

# MEETING MINUTES



MINUTES OF: Arrow Intensively Farmed Land Committee (AIFLC)  
 HELD AT: Fitzy's, 153 Margaret Street, Toowoomba  
 DATE: Thursday, 6 June 2019  
 COMMENCEMENT TIME: 9.40 am

<b>Present:</b>	Glenn Ogden – Landholder Stewart Hayllor – Landholder Graham Burt – Landholder David Wolf - Project Manager, Off Plot Brydie Hedges – Community Engagement Manager Chris Wicks – Senior Development Planner IFL Richard Maclean – Principal Land Liaison Officer  Presenters: Leisa Elder – VP External Relations & Tenure Management, Arrow Energy Chris Wicks – Development Planner IFL Rita Hassan – Senior Community Officer (Dalby) David Wolf – Project Manager, Off Plot Chris Wicks – Development Planner IFL Simon Gossmann – Groundwater Manager Dr Kathy Witt – Research Fellow University of Queensland, Centre for Coal Seam Gas
<b>Apologies:</b>	Warren Myring;; Ivan Tan; Christine Hubbard, Stuart Armitage, Stephen Williams, Nev Wirth

	Joint Meeting – ASCRG & AIFL Committee	ACTION/ SUGGESTIONS
<b>ITEM 1</b>	<p><b>Welcome</b></p> <ul style="list-style-type: none"> <li>Leisa Elder welcomed everyone, acknowledged apologies and thanked:                             <ul style="list-style-type: none"> <li>Brian Bender (BSA) for attending as alternate for Lee McNicholl</li> <li>Jodie Taylor (WDRC) as alternate for Mayor Paul McVeigh</li> <li>guest speaker Dr Kathy Witt</li> <li>visiting Arrow attendee Michael Todd (Government Relations Manager).</li> </ul> </li> <li>Leisa advised a camera operator would film Simon Gossmann for an Arrow video production: 'A Day in the Life', designed to demystify the work of Arrow staff members by publishing video accounts of a standard work day. Leisa confirmed that the filming would be directed toward Simon and if any committee members were uncomfortable, the filming could be paused.</li> </ul>	
<b>ITEM 2</b>	<p><b>Safety moment, Impact of screen time – Rita Hassan</b></p> <ul style="list-style-type: none"> <li>Rita shared information on Australian's screen time habits and discussed the impacts on health and relationships. Information included:                             <ul style="list-style-type: none"> <li>phone use statistics</li> <li>symptoms that identify screen/phone use addiction</li> <li>potentially harmful effects of screen addiction</li> <li>tools to reduce screen time.</li> </ul> </li> <li>Nancy Sommerfield asked if there were any Arrow-recommended smart phone applications to monitor screen time. Rita suggested the 'Screen Time App' that is standard on most iPhones.</li> <li>Nancy requested a copy of the safety moment presentation.</li> </ul>	<b>Copy of Safety Moment slides to be shared with Nancy Sommerfield</b>
<b>ITEM 3</b>	<b>Arrow update – Leisa Elder</b>	

	<b>Joint Meeting – ASCRG &amp; AIFL Committee</b>	<b>ACTION/ SUGGESTIONS</b>
	<ul style="list-style-type: none"> <li>• Leisa attended an Arrow board meeting in China that discussed the ongoing progress of Arrow’s Surat Gas Project.</li> <li>• Creation of the Beneficial Use Network (BUN) sub-committee was endorsed at the ASCRG meeting in March. The first BUN meeting was held this morning (6/6/19).</li> <li>• The 2019 Underground Water Impact Report (UWIR) for the Surat Cumulative Management Area has been released.</li> <li>• Recent media articles included:               <ul style="list-style-type: none"> <li>○ <i>The Australian</i> speculating on a government takeover of Arrow Energy (which is untrue).</li> <li>○ Multiple publications reporting on Arrow’s petroleum lease (PL) and environmental authority (EA) approval by the Department of Environment and Science (DES) on PL493 (near Hopeland).</li> </ul> </li> <li>• Brian Bender said there was a circle on a map that related to the PL493 EA. Leisa advised that neither Arrow nor DES have called it an exclusion zone – that is a term being used by the media. Further, the approval was reflective of Arrow’s current development case and Arrow would update this over time, as planning progresses.</li> <li>• Brian said he would refer to it as a ‘circle on a map’. Brian said DES wouldn’t release information on why the area has a 10km radius. This has raised concerns with locals in the area who want to understand why the area is a 10km radius and not less or more.</li> <li>• Leisa said that the community need to ask DES that question. It is not an exclusion zone from Arrow’s perspective. Arrow intends to apply for an EA amendment in the future.</li> <li>• Leisa said that the PL253 EA allows Arrow to commercialise gas from six existing pilot wells and install eight groundwater monitoring bores at three sites on that lease.</li> <li>• Brian also asked about the RIDA and said that the Basin Sustainability Alliance (BSA) was not happy with the RIDA and had made a submission.</li> <li>• Leisa said it was entitled to make a submission.</li> </ul>	
<b>ITEM 4</b>	<p><b>Operations update – David Wolf</b></p> <p><u>Hopeland Pipeline</u></p> <ul style="list-style-type: none"> <li>• The Hopeland Pipeline project will allow Arrow to bring gas to market from an existing pilot.</li> <li>• The project will be carried out in two phases.               <ul style="list-style-type: none"> <li>○ On-ground activity for phase one commenced 5 June, and was anticipated to take three weeks to complete. The estimated completion date was 24 June.</li> <li>○ Phase two involves completion of the metering and skid infrastructure, with anticipated completion by the end of August.</li> </ul> </li> </ul> <p><u>Daandine and Kogan North fields</u></p> <ul style="list-style-type: none"> <li>• Fifteen new wells will be drilled on intensively farmed land (IFL) from August to October 2019. Track construction for this work would commence soon.</li> </ul>	

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	<ul style="list-style-type: none"> <li>• Daandine Central Gas Processing Facility (CGPF) had been undergoing standard maintenance only.</li> <li>• A time-lapse recording was taken at the site of Daandine 280, a multi-well pad on IFL at Theten. The footage shows stages of construction.</li> <li>• There were plans to drill three new wells at Kogan North in July 2019.</li> </ul> <p><u>Braemar 2 gas turbine maintenance</u></p> <ul style="list-style-type: none"> <li>• One of Braemar 2's gas turbines recently underwent a major 40-day maintenance overhaul and was returned to commercial operation on 24 May.</li> <li>• It is standard practice to repair and replace the mixing chamber which is heated to 1120° Celsius to prevent the chamber from losing shape when in operation.</li> <li>• The work was carried out by contractors under Arrow supervision, safely and effectively over 27,460 man-hours.</li> </ul> <p><u>Tipton field and CGPF</u></p> <ul style="list-style-type: none"> <li>• Ten new wells will be drilled in the Tipton field in June-July 2019. All wells will be twinned on existing pads. Community notifications were issued about an expected increase in traffic.</li> <li>• There are plans for a further 11 new wells to be drilled in this area in January 2020.</li> <li>• The Tipton CGPF has been operating at high availability rates. A maintenance shutdown is scheduled for Q4 2019, with no anticipated community impacts.</li> </ul> <p><u>Meenawarra</u></p> <ul style="list-style-type: none"> <li>• Two additional wells were drilled in the Meenawarra field and are awaiting completion.</li> <li>• These wells are expected to be online late December 2019.</li> </ul> <p><u>Discussion - Daandine 280 time-lapse video shown</u></p> <ul style="list-style-type: none"> <li>• Jane Walker asked if the pad area was two hectares (ha). Chris Wicks said Pad 280 was 1.5 ha.</li> <li>• Jane asked if the full 1.5 ha would be required for work-overs. Chris said only part of the area would be needed for work-overs.</li> <li>• Jane asked if all wells on a multi-well pad are worked over at the same time. Chris said that work-overs were carried out as required. Arrow aim to schedule work-overs in the one area at the same time to reduce frequency of impacts, e.g. hold off on a work-over if the well is not required immediately. There are trade-offs for having a reduced footprint on a multi-well pad.</li> <li>• Ian Hayllor asked what noise level a multi-well pad would produce, e.g. four generators on a multi-well pad. Dave Wolf said that Arrow has a 28 dBA limit at night which is achievable, however, some noise below this limit may still be heard at night. Arrow has engaged Shelby Power (provider of well-head generators) to investigate ways to reduce the noise.</li> <li>• Ian Hayllor asked if Arrow had considered sound barriers. Dave said barriers were an option but they tend to throw the noise elsewhere. Arrow's preference is to work with Shelby to reduce the emitted noise. Shelby has been provided set noise limits for its design work.</li> </ul>	

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	<ul style="list-style-type: none"> <li>• Ian Hayllor asked if sites operating on three-phase power would emit less noise than generator-driven sites. Dave said yes, they would be quieter; however it is difficult to obtain a robust electricity supply from the grid. Brown outs and impacts to neighbouring power supplies can result.</li> <li>• Ian Hayllor asked if Arrow considered an underground (buried) generator to reduce noise emissions. Dave said Arrow had not looked at this option to date but it might be worth considering.</li> </ul>	
<b>ITEM 5</b>	<p><b>Surat Gas Project update – Chris Wicks</b></p> <p><u>Area Wide Planning (AWP)</u></p> <ul style="list-style-type: none"> <li>• Initial engagement has commenced for the Kogan area and North to Wilkie Creek coal mine. Field scoping will now take place.</li> <li>• Duleen Kupunn AWP is underway.</li> <li>• AWP in areas south to Lake Broadwater and Tipton will commence in July.</li> </ul> <p><u>Duleen Kupunn – Shed meeting</u></p> <ul style="list-style-type: none"> <li>• A shed meeting was held at Arrow’s Theten Farm in early May.</li> <li>• This followed initial discussions between landholders and Arrow land liaison officers.</li> <li>• About 22 wells are planned for the Duleen Kupunn area.</li> <li>• 20 landholders from the Duleen Kupunn area attended the shed meeting.</li> <li>• Arrow subject matter experts presented information on: <ul style="list-style-type: none"> <li>○ CSG 101</li> <li>○ Arrow’s Surat Gas Project</li> <li>○ drilling and gathering construction processes</li> <li>○ compensation</li> <li>○ co-existence</li> <li>○ managing groundwater impacts.</li> </ul> </li> <li>• The main issues raised by landholders were: <ul style="list-style-type: none"> <li>○ Arrow’s road maintenance program</li> <li>○ potential noise impacts from infrastructure</li> <li>○ infrastructure placement and orientation of well sites on properties</li> <li>○ groundwater impacts.</li> </ul> </li> <li>• After the shed meeting, the group visited a multi-well site (pad 280) where landholders were able to view infrastructure. Landholders asked Arrow’s subject matter experts about construction, noise etc.</li> <li>• Arrow is now incorporating landholder feedback and constraints into conceptual plans. Land liaison officers will take the updated information and concept maps back to landholders for review.</li> </ul> <p><u>Plainview East Pilot</u></p> <ul style="list-style-type: none"> <li>• Arrow is planning a Plainview East Pilot site, similar to the existing Plainview Pilot.</li> <li>• The Pilot will include four deviated wells on a single pad and about 11km of gas and water pipeline that will connect to the Tipton field.</li> <li>• Initial landholder discussions have taken place.</li> </ul>	

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	<ul style="list-style-type: none"> <li>• Nancy Sommerfield asked how landholder discussions were progressing. Chris Wicks said it was very early in the process but discussions had been constructive.</li> <li>• An update will be provided to the broader community through information sessions planned for later in the year.</li> <li>• David Wolf said anyone attending FarmFest (Toowoomba, 4-6 June) should visit the Arrow exhibit to view a sample of the Horrane fault which was collected near the existing Plainview Pilot site.</li> </ul>	
<b>ITEM 6</b>	<p><b>Draft 2019 Underground Water Impact Report (UWIR) – Simon Gossmann</b></p> <ul style="list-style-type: none"> <li>• The Queensland Office of Groundwater and Impact Assessment (OGIA) is responsible for producing a UWIR for the Surat Cumulative Management Area (CMA) every three years.</li> <li>• The first report was produced in 2012, followed by a revision in 2016. The latest report (2019) was in draft form for public consultation.</li> <li>• The 2019 draft report indicated less predicted impacts to the Hutton Sandstone and Condamine Alluvium (~30-35% less impact). However more impacts were predicted for the Walloon Coal Measures (WCM) and the Springbok Sandstone that directly overlaps the Walloons. These are cumulative industry impacts.</li> <li>• Arrow has been an active and willing partner in Surat Basin groundwater research, including partnering with OGIA on the Condamine Groundwater Interconnectivity Study and installing a network of water monitoring bores on its tenure.</li> <li>• The UWIR identifies forecast areas of impact for the short term and long term: <ul style="list-style-type: none"> <li>○ immediately affected area (IAA) bores are landholder bores with a predicted impact of greater than 5m of drawdown in the next three years</li> <li>○ bores predicted to see impacts anytime in the future are identified as long-term affected area (LAA) bores</li> <li>○ the UWIR identifies 101 IAA bores and 574 LAA bores</li> <li>○ more detail is available in the publically-available report: <a href="https://www.business.qld.gov.au/industries/mining-energy-water/resources/landholders/csg/surat-cma/consultation-draft-uwir">https://www.business.qld.gov.au/industries/mining-energy-water/resources/landholders/csg/surat-cma/consultation-draft-uwir</a></li> </ul> </li> <li>• Greater impacts on the WCM are reflected in the identified IAA.</li> <li>• Impacts around the Moonie region are from conventional gas production.</li> <li>• The responsible tenure holder (RTH) for each IAA must undertake assessments of each IAA bore (within statutory timeframes) once the UWIR is approved by the Department of Environment and Science (DES).</li> <li>• The RTH must then use best endeavours to negotiate a make-good agreement (MGA) for each IAA bore.</li> <li>• The RTH must undertake an assessment of the bore to negotiate a make good agreement: <ul style="list-style-type: none"> <li>○ Arrow is the RTH for 58 IAA bores</li> </ul> </li> </ul>	

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	<ul style="list-style-type: none"> <li>○ 11 have already been assessed or are currently undergoing assessment.</li> <li>• Arrow have consistently met their obligations from previous UWIRs including:               <ul style="list-style-type: none"> <li>○ MGAs negotiated for 14 IAA bores in 2012 and 2016 UWIR</li> <li>○ additional MGAs negotiated for 10 bores not identified in UWIRs.</li> </ul> </li> <li>• Arrow collects a range of data including installing flow meters, logging water levels or undertaking slug tests to better understand bore usage. It is important that the collected data is robust to support the subsequent MGA negotiations.</li> <li>• Arrow will seek a DES timing extension to complete all bore assessments. Arrow plans to prioritise bores closest to existing CSG production wells.</li> <li>• Brian Bender said some landholders might view their water bore as a superannuation fund; that is, they may wish to use it in 10 years' time.</li> <li>• Simon Gossmann said Arrow provides make good measures for working bores whether they are currently used or not and is therefore interested in the capacity of the bore. An unusable bore will be viewed differently to a bore that is useable and in working condition.</li> <li>• Brian Bender said there were cases where MGAs had been entered into without a bore assessment. Simon advised Arrow did not take this approach.</li> <li>• OGIA found evidence of impacts to the Springbok Sandstone but no impact to the Hutton Sandstone (even though there is a declining trend in that formation).</li> <li>• Brian Bender said there was evidence of direct impact to the Hutton Sandstone from CSG at Talinga. Stanbroke received two make good bores as a result. Brian said that transferring users to the Huttons would put pressure on that system.</li> <li>• Simon said that Arrow's approach was that only authorisations supported by existing, working bores which were actually capable of taking water from the Walloon Coal Measures (WCM) should be transferrable to the Hutton Sandstone. Arrow has adopted this approach to protect the sustainability of that aquifer. This is why it is Arrow's view it is essential to collect data from bore assessments on the capacity of existing Walloon Coal Measures bores. This process of transferring a bore is managed by the Department of Natural Resources, Mines and Energy (DNRME).</li> </ul> <p><u>Groundwater monitoring</u></p> <ul style="list-style-type: none"> <li>• Arrow has an existing groundwater monitoring network of over 200 bores in the Surat including 36 monitoring locations identified through the 2016 UWIR.</li> </ul> <p><u>Consultation process</u></p> <ul style="list-style-type: none"> <li>• Steps regarding the 2019 consultation process can be found on DNRME's website. OGIA information sessions were scheduled across the region later in June.</li> </ul>	

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	<ul style="list-style-type: none"> <li>• Arrow’s obligations under the UWIR will commence once the final report is released.</li> </ul> <p><u>Baseline assessments</u></p> <ul style="list-style-type: none"> <li>• Baseline assessments are conducted on bores within a tenure area.</li> <li>• Arrow continues to conduct baseline assessments across the balance of its tenure including new petroleum lease areas.</li> <li>• Arrow are currently contacting bore owners with deeper bores east of Arrow’s tenure (north-east of Chinchilla, Brigalow, Warra and Macalister) with the intention to carry out assessments.</li> <li>•</li> </ul>	
<b>ITEM 7</b>	<p><b>Beneficial use network committee – Simon Gossmann</b></p> <ul style="list-style-type: none"> <li>• The beneficial use network (BUN) committee had its first meeting this morning and includes representatives from Central Downs Irrigators and Western Downs Regional Council.</li> <li>• Arrow appreciates representatives taking time to participate in this committee and provide input to help design the network.</li> <li>• Updates will be shared with the ASCRG and IFL committees as planning progresses.</li> <li>• Glenn Ogden asked if the 12 ML Tipton Water Treatment Facility would cope with the volume of water expected from the development in Cecil Plains area.</li> <li>• Chris Wicks said the Tipton facility was currently processing 2-4 ML/day so there was still spare capacity at the plant. However, Arrow had no plans to upgrade the water facility in Tipton since most of the area’s water production would be directed to the existing QGC water treatment facility at Kenya.</li> <li>• Simon said the water treated at Kenya would be returned to the area from where it was produced. Arrow hoped to have the BUN in place by 2023.</li> </ul>	
<b>ITEM 8</b>	<p><b>Boomtown toolkit – Dr Kathy Witt</b></p> <ul style="list-style-type: none"> <li>• Dr Kathy Witt leads the social performance team at the Centre for Coal Seam Gas (CCSG), at the University of Queensland (UQ).</li> <li>• CCSG has ongoing research into the key influences and changes to towns over time, including the development of the CSG industry which has become an integral part of Queensland’s economy.</li> <li>• Kathy presented on the social research findings around “what happens when CSG comes to town”.</li> <li>• In context – the industry has drilled just over half the number of planned wells.</li> <li>• The UQ Indicators Annual Report on Queensland’s Gasfields Regions helps Queensland communities track changes and understand challenges accompanying CSG development.</li> <li>• The report looks at indicators such as: <ul style="list-style-type: none"> <li>○ population</li> <li>○ unemployment</li> <li>○ average taxable incomes (individual and business)</li> <li>○ house values</li> <li>○ rent availability and cost</li> </ul> </li> </ul>	

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	<ul style="list-style-type: none"> <li>○ crime statistics</li> <li>○ Department of Social Services payments</li> <li>• For example:               <ul style="list-style-type: none"> <li>○ up to 6% of the local population in Chinchilla are employed in the gas industry (largest local employer)</li> <li>○ average unemployment rate in CSG towns has remained well below the Queensland rate</li> <li>○ all CSG towns show stepwise change in total business income and number of businesses since the 2010/11</li> </ul> </li> <li>• The report also compares figures for towns with and without gas, and relative to the Queensland average.</li> <li>• The figures can be analysed to determine what factors have influenced the variations over time and from town to town.</li> <li>• Findings from the report will be shared with communities across the Surat Basin over the coming weeks through regional workshops. Workshop details are available online:               <ul style="list-style-type: none"> <li>○ <a href="https://ccsg.centre.uq.edu.au/event/487/what-happens-when-csg-comes-town-regional-workshops-roma-miles-chinchilla-dalby-and-toowoomba-june">https://ccsg.centre.uq.edu.au/event/487/what-happens-when-csg-comes-town-regional-workshops-roma-miles-chinchilla-dalby-and-toowoomba-june</a></li> </ul> </li> </ul> <p><u>Discussion</u></p> <ul style="list-style-type: none"> <li>• Jodie Taylor said positive changes are happening in towns like Miles where Origin Energy are shifting their workers out of workers camps at Condabri and Talinga and into town.</li> <li>• Ian Hayllor said development could be a double-edged sword with both positive and negative social impacts.</li> <li>• Ian Hayllor enquired about changing the term “Boomtown” because he thought it was misleading. The research highlights how resource development influences income sources coming into a town and the resulting social changes. Kathy took a note of the suggestion.</li> <li>• Jane Walker asked if the university had considered including statistics around mental health. Kathy Witt said their work to date focused on biophysical elements. They could follow up with psychosocial research however Kathy felt the required funds would be better spent on supporting communities’ mental health services.</li> <li>• John Hughes asked how the “toolkit” was being used. Kathy said that community organisations, councils and industry used the research to, for example, support grant applications. The data had also been used in demonstrating a need, e.g. for public housing.</li> <li>• A question was raised about whether renewable energy projects had the same social obligations as CSG. Leisa Elder said she believed that solar companies were not legislated in the same way as the CSG industry but as a way of learning from the past, the same standards should be required on the solar industry.</li> </ul>	
<b>ITEM 9</b>	<p><b>Minutes of previous meeting and actions</b></p> <ul style="list-style-type: none"> <li>• Minutes emailed prior to meeting for comment/feedback. Hard copies of minutes are also available at meeting.</li> <li>• Endorsed for publication on website.</li> </ul>	
<b>ITEM 10</b>	<p><b>Any other business</b></p>	

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	<ul style="list-style-type: none"><li>• Nil</li></ul>	
<b>ITEM 11</b>	<b>Agreed outcomes, actions, deliverables</b> <ul style="list-style-type: none"><li>• Copy of safety moment slides to be shared with Nancy Sommerfield.</li></ul>	
	<b>Next meeting</b> – Wednesday, 11 September 2019	