

Submission to EA Amendment Application EPPG00342913

Please accept this submission on behalf of Lock the Gate Alliance. We believe this application is misleading and vastly inadequate. It is attempting to mischaracterise an unconventional gas operation as a conventional gas operation, and it is attempting to rely largely on standard conditions for petroleum exploration when it is a production operation.

We believe that the application should be rejected. Additional recommendations are made at the end of this submission.

Inadequate public notification

The amendment application refers to a set of additional documents. However, these documents were not made available as part of the public notification. These documents are necessary in order for the public to make a properly informed assessment of the impacts and risks. The additional documents referred to are:

1. Armour Energy (Surat Basin) Pty Ltd "Surat Operations Environmental Management Plan"
2. Armour Energy (Surat Basin) Pty Ltd "Site Emergency Response Plan - Surat Basin"
3. Armour Energy (Surat Basin) Pty Ltd "Well Integrity Management Plan"
4. Armour Energy (Surat Basin) Pty Ltd "Unexpected Aboriginal Cultural Heritage Find"
5. Armour Energy (Surat Basin) Pty Ltd "Erosion and Sediment Control Plan"

Mis-characterisation of the resource

The application appears to be deliberately mis-characterising what is essentially an unconventional gas operation targeting tight sandstone reservoirs as a conventional gas operation. For example, the application states that *'the risk profile associated with HFS for conventional oil and gas activities such as those proposed to be carried out by Armour Energy, versus CSG, are vastly different'*.

However, we note that elsewhere in the document they refer to the operation targeting 'tight gas sandstone'. Tight gas is recognised as requiring unconventional methods to be used in order to extract gas from it. Therefore, we believe this operation is not properly characterised as 'conventional' but should instead be correctly characterised as an 'unconventional gas' operation.

Other information in the document supports this thesis. It refers to the need for directional drilling and lateral wells. Directional drilling is an unconventional method which has been developed to extract unconventional gas from tight, shale and coal seam layers.

Although the document does not provide detailed information on the type of hydraulic fracturing that is proposed, the reference to a large number of fracs and the water involved suggests it does intend to use slick water hydro-fracking, again denoting that it is targeting an unconventional resource.

All of these factors together indicate an unconventional resource, which is far more difficult to extract and which introduces greater risks than a conventional resource. This application should be properly characterised as such, and all the risks properly considered, including the risks of directional drilling.

We consider it is completely unacceptable to switch from a conventional to an unconventional operation without a full EIS. We also believe the EA amendment application is deliberately misleading in regard to the nature of the activity.

Flawed reliance on Standard Conditions for Petroleum Exploration

We note that this EA amendment application seeks to authorise hydraulic fracture stimulation (HFS) activities and the inclusion of twenty one (21) new well locations, within the tenure boundary of PL71. It also appears to seek to approve the use of HFS on any existing wells within the tenure.

The application clearly states that the project is a production project, however, it then suggests that the risk profile matches the 'Eligibility Criteria and Standard Conditions for Petroleum exploration activities' (EHP, 2015), and the conditions it proposes are limited as a result.

We strongly disagree with this conclusion, and instead consider that it is highly inappropriate to apply the standard conditions for exploration to this activity. Firstly, HFS is well-recognised as an inherently high risk activity, and given that production is proposed for 21 gas wells, we believe the Streamlined Model Conditions for Petroleum Activities should clearly apply, not the conditions for exploration activities.

Directional drilling also substantially increases the risks of gas activities, and therefore it is essential that the full Standard Conditions for Petroleum Activities are applied.

Well stimulation conditions inadequate

As a result of the proposed reliance on the standard conditions for exploration rather than for petroleum activities, the application does not propose to apply the standard conditions Well Activities 10 and 11. These are the conditions which require stimulation risk assessment prior to any activities. It is completely unacceptable that a production project which proposes such intensive and risky activities as HFS and directional drilling, should attempt to avoid conducting a stimulation risk assessment.

The application similarly fails to apply standard conditions RMW 028 through to RMW 033. These cover crucial stimulation impact monitoring and water quality assessments. It is completely irresponsible to propose major HFS activities and directional drilling at great depths without these conditions applying.

Origin Compliance History and Legacy Issues

We understand that Origin were the original owner of the Kincora gas project. It is notable that a number of whistleblowers have raised serious issues in relation to well management by Origin.

In her amended statement of claim lodged in the Federal Court in January 2017, former Origin compliance officer, Ms Sally McDow, identified serious compliance failures pertaining to Origin gas activities in Queensland and elsewhere.

In the statement, she alleged that hundreds of gas wells had not been properly maintained for 10 years or more and that many had not been plugged and abandoned¹. She also referred to other alleged incidents of aquifer contamination and leaking of gas and oil².

We have reason to believe that some of these concerns may have related to the Kincora gasfield. A full assessment of environmental compliance should be conducted. We are concerned that a number of the existing wells may have serious legacy issues. These issue should be addressed in the proposal.

We're particularly concerned that the application seeks to allow HFS to be applied not just to new wells but also to existing wells. The application of HFS to existing wells that are aging and potentially have structural weaknesses or legacy issues is a major concern. We believe existing wells should be specifically excluded from this proposal, unless or until a full well integrity assessment has been conducted of each well.

Environment Impact Statement needed

We believe that a full EIS should be conducted for the proposal. We contend that the risks to groundwater are underestimated by the application, as there has been no apparent assessment of fractures or faults in the Rewan Formation which might increase risks to overlying GAB aquifers.

The application makes no attempt to assess and any cumulative impacts that arise from other gas projects also targeting the same formations or adjoining formations. Notably, it does not refer to the Underground Water Impact Report for the Surat Cumulative Management Area and has not assessed the added risk that it poses to water resources on top of other projects.

Furthermore, specific chemicals that will be used in fracture stimulation are not listed or assessed, and instead a very general analysis of the types of chemicals is all that is presented. We consider that unacceptable.

In addition, no analysis is provided of the quality of waste water from the target formations. This is the type of information that should be collected during exploration and is needed to

¹ Page 26 of the Amended Statement of Claim filed on 23rd January 2017

² Page 27

make a proper assessment of risk in relation to aquifer cross-contamination or surface accidents and spills.

There is no information provided on the volume or final destination of flowback fluid waste. The application merely states that *'Flowback fluid will be reused wherever possible and later disposed of offsite at a facility which can lawfully accept the fluid'*. Given the vast quantity of waste that the CSG industry is now producing, it is no longer acceptable to simply approve projects without any clear waste destination and management in place.

Armour acknowledge the extreme noise associated with their proposed activities with an estimate of total noise emissions of SWL 115 dB(A). They note that baseline noise values were determined from surveys of the ambient background noise environment, as part of the EIS for the GLNG and APLNG Projects. However, they ignore specific recognition from the Coordinator-General's Report for APLNG in 2010 that *"The current background noise levels were found to be **consistently at or below 15 dB(A)** and only sites within 1 kilometre of major road transport corridors had higher night time background noise levels."* (Coordinator- General's Report –APLNG 2010). In a low noise environment, production of noise up to 115dB(A) will cause harm to human health and to the environment.

Armour provide directly contradictory statements about flaring of gas. On page 23 they say that no flaring of gas is proposed to occur. However, on page 37 they state that emissions that may impact on the community include flaring of gas. Elsewhere they state that gas may be flared during well appraisal, commissioning and when required during operations.

Armour are seeking proceed with the project without baseline air monitoring. They appear to be depending upon monitoring at Miles airport in the Darling Downs, which occurred after 6000 wells were already drilled. We believe the likely impacts on air quality and on human health of individuals are far greater than estimated, and particularly so in light of the fact that flaring will occur.

They provide no assessment of fugitive emissions despite a growing body of evidence that fugitive emissions from unconventional gas operations are far greater than previously estimated by the oil and gas industry. They also fail to indicate how they will report fugitive emissions to meet Federal obligations and the National Greenhouse and Energy Reporting Act.

Recommendations

- That the Armour application for an amendment to Environmental Authority (EPPG00342913) is rejected.
- That Armour Energy should be required to conduct a full Environmental Impact Statement for the proposed amendment.
- In any future application, Armour Energy should be required to apply the Standard Conditions for Petroleum Activities, and should not be allowed to erroneously rely on the standard conditions for exploration activities.

- In particular, Well Activities 10 and 11 and RMW 028 through to RMW 033 should be applied to the project and well stimulation assessments should be required, and placed on public exhibition prior to commencement.
- That the public exhibition for the amendment to EPPG00342913 was inadequate as supporting documents were not provided as part of the public notification process, and regardless of the matters above, the full proposal should be re-notified.

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