



QUEENSLAND FARMERS' FEDERATION

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Submission

16 March 2018

IESC Secretariat
Department of the Environment and Energy
GPO Box 787
CANBERRA ACT 2601

Email: IESCsecretariat@environment.gov.au

Dear Sir/Madam

Re: The Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC) Information Guidelines and Explanatory Note, Uncertainty Analysis in Groundwater Modelling

The Queensland Farmers' Federation (QFF) is the united voice of intensive agriculture in Queensland. It is a federation that represents the interests of peak state and national agriculture industry organisations, which in turn collectively represent more than 13,000 primary producers across the state. QFF engages in a broad range of economic, social, environmental and regional issues of strategic importance to the productivity, sustainability and growth of the agricultural sector. QFF's mission is to secure a strong and sustainable future for Queensland farmers by representing the common interests of our member organisations:

- CANEGROWERS
- Cotton Australia
- Growcom
- Nursery & Garden Industry Queensland (NGIQ)
- Queensland Chicken Growers Association (QCGA)
- Queensland Dairyfarmers' Organisation (QDO)
- Burdekin River Irrigation Area Irrigators Ltd (BRIA)
- Central Downs Irrigators Ltd (CDIL)
- Bundaberg Regional Irrigators Group (BRIG)
- Flower Association
- Pioneer Valley Water Cooperative Ltd (PV Water)
- Pork Queensland Inc.
- Queensland Chicken Meat Council (QCMC)
- Queensland United Egg Producers (QUEP).

QFF welcomes the opportunity to provide comment on the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC) Explanatory Note Uncertainty Analysis in Groundwater Modelling and accompanying Information Guidelines. QFF provides this submission without prejudice to any additional submission provided by our members or individual farmers.

The united voice of intensive agriculture



QFF understand that the 'Information Guidelines' outline the information considered necessary to enable the Committee to provide robust scientific advice to government regulators on the potential water-related impacts of coal seam gas and large coal mining development proposals. The Guidelines are primarily designed to provide guidance to project proponents on the IESC's information requirements. While the 'Explanatory Note Uncertainty Analysis in Groundwater Modelling' supports the Information Guidelines by providing information and guidance on undertaking uncertainty analyses.

Background

QFF understands that the IESC is a statutory body under the *Environment Protection and Biodiversity Conservation Act 1999 (Cth)* (EPBC Act). One of the IESC's key legislative functions is to provide scientific advice to the Commonwealth Environment Minister and relevant state ministers in relation to coal seam gas (CSG) and large coal mining development proposals that are likely to have a significant impact on water resources.

QFF notes the limitations around this. In November 2016, the Queensland Department of Natural Resources, Mines and Energy released its Discussion Paper 'Queensland Gas Supply and Demand Action Plan'. The paper outlined the government's aspirations to expand gas exploration and gas extraction across Queensland to include shale and tight gas formations. QFF is critically concerned that the ground water impacts of these developments will be quite different and unique to the existing water extraction profiles across the CSG and mining industries. QFF's submission to this discussion paper also outlined a process for a more inclusive approach by the various research and investigative bodies (including the IESC) and the range of research projects into the modelling of ground water and verification of those models (see <https://www.qff.org.au/wp-content/uploads/2017/04/20161219-QFF-submission-to-Gas-Action-Plan.pdf>).

We are hopeful that these guidelines will improve the consistency on requirements between the various government and regulatory stakeholders and provide improved lines of communication.

QFF also notes the potential improvements to the transparency as well as the quality and validity of the data provided and used in modelling by project proponents. By ensuring that the data and supporting evidence is included, stakeholders and users of the information can check the analysis and assumptions themselves, rather than relying on a 'black box' outcome.

Risk Assessment

QFF welcomes the relocation of the risk assessment process up-front as part of the over-arching framework, rather than as a process which is tracked at the 'back-end' of a project. This allows for the project proponent to make a more targeted response with more of the material risks covered by the information provided.

Baseline Data

QFF notes that the general time proposed for adequate ecological and hydrological baseline data is 'at least two years, at a frequency sufficient to capture likely variability in the system and taking into account seasonal variability'. QFF strongly recommends extending this timeframe to properly account for seasonal variability. Experience in Queensland has shown that extended periods of drought and heavy rainfall events can impact the recharge or reinstatement of some water resources. Therefore, a risk-based approach is necessary and a period of 'at least five years' adopted.

Approach to Uncertainty

QFF acknowledges the benefits of making a separate Guideline which frames uncertainty commensurate with the risk. However, this document (Explanatory Note Uncertainty Analysis in Groundwater Modelling) is highly complex and therefore not suitable for broader stakeholder use. A

summary document or table for boarder stakeholder use which highlights the aims and framework contained in this guideline should be developed. One area which must be summarised is the definition around 'reasonable' risk, as this will have very different meanings for different interest groups.

QFF supports the concept of uncertainty analysis in groundwater modelling that is fit for purpose and notes the extensive work undertaken in Queensland by the relevant regulatory authorities including the Office of Groundwater Impact Assessment (OGIA). The content of the explanatory note is comprehensive and QFF notes that at the Industry RoundTable event on 8 March in Sydney, many of the stakeholders expressed an overall acceptance with the document and approach taken.

However:

- Care is needed to ensure that the outcomes of the analysis are considered and communicated in a manner that does not inadvertently reflect 'certainty' in likelihood or otherwise of predictions. Typical uncertainty analysis does capture observations/parameters uncertainties and, in some cases conceptualisation uncertainties. However, uncertainties in footprint and timing of development is difficult to assess and is not part of the analysis. In this context, relying on uncertainty analysis and presenting in terms of a 'likely' or 'unlikely' outcome is highly prone to misinterpretation by broad stakeholders. It may give them a false sense of security that absolute 'worse' case or otherwise has been considered.
- The choice between a highly complex model versus a simple model for the uncertainty analysis must be fit for purpose and should not necessarily be based on the risks involved. A more complex and finer scale model does not necessarily provide a better outcome. Also, while a simple model reduces resources, run time, and makes the uncertainty analysis more time efficient, it may also oversimplify the system making subsequent uncertainty analysis less meaningful or indeed valid.
- Whilst collaboration and engagement is obviously encouraged, there is a significant skills shortage and lack of suitably qualified persons in undertaking the analysis as well as shortcomings in the review process by some regulatory agencies.
- The document presents a 'fatal flaws' checklist which may be used prescriptively and could be subject to some mis-interpretation.

Synergies and Other Work

QFF reiterates its concerns regarding the breadth of research and resources being focused to investigate this critical issue. While the research into the impact of groundwater resources from coal seam gas is important, there must be a more focused and consistent platform for sharing of this research so that studies are not duplicated and future work can be directed and built onto the current findings.

QFF notes the work of the 3D CSG Water Atlas by UQ's Centre for Coal Seam Gas (CCSG) which is trying to further address the knowledge gaps in ground water monitoring, particularly those of water chemistry. They acknowledge that there is limited capacity in the interpretation of spatial and temporal groundwater chemistry trends on a regional scale and furthermore limited attempts to make this accessible to a wider group. Groundwater quality is a significant concern to the QFF membership, who rely heavily on groundwater resources in the Surat Basin to enable high value, highly productive agricultural activities.

The 3D Ground Water Atlas for Coal Seam Gas Fields aims to integrate monitoring data on groundwater chemistry and water level from both OGIA and the Queensland Government Groundwater Database.

Importantly, the platform supports other research and further understanding of groundwater and the impact of CSG extraction and water re-use, treatment and disposal on groundwater resources in the



coal seam gas fields of the Surat Basin. It is also highly visual and easily interpretable (at a high level) by interested stakeholders including land owners.

If you have any queries regarding this submission please contact Dr Georgina Davis at georgina@qff.org.au

Yours sincerely

Travis Tobin
Chief Executive Officer