

23 September 2024

The Department of Resources

**Submitted Online**

## **SUBMISSION – CSG-INDUCED SUBSIDENCE MANAGEMENT FRAMEWORK**

### **1. WRONG APPROACH**

The draft legislation should not be considered in isolation from other impacts on food security.

The allowance of unlimited take of water for the CSG industry is undermining long term sustainable farming.

The added pressure of soil subsidence in highly productive areas of laser levelled cropping land is further undermining long term sustainable farming.

The amendment to the MERC Act to include in its purpose that it is to “manage the impacts of CSG-induced subsidence” is misleading.

There is no “management” of subsidence proposed such as are provided for in the *Water Act 2000* make good provisions. Schedule 1A Content of subsidence impact reports does not put forward any solution to “fix” ongoing subsidence.

Steps under Part 4, declaring a subsidence management area is new, however preparing a subsidence impact report, requiring land monitoring, baseline data collection and farm field assessments should have already been occurring and does not take action to address subsidence.

The draft legislation provides for further monitoring when monitoring was conditioned under, at least some of, the *Environment Protection Biodiversity Conservation Act 1999* approvals.

Steps under Part 5, preparing a subsidence management plan, providing for a subsidence compensation agreement and binding all future successors in title to any agreement or decision reached does not manage subsidence.

The legislation will record on title limits to compensation, for subsidence even though it will manifest over decades as a result of the government approval, management and operation of the CSG industry.

In terms of potential damage and further potential liability the draft legislation is lacking.

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The draft legislation fails to address subsidence impacts on existing lineal infrastructure such as:

- roads;
- rail;
- water supply infrastructure; and
- sewerage infrastructure.

The draft legislation fails to address subsidence impacts on other infrastructure such as:

- housing;
- dams;
- water impoundments; and
- civic buildings.

Monitoring the ongoing and established subsidence is not going to stop it or ameliorate it when the subsidence will continue to manifest over many years as a result of the current levels of decompression and associated water extraction.

Continued decompression and water extraction will increase the currently manifested impacts over the long term.

Those impacts will continue long after the company's responsible for the subsidence have gone.

There is no identification of a sinking fund (pardon the pun) to be established to reimburse those affected over many years to come.

Contrary to that concept there is to be a recording on title of the finality of compensation to be paid.

## **2. CSG-INDUCED SUBSIDENCE**

This term CSG-induced subsidence is defined and means:

*“ground motion resulting from the production of coal seam gas under a petroleum resource authority (csg)”*

Who has to prove the ground motion is as a result of production of coal seam gas?

What level of proof is required?

Who can afford to run a legal action with the scientific evidence to support that finding?

We have dealt with the denials by relevant holders of water bores being affected even when identified as immediately affected bores by the office.

The same difficulty will occur with this definition without clearer responsibility and obligation.

The definition should reverse the onus by stating:

*“CSG-induced subsidence means ground motion within a subsidence management area unless it is established that it did not result either in whole or in part from the production of coal seam gas under a petroleum resource authority.”*

### **3. SUBSIDENCE MANAGEMENT AREA**

The Office of Groundwater Impact Assessment is a logical control point noting the relationship between the immediately affected bore mapping and the draw down associated with decompression of the aquifers.

Rather than awaiting fresh declarations of subsidence management areas why not immediately declare the same areas for subsidence.

In conjunction, the responsible holders under the draft legislation should be identified for the subsidence management areas consistent with the areas they are responsible for making good under the *Water Act 2000*.

The responsible holders should be responsible for compensating the owners and occupiers affected by subsidence.

If changes are needed following further review then adjust at that time.

### **4. SUBSIDENCE IMPACT REPORT**

A subsidence impact report must include the content identified in Schedule 1A.

It is proposed to comprise:

- Cumulative subsidence assessment;
- Regional risk assessment; and
- Subsidence impact management strategy.

The cumulative subsidence assessment is to assess cumulative existing and predicted impacts of CSG induced subsidence.

The assessments referred to under the heading in this submission of KNOWLEDGE IN RELATION TO SUBSIDENCE identified a low risk of subsidence which has proved inaccurate.

To monitor that low risk there were requirements for monitoring to occur prior to production.

A condition of one EPBCA approval was:

*a program to monitor subsidence impacts from the action, including trigger thresholds and reporting of monitoring results in annual reporting required by condition 28. If trigger thresholds are exceeded, the approval holder must develop and implement an action plan to address impacts within 90 calendar days of a trigger threshold being exceeded*

The information for the triggers and baseline assessments should have occurred.

This material should be made available now to those who wish to make a submission to a subsidence impact report.

A regional risk assessment is probably too broad in areas of laser levelled farms.

A rainfall and runoff catchment assessment is the level at which risk assessment should be undertaken in that country.

A very small change in slope can have significant implications for crops and farming practices as set out below under the heading ON FARM IMPACTS ON LASER LEVELLED FARM.

Farmers co-ordinate their levels across farm boundaries within catchments.

The purpose of the subsidence impact management strategy is where some management of the impacts of subsidence ought to be found.

Section 10 deals with monitoring, section 11 deals with collecting data for assessing baseline conditions, section 12 deals with a farm field assessment and section 13 provides for a detailed assessment of the impacts and if there was a previous impact strategy consider its effectiveness.

It can only be effective as there is no requirement for any practical outcome, just paperwork which will be delivered after consumption of farmers time and energy.

There is a peer review proposed by a technical reference group appointed by the manager with unknown terms of reference.

The assessment referred to under the heading KNOWLEDGE IN RELATION TO SUBSIDENCE was carried out by like panels.

It is not a confidence inspiring process.

## **5. FARM FIELD ASSESSMENTS**

Part 4 again addresses land monitoring and baseline data collection but then adds Farm field assessments.

A farm field assessment is undertaken by the relevant holder and it is to identify impacts, project further impacts and assess the ability to undertake, or the productivity of, agricultural activities on the land.

If the relevant holder determines that the impact is more than minor the relevant holder is required to enter into a subsidence management plan with each owner or occupier.

There is a clear conflict of interest between requiring the relevant holder to undertake a farm field assessment when a consequence could be some unknown management by the relevant holder or it will be determinative of whether compensation is paid by the relevant holder.

If the land owner or occupier were charged with that responsibility to make that determination the conflict of interest would be recognised.

This is fundamentally flawed where the relevant holder is making that assessment.

Auditors authorised by the State that obtains royalties from the continued activity does not alleviate the perceived conflict.

The process also overrides the owner or occupier's skill and expertise in relation to their farm.

What is meant by more than minor?

## **6. SUBSIDENCE MANAGEMENT PLAN**

A subsidence management plan is a matter about which agreement is to be sought.

It is not an agreement but rather a statutory process which will require the owner and occupiers of land to spend their time money and energy on fighting to be compensated for ongoing damage to their interest in land.

It is to contain measures about how and when the "holder" will manage the impacts of CSG-induced subsidence.

There is no identification of how "management" will occur where the subsidence will be ongoing overtime from time to time.

A field may be releveled only to slump further before rain and cause ponding or prevent overland flow after a crop is planted but not harvested.

The likely outcome appears to be monetary compensation and the further loss of priority agricultural land.

## **7. SUBSIDENCE COMPENSATION AGREEMENT**

The holder is liable to compensate an owner "or" occupier for each compensatable effect.

This should be compensation for each of the owners "and" occupiers.

The definition of compensatable effect is too restrictive.

It should require the relevant holder for the subsidence management area to compensate for CSG-induced subsidence under the alternative definition proposed above.

The current definition limits the liability arising from the activity of "the holder".

If two or more holders are responsible for depressurising and extracting water then the allocation of responsibility for payment of compensation should be directed to "the holder".

The liability refers to any cost, damage or loss incurred, in the past tense.

The predictions of ongoing ground motion should also be considered.

There may be no practical utility in continuing farming with predicted subsidence.

## **8. MERCPC COMPENSATION**

### **Liability to Compensate**

The liability to compensate for advanced activities is already addressed under the MERCPC.

Compensation must be paid for each compensatable effect under section 81.

Compensatable effects include the diminution of the land's value and a diminution of the use made or that may be made of land.

#### **Diminution of Value**

Due to the subsidence, there is a diminution of value of land.

Evidence from a valuer would be sought to establish what that is.

The valuation will be informed by the likely reoccurrence and extent of subsidence over time and any lack of scientific certainty in relation to that subsidence will increase the element of risk.

Compensation will be payable for that diminution of value.

#### **Diminished Use**

Subsidence is likely to diminish the use that may be made of land and the improvements made to it.

Farm management may have included levelling paddocks to improve cropping yield and management.

That is now adversely affected by the subsidence.

Compensation is payable for the diminished use that may be made of land.

#### **Caused By ... Carrying Out Authorised Activities on The Eligible Claimant's Land**

The activity occurring "on" land is the depressuring and dewatering of the aquifer on the land.

This does not require infrastructure to be located on the surface of the land as the land below ground level is part of the land and the activity of depressuring and dewatering the aquifer occurs on the land.

Causation is a fundamental issue to be addressed in relation to depressuring and dewatering causing subsidence and causation was considered by Judge PG Stilgoe OAM under the MERCPC.

*"[28] Given that causation/remoteness is central to resolving this dispute, I should consider the issue first. If the Conways don't establish causation under s 81 of the Common Provisions Act, where they do not have to prove fault or breach, it follows that they will not be able to satisfy me in an action for trespass.*

*[29] Section 81(1) makes APLNG liable to compensate the Conways for any compensatable effect they suffer caused by any authorised activities carried out by APLNG or a person authorised by it. "Compensatable effect" is defined<sup>20</sup> to include diminution of the land's value,<sup>21</sup> diminution of the use made or that may be made of the land or any improvement on*

*it,<sup>22</sup> and any cost, damage or loss arising from the carrying out of activities under the resource authority on the land.<sup>2</sup><sup>31</sup>*

It will be necessary to obtain expert assistance identified to prove the impacts.

By way of example we note that Arrow Energy in an Application under the RPI Act included supporting information that provides:<sup>2</sup>

*Monitoring of subsidence and groundwater level variation based on existing data indicates that settlement is gradual and accompanies groundwater level drawdown. The changes develop gradually over months and years, and as a result it is recommended that a review of subsidence is carried out on an annual basis.*

This is a recognition of subsidence related to de-pressuring and draw down.

### **Broadacre Agriculture**

Where land is used for broadacre agriculture the subsidence is an advanced activity where the subsidence is more than “minor”.

As a consequence of the delay in the subsidence manifesting over time, holders have undertaken advanced activities on land without having a conduct and compensation agreement in place.

Conduct and compensation agreements should have been entered into under the MERCP to address subsidence.

## **9. INTERACTION UNDER THE DRAFT LEGISLATION**

The draft legislation maintains the inequity between the occupiers and owners of land and the holders.

The concept of having a conference between the holder, an authorised officer and the owner or occupier is wrong.

There is too great a potential for increased pressure to be placed on the owner or occupier in that conference.

The difference between an authorised officer and an appointed person such as the ADR Registrar of the Planning and Environment Court is significant.

An ADR process is appropriate.

There will be a perception of an owner or occupier being talked out of their rights where the State benefits from royalties and the holder from profit.

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<sup>1</sup> *Conway & Ors v Australia Pacific LNG CSG Transmissions Pty Ltd & Anor* [2020] QLC 26

<sup>2</sup> *Coffey Arrow Energy Pty Ltd Surat Gas Project – Subsidence monitoring and prediction* dated 10 December 2021

The cost of engaging relevant consultants where there are significant disputes by the holders as to payment of the fees and the timing of the payment of fees of the consultants is inappropriate.

One consultant declined further instructions after earlier invoices in relation to bore assessments were not paid for approximately 2 years.

Requiring a party to seek a declaration from the land court in relation to fees is also inappropriate from the perspective of matters that the Land Court should address and in relation to a commercial debt.

Once an invoice is rendered and is not paid under the commercial terms of the supplier, the supplier should be able to take action in a court of civil jurisdiction to recover the unpaid invoice.

The holder will be able to raise usual issues in relation to invoices that are not appropriately raised.

The owner or occupiers entire costs of the process including initial consideration of this legislation, gathering of information, time spent addressing issues, attending meetings, engaging consultants dealing with subsidence, reviewing documents attending conferences, ADR or Court should be met by the holder.

Those costs should be paid on rendering interim accounts under the usual terms of the supplier or owner or occupier.

The mischief to the owner or occupier's interest in the land and life has arisen from the State granting rights to the holder from which the holder gains profit.

## **10. KNOWLEDGE IN RELATION TO SUBSIDENCE**

Each of the relevant holders, the State and Commonwealth Governments have permitted the CSG activity to proceed knowing that there was a potential for the activity to cause subsidence.

They undertook that activity for profit, royalties and tax knowing there was a risk of impacts on the owners interest in land.

They took a chance and were wrong.

We set out below some tracking of knowledge of subsidence through various documents.

### **Knowledge of Subsidence Due to Groundwater Withdrawal**

There are numerous studies involving groundwater extraction induced subsidence.

Those studies have occurred over many years and impacts were being recorded in the early 1950s.

By way of example please see the article selected worldwide cases of land subsidence due to groundwater withdrawal published in the Journal of water able to be accessed at <https://www.mdpi.com/journal/water>.



### **Geoscience Australia report dated 29 September 2010**

In the Geoscience Australia report dated 29 September 2010 the concerns in relation to subsidence were noted.

*Based on our assessment of the geological and geotechnical information provided, and relevant information from other sources, we consider that there is a likelihood of subsurface subsidence, and that this could result in surface subsidence.*

*Based on the estimated magnitude of the subsidence (in the order of centimetres of tens of centimetres), and with reference to subsidence assessments for CSG activities in similar geological environments elsewhere, we consider that the risk of impact the surface water and shallow groundwater systems is very low.*

*We suggest that the monitoring activities currently proposed by 2 of the proponents should be strengthened by assessing the formation at the land surface as well as in the aquifers and coal seams.*

*We suggest that the monitoring activities currently proposed by the other proponent, which assessed both surface and subsurface information, are appropriate.*

*We consider that monitoring activities could be value-added by linking into a regional program of monitoring led by the relevant State Government agency. (Underlining added)*

### **Surat Gas Expansion Project (EPBC 2010/5344)**

An Environment Protection Biodiversity Conservation Act 1999 approval (**EPBCA Approval**) given on 19/12/2013 and condition 13(g) required monitoring for subsidence as follows:

#### ***Coal Seam Gas Water Monitoring and Management Plan***

##### *Stage 1 CSG Water Monitoring and Management Plan*

*13. Prior to commencement, the proponent must submit a Stage 1 Coal Seam Gas Water Monitoring and Management Plan (Stage 1 CSG WMMP) for the approval of the Minister, who may seek the advice of an expert panel. The Stage 1 CSG WMP must include:*

*(g) a program to monitor subsidence impacts from the action, including trigger thresholds and reporting of monitoring results in annual reporting required by condition 28. If trigger thresholds are exceeded, the approval holder must develop and implement an action plan to address impacts within 90 calendar days of a trigger threshold being exceeded;*

Condition 28 of the EPBCA Approval provides:

*Within three months of every 12 month anniversary of the commencement of the action, the approval holder must publish a report on its website for the life of the approval outlining how they have been compliant with the conditions of this approval over the previous 12 months, including implementation of any management plans as specified in the conditions. The approval holder must also report against disturbance limits. Documentary evidence providing*

*proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the Department at the same time as the compliance report is published.*

**Plan of Operations Dalby Expansion Project 1 October 2013**

In 2013 the risk of land subsidence was noted in the Plan of Operations.

**Appendix K, Coffey Memorandum**

On 25 September 2018, Coffey prepared a memorandum in response to condition 13(g) of an EPBCA approval.

The memorandum recognised the occurrence of subsidence as a consequence of the operation of Arrow Energy and other approval holders.

It recognised various limitations in the information to hand and recommended further work be undertaken as well as monitoring and the preparation of mitigation strategies.

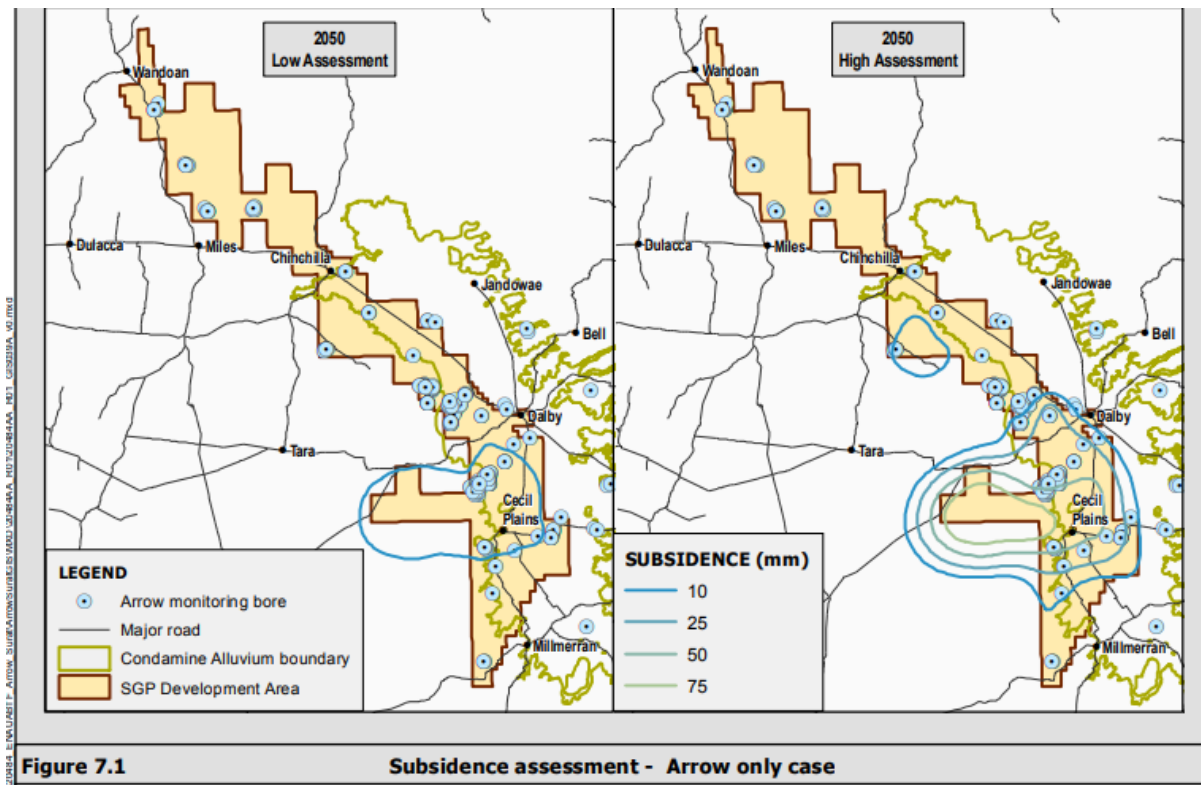
**Coffey Arrow Energy Pty Ltd Surat Gas Project – Subsidence monitoring and prediction dated 10 December 2021**

It provides:

*Monitoring of subsidence and groundwater level variation based on existing data indicates that settlement is gradual and accompanies groundwater level drawdown. The changes develop gradually over months and years, and as a result it is recommended that a review of subsidence is carried out on an annual basis.*

**Arrow Energy Pty Ltd Surat Gas Project Stage 1 CSG Water Monitoring and Management Plan December 2018**

Figure 7.1 of the report identifies predicted averaged subsidence of Arrow Energy only impacts which appears to identify subsidence of about 75mm by 2050 on the high assessment.



The screening level for laser levelled irrigation systems is 300mm per 1,000m in Table 7-1. Subsidence monitoring screening level, investigation levels and trigger threshold.

### **Gasfields Commission Report, Regulatory review of coal seam gas-induced subsidence dated November 2022**

The Gasfields Commission Report, Regulatory review of coal seam gas-induced subsidence dated November 2022 on surface subsidence, confirms the linkage between surface subsidence and the CSG industry.

*The independent Office of Groundwater Impact Assessment (OGIA) currently produces regional scale predictions and a monitoring framework for CSG-induced subsidence in the Underground Water Impact Report 2021 for the Surat Cumulative Management Area (UWIR 2021). The assessment has confirmed that CSG-induced subsidence has occurred and is predicted to occur in the future based on current CSG development patterns.*

AND

*In this instance, CSG-induced 'subsidence' is described as a component of ground movement that is induced by CSG depressurisation. In the context of CSG activities, it occurs due to lowering of pressure in the underlying coal seams which, in turn, allows the seams to compress under the weight of the overlying formations. The resultant 'ground movement' at the land surface is known as CSG-induced subsidence.*

**Queensland Government Response to GasFields Commission Queensland (GFCQ) recommendations on the regulatory review of CSG-induced subsidence dated 3 May 2023**

The Queensland Government Response to GasFields Commission Queensland (GFCQ) recommendations on the regulatory review of CSG-induced subsidence dated 3 May 2023 provides:

*Modelling and monitoring to date has identified that CSG-induced subsidence has and will continue to occur.*

*To address gaps in the current regulatory framework, the Queensland Government will establish and implement an adaptive management framework in the Mineral and Energy Resources (Common Provisions) Act 2014 that assesses impacts from CSG-induced subsidence, and provides an appropriate remedy for affected parties, including those parties off-tenure.*

**Baseline Report Surface Elevation Data**

We note baseline reports have been prepared which include ground displacement maps and notes:

*The ground displacement map provides points based on interferometric synthetic aperture radar (in SAR), which timeseries grafts of selected persistence counterpoints provided as an example of the data collected.*

By example, we refer to Appendix K of the Arrow Energy Pty Ltd Surat Gas Project Stage 1 CSG Water Monitoring and Management Plan, being the memorandum from Coffey dated 25 September 2018, and note:

*“For the purposes of this assessment movements interpreted from the instar monitoring have been treated as being vertical.*

*Some areas are unsuited to the use of this method of movement interpretation. For example ploughed fields produce a variable response, and generally produce a low density of reliable interpretations.” p. 10*

Reliance upon the existing baseline reports could be ill founded.

**11. ON FARM IMPACTS ON LASER LEVELLED FARM**

A client identified the occurrence of recent subsidence.

The impacts on farming include:

- dealing with subsidence of surface soils;
- dealing with water ponding as a consequence of subsidence of surface soils; and
- loss of crop as a result of increased depth and duration of water ponding as a consequence of subsidence of surface soils.

The impacts on the business includes:

- increased man hours addressing the risk of subsidence;

- greater difficulty in relation to operation of farm machinery, and farm management as a consequence of the ponding; and
- personal stress.

Yours faithfully



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