 1.3km of dam walls with a footprint of 6.41 ha.</li> <li>• Maintenance works – currently maintaining 3.5km of walls in 2015. Works are prioritised by third party dam engineers. It is significantly cheaper to maintain dams than to complete major repairs following sustained periods of no maintenance.</li> <li>• Arrow has undertaken various dam building campaigns in accordance with field development and functional requirements of dams (storage for aggregation, of treated water (for beneficial reuse) and brine).</li> <li>• Dams go through a rigorous design process and take between 1-2 years to construct. One key issue is the avoidance in design of pipelines through dam walls. Arrow also caps dams with 150-300mm of gravel as a suction breaker (preventing embankment moisture loss and shrinkage cracks) and also a wearing course.</li> <li>• Inspection process is undertaken weekly, monthly and annually. Weekly water levels are monitored. Each month a walk around each of the dams is undertaken which takes approximately 30-60minutes and looks at the embankment, spillway and the HDPE liner.</li> <li>• Signs of problems with the dam integrity vary and include the presence of wet areas downstream of dam/water plants signs of seepage as well as cracks on the surface and slumps in the surface of the dam.</li> <li>• Maintenance primarily includes vegetation reestablishment and ground conditioning, maintenance of gravel capping; rectification of poor drainage issues, damage caused from wet weather and HDPE liner repairs.</li> <li>• Various methods of vegetation performance were used and are continually being reviewed for effectiveness.</li> <li>• Jamie Robertson advised that Arrow's dams must be available at all times to take water when water treatment plants are being maintained or have unexpected downtime. Dams are sized and managed to be able to manage large wet seasons.</li> </ul>	

<b>ITEM 12</b>	<b><i>Aerial spraying, safety and SIMOPS</i></b>	
	<ul style="list-style-type: none"><li>• Follow-on discussion from agenda item 7.</li><li>• Discussed ways that Arrow could minimise the potential for an incident with an aerial applicator.</li><li>• Arrow can provide landholder with an additional map showing elevated infrastructure that can be provided to the aerial applicator as part of the normal spray order and field location processes.</li><li>• Committee members highlighted the need for area-wide infrastructure maps as neighbouring landholders may need to know infrastructure locations.</li><li>• Process for provision of infrastructure maps discussed, including opportunity for Arrow to provide maps directly to aerial applicator organisations, or other industry bodies to ensure they are readily available.</li><li>• Arrow to ensure maps provided in Conduct and Compensation Agreement packages include height of infrastructure.</li><li>• Discussion regarding draft SIMOPS matrix and how to better incorporate aerial spraying safety into the process, including notification timeframes between Arrow and the landholder to enable aerial applicator contractors to be engaged.</li></ul>	
<b>ITEM 13</b>	<b>Any Other Business</b>	
	<ul style="list-style-type: none"><li>• Discussion about Arrow's future development timing following on from the update provided earlier in the joint meeting with ASCRG. Arrow committee members advised that Arrow is currently assessing its development options for the Surat and is unable to provide any development timings as this stage.</li></ul>	
<b>ITEM 12</b>	<b>Next Meeting</b>	
	<ul style="list-style-type: none"><li>• The next meeting is scheduled for 26 May in Toowoomba.</li></ul>	

There being no further business, the meeting was closed at 12.30 pm.

CONFIRMED AS A TRUE AND CORRECT RECORD.

Chairman \_\_\_\_\_