

ARROW ENERGY UPDATE COMMUNITY INFORMATION SESSION 21 SEPTEMBER 2020

Introduction

Arrow is commencing construction of the Surat Gas Project (SGP) in southern Queensland.

The first phase of the project, which Arrow sanctioned in April this year, will include drilling about 600 wells to market over 27 years.

In place of our usual town halls in our local communities, members of the Arrow team presented an update via live webinar (an online presentation), and were available to answer questions at the end of the presentation.

These notes reflect the questions received and their answers. While the notes include some paraphrasing and summarising, every effort has been made to preserve the integrity of the discussions.

Event details:

Live webinar (online)	Monday 21 September 2020 3.30-4.30pm	Presentation, questions and answers
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A copy of the presentation is available on the Arrow website: www.arrowenergy.com.au

How to read these notes

Questions and comments from the audience are in bold type, with the responses from Arrow staff in below. In some cases, responses have been summarised. In others, additional information is included to provide further context or explanation. This information is italicised following the answer.

If you have questions or comments about the project or these meeting notes, please contact the project team during working hours on:

Freecall: 1800 038 856

email: info@arrowenergy.com.au

Acronyms

CSG – coal seam gas
ATP – authority to prospect
PL – Petroleum lease
SGP – Surat Gas Project
EIS – environmental impact statement
IFL – intensively farmed land
AWP – area wide planning
CCA – conduct and compensation agreement
HDPE – high-density polyethylene
IAA – immediately affected area
WMMP – water monitoring and management plan
QGC – Queensland Gas Company
UWIR – Underground Water Impact Report
OGIA – Office of Groundwater and Impact Assessment
WTF – water treatment facility

Legislation

Petroleum and Gas Act 2004 (P&G Act)

Date:	21/09/2020
Time:	3.30pm to 4.30pm
Venue:	Live Webinar
Arrow Energy presenters:	<p>Leisa Elder – Vice President, External Relations and Tenure Management, Arrow Energy</p> <p>Guy Young – General Manager Surat Opportunities</p> <p>Max Murray – Surat Operations Manager</p> <p>Tyrone Wilkinson – Construction Manager</p> <p>Simon Gossmann – Groundwater Manager</p> <p>Brydie Hedges – Community Engagement Manager</p> <p>Gary Lees – Access Manager Surat</p> <p>Jason King – General Manager Contracting Procurement & Logistics</p>

- 1. In relation to subsidence, Arrow claim in a recent reply to us that the lowering of the ground surface is predicted to occur as a gradual change in gradient and not as isolated patches. This is not what we have been previously been told as the coal seams vary in thickness and subsidence never occurs all at once over the entire area.**

Arrow repeatedly claim subsidence of levels we indicate will not be perceptible whereas we know a subsidence episode of even 10mm over a floodplain that has only a 10mm fall shall cause huge crop losses on our floodplain. Are you prepared to compensate for crop losses and what do you plan to repair huge areas of subsidence?

Sorry subsidence predicted should have said 100mm predicted fall. Floodplain has fall of 100mm only over various fields.

Arrow believes that subsidence will occur over a widespread area and will generally be even.

This is because subsidence is correlated with the amount of dewatering that occurs. Arrow maintain regular spacing of wells to achieve a generally even dewatering across an entire development area.

To gain a better understanding of the current ground surface levels, Arrow are in the process of confirming the existing slope of the ground, using a number of data sources and methods for identifying ground movement.

Arrow's primary method for measuring ground movement is through satellite monitoring, known as InSAR. This is supplemented by other methods, such as LiDAR, extensometers and aerial photography. This can be used to investigate specific claims of localised subsidence.

Subsidence from dewatering does not occur in one specific location, but rather as a gradient over a larger area. Our research indicates that this gradient will be between 2-10mm across one kilometre.

On that basis, Arrow do not anticipate subsidence caused by CSG activities will be perceptible, particularly in the context of natural variations, both seasonal and across a paddock.

Arrow are also working with precision agriculture consultants to establish what potential remediation mechanisms may be available to address subsidence in the unlikely event that it does occur.

2. What does Arrow do with the water brought to the surface? Is all water brought to the surface treated through the reverse osmosis process?

The vast majority of water that is brought to the surface will be treated via reverse osmosis to remove the salt that is naturally occurring in water in the Walloons Coal Measures. This treated water is primarily used for irrigation purposes.

Under our Environmental Authority (EA), we may also use small amounts of non-treated water for construction activities, for stock or provided to power stations.

3. “Local housing” suggests leased privately owned dwellings. Will Dalby Motels have the opportunity to offer rooms and meals? The Dalby moteliers wish to join together to offer this service.

Arrow will use a mixture of existing camps and local housing to accommodate the workforce for longer stays. Project staff who are visiting site or undertaking shorter stays in the region will likely use local motels and hotels.

4. What will the maximum width of the pipeline clearing of vegetation be?

As part of our Environmental Authority, Arrow may clear a Right of Way (ROW) of up to 35 metres as part of the construction of gas and water gathering pipelines. However, we look to minimise our impacts and clearing activities by reducing the width of the ROW wherever practicable.

5. How does arrow anticipate transporting workers to site? Will there be a requirement for bus transfers to Brisbane and/or Toowoomba for crew and shift changes?

Arrow is working with our contractors to minimise the impacts of workforce transportation on the local road network. This includes the use of buses to transport workers from local accommodation to and from site, wherever possible.

Similarly, Arrow and our contractors will provide bus transport at shift change for workers who reside outside the local area.

Arrow currently operates a bus service between Brisbane and Dalby; however, this is primarily used for internal staff transfers.

6. At what stage are Arrow at with appointment of the major contractors for the development works for the first tranche of well development. When will they be announced?

The award of the drilling contract will occur soon.

Major construction contracts are not scheduled to be awarded until late 2020 or early 2021.

For further information about contract availability and timeframes, please refer to page 33 and 34 of the presentation.

Arrow is also planning on holding a contracting and supply webinar in October to provide more detail about our procurement opportunities and processes.

7. Do the Tipton and Kenya water treatment facilities have the capacity to treat additional CSG and does Kenya water treatment facility environmental authority needs to be amended to accept the additional water?

The Arrow Water Treatment Facilities (WTF) at Tipton and Daandine, and QGC's Kenya WTF are currently under-utilised, and have capacity to treat the predicted amounts of produced water.

As the owners of the Kenya WTF, Shell-QGC are responsible for compliance with the relevant EA. However, Arrow are unaware of any requirement of QGC to amend the Kenya WTF EA in order to process the water produced by Arrow.

8. Why hasn't the substitution water been shared amongst all affected landholders with gas wells instead of only going to be irrigators whom already have most of the water resources tied up? Seems like water for those in the know.

The objective of the substitution scheme is to address a predicted impact to the Condamine Alluvium. Participants in the scheme will be forfeiting the water that they would normally take directly from the aquifer in order to take water from the substitution scheme.

Arrow addresses impacts to other aquifers through other mechanisms such as make good provisions.

The amount of produced water is not significant, particularly when viewed on a per landholder basis.

The surface impacts of constructing a network to distribute that water to all landholders would significantly outweigh the benefit that such a small amount of water would provide to landholders.

9. Will Arrow guarantee landholders will not be held liable for consequences of Arrow being on their property?

Arrow does not want to see any landholder, existing or new, without insurance coverage.

Australian Petroleum Production and Exploration Association (APPEA), the body that represents the gas industry, has engaged with the Gas Fields Commission, Cotton Australia, AgForce, Queensland Farmers Federations (QFF) and the Industry Council of Australia to identify a solution for this urgent issue.

While we are aware that some landholders have chosen to change their insurer, APPEA is working with IAG to reach agreement on insurance clauses and to help IAG stay in the market.

10. Will the new Field Compression Stations (FCSs) be built to the same specs as the original sites?

Arrow will be assessing the design of the original Field Compression Stations (FCS) and use some existing components, while also looking for opportunities to improve the designs to optimise capacity for the new FCS.

11. If a work over rig allows three to six days per well does a multi well site with eight wells takes 24 to 48 days?

Each of the wells are worked over only as required, so it's unlikely a full multi well pad would need a complete work over at the same time.

Whilst I cannot answer the specific question, for an eight-well workover, we traditionally wouldn't work over all eight wells, but it would be three to six days per well.

12. Does Arrow engage in the flush-by process in any of its wells and does it plan doing so at anytime?

We don't have the correct person on the call today to answer this question, so we'll take it on notice.

A flush-by or 'stroke and flush' process is used during the maintenance of progressive cavity pumps (PCPs). PCPs are installed inside the well to remove water from the coal seam, releasing the pressure holding the gas within the coal seam, and allowing the gas to flow to the surface.

During operation, solids such as sand, silt or clay may enter the pump and cause it to seize. A service rig or crane is used to access to the pump at the bottom of the well, and clean water is flushed down through the pump to remove any accumulated solids or blockages.

Arrow may conduct a flush-by or 'stroke and flush' process as required and as part of maintenance for a well. Typically, the process takes less than one day to complete.