

MEETING MINUTES



MINUTES OF: Arrow Surat Community Reference Group
 HELD AT: BMO Business Centre, Dalby
 DATE: 3 December 2016
 COMMENCEMENT TIME: 8.30am

Present:	<p>Simon Gossmann – Groundwater Manager Peta Tucker – Community Relations Manager John Hughes – Project Officer CSG Compliance Unit; DNRM Carey Bradford – Arrow Energy ATP Compliance Manager Graham Clapham – Central Downs Irrigators Ltd</p> <p>Presenters:</p> <p>(Member of Arrow Intensively Farmed Land Committee (AIFL))</p>
Apologies:	<p>Minutes: Tania Marshall - Secretariat</p> <p>Mary O'Brien – Regional Manager, Cotton Australia Pat Weir MP – Member for Condamine Sarah Due – Regional Manager, Agforce Ian Hayllor – Landholder Cr Paul McVeigh – Mayor Western Downs Regional Council – Proxy attended Lee McNicholl – Basin Sustainability Alliance Matt Paul – Policy Director, APPEA Cr Nancy Somerfield – Councillor, Toowoomba Regional Council Scott Braund – Australian Lot Feeders Association, Mort & Co</p>
Chair:	Leisa Elder – Vice President External Relations and Tenure Management
Disclosures:	None recorded

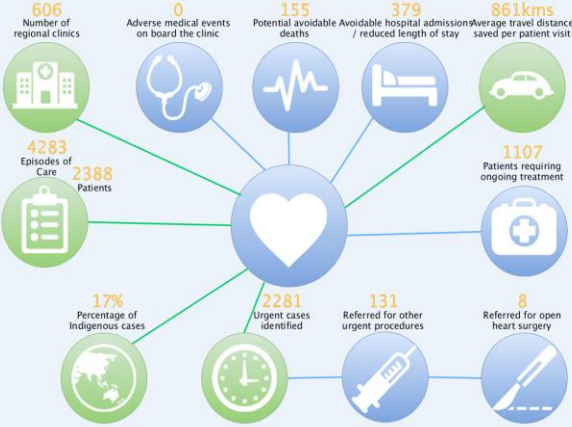
	Joint Meeting - ASCRG & AIFL Committee	ACTION/ SUGGESTIONS
ITEM 1	<p>Welcome – Leisa Elder</p> <ul style="list-style-type: none"> Leisa Elder welcomed attendees 	
ITEM 2	<p>Safety moment – Itcanwait – Mobile phone usage and driving video</p>	
ITEM 3	<p>Arrow Update – Leisa Elder</p> <ul style="list-style-type: none"> Over the last year Arrow has completed the \$250M Daandine Expansion project, and now commenced a \$100M expansion project PtL. Currently, the company is doing some early works that landholders may have seen at a potential expansion facility near Tipton that could be valued at \$500M (for domestic & export). However, this was at a very early stage and would take considerable time before any decision to proceed would be made. Collaboration discussions are continuing into 2017 regarding the majority of Arrow's gas in the Surat Basin. <p>Lee McNicholl asked how many wells would be drilled. Chris Wicks advised that over the initial 4 year period, 107 wells would be drilled. Approximately 60 of these will be on existing well pads, targeting deeper coal seams into the Walloons. The expansion will include 4 additional compressors, upgrades of other plant at the Tipton Facility, gathering lines and may include an upgrade of the water treatment facilities.</p> <p>Nev Wirth (AIFL Committee) asked if the existing high pressure pipeline can manage the increased capacity. Chris Wicks advised the base plan was to use the existing pipeline from Tipton.</p> <p>Trudi Bartlett asked what sort of work may be able to be undertaken by local contractors. Darryl Phillips advised that the contractor strategy would be looked at a later date. Detailed design and engineering is planned to be undertaken in 2017 with a financial investment decision taken in 2018. Works to commence in 2018 with the expanded plant online in 2020.</p> <p>Scott Braund asked if the majority of the expansion to the east will be in the area where the Hutton Sandstone overlies the Walloon Coal Measures.</p> <p>Simon Gossmann advised that both the Hutton and the Precipice Sandstones generally underlie the Walloon Coal Measures in the majority of the</p>	

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	<p>Surat Basin. Simon Gossmann also stated that connectivity between the Walloons and overlying or underlying aquifers is modelled by OGIA and that any impacts from the TipEx project on the Huttons and Precipice, and further greenfield development by Arrow, are already modelled by OGIA.</p> <p>Chris Wicks advised that the first phase would be mainly in the existing Tipton field development area, then expanding mainly East but remaining west of the Condamine River.</p> <p>Stuart Armitage (AIFL Committee) stated that if Arrow was drilling into the Huttons, this aquifer would be impacted. He also noted that in the next 20 years west of the Condamine River there may be intensive livestock farming with large water needs.</p> <p>Simon Gossmann advised there was no proposal to drill into the Huttons.</p>	
ITEM 4	<p>Operations Update – Darryl Phillips Completed and current activities</p> <ul style="list-style-type: none"> • Tipton CGPF annual maintenance shutdown undertaken 20-21 September involving field ramp down and venting • Kogan North 9 wells – surface facilities completed and commissioned • Tipton 4 wells – continuing with installation of surface facilities then commissioning • Tipton K5 Compressor commence vibration rectification works • Braemar 2 Power Station – 4 day full station outage to upgrade software and hardware of the control systems and 3 days of maintenance outages for 2 units. • Daandine Water Treatment Plant – Installation of solar powered de-stratification units on feed water dam and completion of backwash diversion pipeline project which manages quality of water in the plant <p>Upcoming works</p> <ul style="list-style-type: none"> • Daandine CGPF – modifications to increase gas export capacity • Daandine Water Treatment Plant – installation of a pilot closed circuit desalination unit to further improve recovery rates • Tipton wells – commissioning of wells to be undertaken • Preparation for 2017 works program and Operational Readiness for PtL project • Finalise Tipton K5 vibration works, carry out performance testing and then implement solution on other units in 2017. <p>Lee McNicholl asked which formation will the new wells go into. Carey Bradford advised that the twinned wells will go into the Taroom coal measures.</p> <p>Darryl Phillips advised there was recently flaring at the Daandine CGPF due to an Ergon electrical issue causing an outage at Daandine Power Station.</p> <p>Lee McNicholl noted that he lives 45km from Miles and that the Condabri Facility had large flaring recently. He commented that flares have big impacts on people's lives.</p> <p>Nev Wirth stated he had concerns as flaring is a waste of gas.</p> <p>Lee McNicholl asked if Arrow were paying royalties on flared gas. Darryl Phillips advised that all gas that is flared at Daandine CGPF is metered, and hence royalties are paid. He also stated it was Arrow's preference to always put the gas to market rather than any additional flaring (outside testing needs).</p>	Information to be provided to LM on royalties on flared gas.
ITEM 5	<p>Gas Migration – Carey Bradford Gas Storage</p> <ul style="list-style-type: none"> • Gas is chemically held deep within the coal's structure and almost always needs water extraction to release the gas (Saturation Dependent). <p>Relative Permeability</p> <ul style="list-style-type: none"> • Initially the seam is very permeable to water but once the reservoir pressure reaches the critical desorption point, the seam becomes very permeable to gas and less permeable to water. <p>Gas Movement</p> <ul style="list-style-type: none"> • Gas moves from areas of high pressure to low pressure i.e. to the production well. • This is offset by the buoyancy of gas. • In the vast majority of cases the mobilised gas will be reabsorbed into the under-saturated coals. • In general gas is difficult to mobilise laterally in the reservoir. 	

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	<p>Seam Dip</p> <ul style="list-style-type: none"> The seam dip of the Walloon Coal Measures is generally very flat i.e. in the order of 2 degrees. <p>Stuart Armitage (AIFL Committee) noted that once you remove the water and gas from a coal seam it takes a long time to recharge the coal seam.</p> <p>Carey Bradford stated that the Horrane Fault is a complicated structure. As the seam dip increases, the structural complexity increases (50-70m in some places). He did not believe that faults are good conduits to the surface.</p> <p>Gas Migration Pathways</p> <p>Bores (e.g. CSG production wells) -</p> <ul style="list-style-type: none"> Provide highest likelihood of migration to surface Low pressure and open pathways Used as a route to surface in preference to natural pathways. <p><u>Faults</u> –</p> <ul style="list-style-type: none"> Generally not good pathways to the surface. Preference is to travel through a more open bore Gas can travel up faults when the overburden is stiff and brittle, or when the fault is isolated from other pathways i.e. production wells or water bores. <p><u>Migration to subcrop</u> –</p> <ul style="list-style-type: none"> Difficult to achieve without high gas saturations, high seam dip and high permeability (e.g. gas seeps). <p>Lee McNicholl asked if the increased gas migration occurring in the Hopeland area, is because there are no gas pumping wells to remove the gas and therefore it will then escape?</p> <p>Carey Bradford advised there are a number of gassy bores and have been for many years due to high saturation of gas occurring naturally in the area.</p>	
ITEM 6	<p>Water Act Changes – Simon Gossmann</p> <p>Explained government’s motivation was to address concerns raised by landholders during the committee stage of consideration of the <i>Water Legislation Amendment Bill 2015</i>.</p> <p>The Bill</p> <ul style="list-style-type: none"> Extended make good to cover landholder bores affected by free gas Shifting the onus for make good to where impacts are likely to have been caused by a resource activity Requiring tenure holders to cover the cost of any alternative dispute resolution process Allowing a cooling-off period for make good agreements Requiring tenure holders to pay a landholder’s costs for engaging a hydro geologist for the purposes of negotiating a make good agreement, and Requiring additional information on Environmental Values to be included in a UWIR; part of duplication of information submitted in a UWIR as part of Environmental Authority application <p>Implementation</p> <p>Water Act now requires evaluation of presence (and cause of free gas)</p> <ul style="list-style-type: none"> UWIR does not currently predict movement of free gas DEHP guideline has not been developed for assessment of free gas <p>Current Make Good Obligations</p> <ul style="list-style-type: none"> 6 Bores identified in IAA in 2016 UWIR <ul style="list-style-type: none"> 1 bore assessment completed 5 commenced, scheduled for completion mid 2017 due to extended monitoring of bore behaviour 15 Bores identified in IAA in 2012 UWIR: <ul style="list-style-type: none"> 3 on others’ tenures 5 bores not actually into Walloon Coal Measures, 1 never drilled (removed) 2 bore owners refused access for bore assessments 3 make good agreements signed 1 other still in discussion 5 additional bores added via direction; also in discussion <p>Lee McNicholl asked if the bore assessment guideline had been changed to reflect the changes in legislation. Simon Gossmann advised the government has not yet updated its guidelines but industry was working with government to identify an appropriate process. Lee McNicholl noted that the quicker the guidelines are</p>	

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	<p>developed the better for planning.</p> <p>Scott Braund asked what the nature of the bores was for which Arrow is required to undertake bore assessments. Simon Gossmann advised that it had been assumed that all the bores were in the Walloons based on government registration data. However, bore assessments identified that a number of the bores were only drilled into the Springbok Sandstone and hence no longer predicted to be impacted.</p> <p>Stuart Armitage wants an update on the other changes to the Water Act, including associated and non-associated water licences.</p>	<p>Simon Gossmann to provide update on the other changes to the Water Act, including associated and non-associated water licences at future meeting.</p>
ITEM 7	<p>Water and Salt Management - Dave Wigginton An overview of the operation of the Daandine Water Treatment Facility was provided and the GoldSim modelling was explained.</p> <p>Water Treatment <i>Daandine -</i></p> <ul style="list-style-type: none"> • 12ML/d (total capacity) MF/RO • Operates at 75-83% recovery dependent on water quality (hardness) • Currently operating at 6ML/d at 83% recovery • Operation fluctuates based on water profile • Tipton WTP similar size and recovery – however water production is significantly lower at Tipton. <p>Brine Management</p> <ul style="list-style-type: none"> • Brine is managed in a fit-for-purpose facility (double HDPE lined, leak detection and collection) • Current initiative to extend storage life through further brine concentration (reduce volume by another 50%) • Overall recovery following brine concentration 92% • Reference case salt solution is to crystallise end-of-life brine volume and landfill in a fit-for-purpose facility • Salt management at end-of-field life allows opportunities for further technological advances and/or collaborative/beneficial opportunities to emerge <p>Nev Wirth asked if Arrow's earlier forecasts were higher than actual production. Dave Wigginton advised that was correct.</p> <p>Scott Braund asked if there was a model of salt production at end of life. Dave Wigginton advised that in Arrow's SREIS the prediction is 2.2Million tonnes of salt for the full Arrow Surat development.</p> <p>Nancy Sommerfield asked if a site had been identified for the salt. Dave Wigginton advised that a site had not yet been determined and that the eventual site would not be on or near intensively farmed land.</p>	
ITEM 8	<p>Regional Planning – Suzanne Ferguson 3PL-</p> <ul style="list-style-type: none"> • In 2017, Arrow will expand its Tipton field on PL260 by <ul style="list-style-type: none"> ○ drilling an additional two wells ○ extending the existing gathering system ○ work covered by voluntary CCA • Up to 10 metres of the water and gas gathering lines will tie-in to an existing pipeline (built in 2009) on PL198 • The existing pipeline is on Glenelg owned by Arrow (Tipton) Pty Ltd • Exemptions under the Act do not apply <p>Glenelg-</p> <ul style="list-style-type: none"> • Purchased by Arrow (Tipton) Pty Ltd in June 2007 • Farmed and grazed commercially by Arrow in this period • Existing CSG infrastructure constructed and operated on it by Arrow since 2007 including: <ul style="list-style-type: none"> ○ 17 water monitoring bores ○ 18 production wells ○ Water and gas gathering pipelines ○ Small scale RO plant and Beneficial Use trial • Activity has no impact on Glenelg agricultural productivity. The Area is a pipeline on the edge of the cultivation under an existing access track. <p>Arrow is about to submit its first Regional Planning application for effectively 10m of gathering on an Arrow owned property.</p>	

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	<p>Regional Interests Development Application Application will include –</p> <ul style="list-style-type: none"> • Right of Way of 15m from the access track • Expected area of Impact – <ul style="list-style-type: none"> ○ 0.068 ha PAA ○ 0.068 ha SCA • Constructed is expected to take 6 weeks • Reinstatement and rehabilitation will follow <p>Expected timeframes –</p> <ul style="list-style-type: none"> • Relevant CCAs signed in November • Pre-lodgement meeting with DILGP/DNRM and DAFF held on 28 November • RIDA expected to be lodged by 9 December 2016 • Decision expected by end February 2017 • 3PL activity planned for H1 2017 	
ITEM 9	<p>Social Investment Update – Peta Tucker Brighter Futures - Overview of Round 2</p> <ul style="list-style-type: none"> • 16 organisations were successful in the latest round of our Brighter Futures program across the Bowen, Brisbane and Surat regions • 7 projects directly benefiting the Surat Region • Projects ranged from safety, health, resilience and employment opportunities <p>Broncos visiting the Surat Region in 2016 & 2017 Broncos Fan Day -</p> <ul style="list-style-type: none"> • To be held in Dalby 3 December • Event will run from 9am-11am • 17 current team members and some previous stars attending. <p>Broncos Blitz</p> <ul style="list-style-type: none"> • Team will be visiting schools within the Surat Region on 1 & 2 February 2017 • Players will be attending primary and secondary schools delivering positive education and health messages. <p>Partnerships - PCYC Braking the Cycle (BTC) and Ignition –</p> <ul style="list-style-type: none"> • BTC continues to provide assistance to learners in receiving the hours and support needed to get their licence In 2016 <ul style="list-style-type: none"> ○ 22 Mentors were involved in training ○ 29 learner drivers were involved ○ 82 Provisional licenses were received • Ignition Program was developed to directly benefit youth at risk through fun and health focused activities. In 2016: <ul style="list-style-type: none"> ○ 36 Skirmish sessions were held, where 1,589 attendances were recorded ○ 1,607 attendees at boxing classes which directly benefited young disengaged males and encouraged participates to compete in tournaments within SEQ ○ Gym/sports membership awarded to seven young people, whose families encountered financial hardships <p>Partnerships – Heart of Australia -</p> <ul style="list-style-type: none"> • Heart of Australia is the first mobile heart service to regional Australia • The program meets critical Industry need – Surat Gas Industry Aeromedical Service cardiac related retrievals are the highest number of admissions per month • In partnership with Arrow, Goondir Health Service and Heart of Australia, an Indigenous Health video was produced to reach out to the wider indigenous population within the Surat Regions • Program continuing in 2017. 	

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	 <p>Partnerships – Endeavour Foundation –</p> <ul style="list-style-type: none"> • The Endeavour’s School Holiday Program continued to provide significant support to local families with children with intellectual disabilities • School Holiday programs are delivered four times a year and catered for up to 20 children between the ages of 4 – 11 • The Program provides respite care to families within the Western Downs Region. <p>Partnerships – Dalby State High School Agricultural Scholarships -</p> <ul style="list-style-type: none"> • In 2016, 10 scholarships awarded to students across grades 8 – 12 • Students who were involved in 2015 have since gone onto traineeships with agricultural industry • 	
	ASCRG Committee only	
ITEM 10	<p>Minutes of previous meetings</p> <ul style="list-style-type: none"> • Minutes of the September meeting were reviewed. Moved by Tania Marshall that they be accepted, seconded by Trudi Bartlett. Committee endorsed. 	
ITEM 11	<p>DNRM Presentation – John Hughes</p> <p>CSGCU regulation of the CSG Tenure Holders under the Land Access Code</p> <ul style="list-style-type: none"> • Not tenure holder specific – includes the 4 large CSG companies and a number of smaller companies. • The most important issue is the process. CSGCU see a high level of compliance under the Land Access Code. • Coal Seam Gas Compliance Unit (CSGCU) is a one-stop shop for community and landholder issues, concerns or enquiries relating to CSG. CSGCU works closely with other agencies that regulate the CSG industry. • Multidisciplinary teams are located in various centres with expertise in groundwater, environmental management, land access and compliance and community engagement. • CSGCU investigates landholder complaints relating to the CSG industry, including complaints about land access, weed management and water bore impacts. • CSGCU – Engagement and Compliance Team <ul style="list-style-type: none"> ○ Engages with industry and community stakeholders on CSG development and impacts ○ Coordinates cross-agency projects ○ Answers enquiries ○ Investigates landholder complaints ○ Audits CSG companies against Land Access Code 2016 conditions ○ Offers dispute resolution for CCAs and Make Good Negotiations 	

<p>ITEM 11 cont.</p>	<p>DNRM Presentation – John Hughes (cont.)</p> <ul style="list-style-type: none"> • Regulation of the CSG industry – undertaken by: <ul style="list-style-type: none"> ○ Department of Environment and Energy (Cth) ○ Office of the Coordinator-General - EIS ○ Department of Environment and Heritage Protection – Environmental Authorities ○ Department of Natural Resources and Mines – P&G Inspectorate & CSGCU <p>Land Access Code investigations</p> <ul style="list-style-type: none"> • 8 in 2012, 20 in 2013, 31 in 2014, 19 in 2015, 27 in 2016 <p>Weed Program investigations</p> <ul style="list-style-type: none"> • 5 in 2012, 9 in 2013, 6 in 2014, 11 in 2015 and 1 in 2016 <p>Compliance Inspections / Audits</p> <ul style="list-style-type: none"> • 9 in 2014, 27 in 2015 and 32 in 2016 <p>The Groundwater Investigations and Assessment Team</p> <ul style="list-style-type: none"> • Investigates potentially impaired bores • Implement community groundwater monitoring program (CSGNet and CSG Online) analysing groundwater impacts of CSG development • Audit water monitoring bore construction, well completion report for water monitoring bores and water sampling procedures. <p>Bore Investigations</p> <ul style="list-style-type: none"> • 130 in 2015 and 14 in 2016 (data for years previous to 2015 were included in 2015 data) <p>Investigation and Inspection outcome</p> <ul style="list-style-type: none"> • High level of compliance in most inspections <ul style="list-style-type: none"> ○ Addressed by education ○ Resolved at time of inspection ○ Biosecurity management, vehicle hygiene, rubbish, signage • Under half of investigations record low level non-compliance <ul style="list-style-type: none"> ○ Facilitory approach ○ Addressed by tenure holder action to bring them back to compliance ○ Land access, biosecurity management, rehabilitation. <p>Scott Braund asked on make good agreements, how much is done by aquifer swap. John Hughes advised that a make good agreement is between two parties and not know to DNRM. Under a make good agreement, it is the responsibility of the Licence Holder to apply for a transfer of the licence from one aquifer to another.</p>	
<p>ITEM 12</p>	<p>Any Other Business</p> <ul style="list-style-type: none"> • Leisa Elder congratulated Ian Hayllor on his reappointment to the Gas Fields Commission. • Lee McNicholl raised the issue that Max Winders was having ongoing discussions with Arrow and QGC regarding water. He advised that Max Winders had been doing some of his own water modelling. Lee McNicholl was asked to forward on the email from Max Winders in order for Arrow to review any of the queries contained in it. • Leisa Elder thanked everyone for their time over the past year for the collective achievements of the group and wished everyone a Merry Christmas and a safe holiday season. 	<p>Lee McNicholl to forward on email for Arrow to review content.</p>
<p>ITEM 13</p>	<p>Agreed outcomes, actions and deliverables – Actions to be undertaken from this meeting</p> <ul style="list-style-type: none"> • Information to be provided on royalties on flared gas. • Update on the rest of the Water Act, including associated and non-associated water licences. • Lee McNicholl to forward Max Winders email to Arrow for review of issues. 	<p>(Michelle Pilbeam) Simon Gossmann</p> <p>Lee McNicholl to forward email for review</p>
<p>ITEM 15</p>	<p>Next meeting</p> <ul style="list-style-type: none"> • Leisa Elder proposed there be 4 meetings for 2017. Suggested dates would be provided 	

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