

**SUBMISSION TO THE QUEENSLAND GOVERNMENT
AGRICULTURE AND ENVIRONMENT COMMITTEE**

**CONCERNING THE ENVIRONMENTAL PROTECTION
(UNDERGROUND WATER MANAGEMENT) BILL 2016**

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BASIS OF SUBMISSION

1. This submission to the Agricultural and Resource Committee of the Queensland Parliament regarding the *Environmental Protection (Underground Water Management) and Other Legislation Amendment Bill 2016*, is concerned principally with those parts of the Bill which refer to the environmental management of underground water and the Bill is therefore referred to in this submission as the Underground Water Management Bill.
2. The author, Maxwell Francis Winders, is a Registered Professional Engineer Queensland and is the managing director of the environmental engineering consultancy, Max Winders & Associates Pty.Ltd., trading as MWA Environmental.
3. In addition to the advice the above company provides to a range of developer, landholder and government clients in environmental management aspects of surface and stormwater management, environmental noise and air quality issues, the company has extended its expertise to be able to offer advice based upon underground water management and mine water management to a similar range of clients.
4. As such, MWA Environmental has provided expert advice to parties involved in matters of this nature which have been the subject of appeals to the Land Court and to the Planning and Environment Court.
5. The recent expansion of the coal seam gas (CSG) industry and coal mining in Queensland has led to the company developing expertise in the use of hydrogeological modelling and underground water level monitoring to provide baseline information for assistance to landholders in the negotiation of make good agreements with CSG tenure holders.
6. The author has used this expertise in developing technically driven responses to the two *Surat Basin Underground Water Impact Reports* (UWIRs) produced to date by the Office of Groundwater Impact Assessment (OGIA).
7. These responses were prepared on behalf of Wambo Cattle Company Pty.Ltd. (WCC) which operates a medium sized cattle feedlot in the Western Darling Downs. The feedlot, which has a demand for cattle drinking water of up to 500 megalitres per year is located such that the property aggregation extends over three CSG tenures. Currently some 200 megalitres each year of this water demand is met through the supply of untreated CSG water from one tenure holder. This is expected to be further augmented next month by additional untreated water from another tenure holder.

8. The feedlot employs 25 people at its currently constructed capacity and adds more than \$600 to the value of each of the 40,000 cattle it feeds each year using grain, silage, hay, cotton seed and other commodities purchased mainly from Southern Queensland and Northern and Central NSW. The feeder cattle are mainly sourced from Central and Southern Queensland and Central NSW, while the fed cattle are processed in Southern Queensland abattoirs. Like all other cattle feedlots and other intensive animal industries, the feedlot is a significant contributor to local, regional and state economies.
9. The future viability of the company's feedlot and the extent of its contribution to the local and regional economy is governed by the extent to which it can gain further access to those underground water resources which have not been impacted upon by CSG water extraction. Such access is subject to the application of provisions of the *Water Act 2000* which concern "making good" the loss of water to the CSG industry and the allocation of underground water rights under water trading arrangements and the success or otherwise of obtaining groundwater allocations as regulated by the *Water Resources (Great Artesian Basin) Plan*.
10. As indicated above, WCC, through the resources of MWA Environmental, pioneered the beneficial use of CSG water for the watering of intensive livestock enterprises through negotiation of water usage agreements with its CSG tenure holders, assisted by officers of the Department of Environment and Heritage (DEHP).
11. This assistance has been made possible by DEHP's management of the Queensland Government's *Coal Seam Gas Water Management Policy 2012*, by the department's application of relevant conditions attached to each tenure's environmental authority and by their monitoring and auditing of each tenure holder's compliance with its approved Coal Seam Gas Water Management Plan and monitoring program.
12. MWA Environmental has since adopted DEHP's principles of mine water management, as expressed in its *Model Mining Conditions*, in the feedlot's environmental management plan. This will ensure that WCC's CSG water management complies with the approvals issued by DEHP under its Specific Beneficial Use Approval and those conditions of the feedlot's environmental approval which relate to its managed use of "brackish" CSG water as a component of feedlot drinking water.

INTRODUCTION

13. Being familiar with the interaction of agriculture and resource extraction in regional economies associated with the environmental impacts of such large undertakings, the author of this submission considers it appropriate that the Agricultural and Environment Committee has been given the responsibility of reporting upon the proposed Underground Water Management Bill to the Queensland Parliament.

14. This submission supports the thrust of the Bill and its urgent approval to avoid the enactment of the *Water Resources and Other Legislation Act* (WROLA Act) which offers unwarranted economic advantages to coal mining and petroleum gas industries over agricultural industries in terms of the protection of rights to access the State's groundwater resources – particularly those of the Surat, Bowen and Galilee Basins.
15. The author considers that those parts of the Bill which deal with Underground Water Management are consistent with the recently increased protection afforded to the agricultural economy from the excesses of the resource industry by Queensland Government legislation and policies concerning the conservation of Good Quality Agricultural Land, the *Coal Seam Gas Water Management Policy 2012* and recent upgrades of the conditions now included as water management conditions of environmental authorities issued for coal mining and CSG activities.
16. The submission further supports the harmonising of Queensland Government legislation and regulation with those of the Australian Government, now made possible by the progressive implementation of the "water trigger" under the *Environmental Protection and Biodiversity Conservation Act*. The Australian Government is relevantly supported in this regard by technically-based advices from the Independent Expert Scientific Committee on Large Coal Mines and Petroleum Gas Extraction.
17. It is submitted that amending the Underground Water Bill, as described below, would not only protect the underground water rights of rural communities but would facilitate the long-awaited harmonising of relevant Queensland and Australian Government legislation and policies concerning the impacts of resource industries upon underground water resources.
18. This harmonisation should further facilitate and expedite the reasonable resolution of the increasing number of legal challenges faced by resource industries over underground water issues in a variety of jurisdictions where environmental management decisions are relevant.

ISSUES ADDRESSED IN THIS SUBMISSION

19. This submission supports the following policy objectives of the Bill, as expressed in the *Explanatory Notes* attached to the Underground Water Management Bill:
 - strengthen the effectiveness of the environmental assessment of underground water extraction by resource industries;
 - ensure that the administering authority for the *Environmental Protection Act 1994* is the decision maker for specific applications relating to environmental authorities;

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- ensure the impacts of mining projects that are advanced in their environmental and mining tenure approvals are appropriately assessed for their impact on environment and underground water users;
 - opportunities for public submissions and third party appeals are provided before underground water is taken in a regulated area for mine dewatering purposes.
20. This submission does not fully support the second dot point objective of the *Explanatory Notes* concerning providing ongoing scrutiny of the environmental impacts of underground water extraction during the operational phase by clearer links between the *Environmental Protection Act 1994* and the *Water Act 2000*.
21. It is submitted that this objective could be achieved in a more-transparent manner through conditions imposed by DEHP within an activity's environmental authority but only if certain amendments are made to the Underground Water Management Bill, specifically related to the definition of the "environmental values" of those underground waters which are proposed to be removed from viable aquifers by existing and proposed future mining or petroleum gas activities.
22. Nor does this submission support the Bill's third dot point objective to improve the make good framework in the *Water Act 2000*.
23. It is suggested instead that the "make good" concept, as outlined in the Water Act, is inappropriate when the real environmental value of the lost underground water has not been recognised by the proposed amendments included in the Bill in its current form.
24. It is therefore of particular concern that the Bill provides for the whole of Chapter 3 of the *Water Act 2000* to be retained, with few amendments.
25. It is suggested that more-relevant and more-explicit provisions could, for example, be included as "environmental offset" conditions attached to environmental authorities to resource activities in locations where the proposed "take" of underground water is likely to impact upon current and future underground water resources and water users' rights.
26. This would then further support the stated objective of the Bill, viz. to "ensure the administering authority for the *Environmental Protection Act 1994* is the decision maker" where significant impacts upon underground water resources and water users are likely.
27. The information recently made available from reports upon regional hydrogeological modelling undertaken by the Office of Groundwater Assessment with regard to the cumulative impacts of coal seam gas extraction, is considered by the author to be subject to a high level of uncertainty about the timing and extent of potential impacts upon actual

bores and locally productive aquifers which could be the subject of “new” bore applications.

28. In order to address these uncertainties in the three year operation of each *UWIR*, as recently endorsed by DEHP, future amendments to Chapter 3 of the *Water Act 2000* will be required unless these amendments can be included in the Bill as adopted by the Agricultural and Resource Committee.
29. It is the author’s opinion that the use of the currently adopted *UWIR* is relevant only to DNRM as a trigger for resource companies to only commence make good obligations under Chapter 3 of the *Water Act 2000*, as it takes no account of the economic value of the water taken by resource tenure holders to other water users – only the “decline” in a bore’s standing water level.
30. The Minister for the Environment’s recent adoption of the most recent version of the *Underground Water Impact Report 2016* without making any significant changes to the draft should be of concern. The adopted report does not contain any real qualification to its validity or noting that it is based upon minimally-validated regional groundwater modelling likely to be inappropriate for the technical arguments likely to arise during the negotiation and ADR stages in the case of disputes over future make good agreements.
31. There are a number of references within the final report that suggest that the OGIA model may not represent local impacts on many productive aquifers. These impacts upon these aquifers will continue almost indefinitely in most cases and it might take several years before the impact is recognised.
32. To offset this, it is suggested that an amendment to the Underground Water Management Bill should be framed to allow the inclusion in the conditions on the relevant environmental authority requiring the tenure holder to lodge a substantial bond to enforce future obligations that might be implied in the *UWIR 2016* or else demonstrated by more-detailed and validated hydrogeological modelling and reporting by tenure holders or representatives of water users.
33. The definition of “environmental value”, as referred to in proposed amendment described in Clause 33 of the *Environmental Protection (Underground Water Management) and Other Legislation Bill 2016* needs to be revised from that to be taken from Section 9 of the *Environmental Protection Act 1994* to include “the economic value of the water taken from a productive or potentially productive aquifer”.
34. If the revision of Chapter 3 of the *Water Act 2000* is to be included in the other legislation amendments of the proposed Bill, then the definition of “impairment” of an existing or a new bore needs to be widened to include “loss of the volume of economically viable underground water taken from aquifers accessible from such a bore by a resource activity, including coal seam gas extraction”.

35. If the revision of Chapter 3 of the *Water Act 2000* is to be included in the other legislation amendments of the proposed Bill, then the definition of a “new bore” needs to be expanded to include “a bore which could reasonably have been expected to produce an economically viable yield of underground water from an aquifer accessible to the landholder prior to the commencement of the resource activity, including coal seam gas extraction”.
36. If the revised definitions described in 7, 8 and 9, or clauses to the same effect, above cannot be included in an amended Bill, it is suggested that all relevant references to the *Water Act 2000* in the Bill, as presented, should be deleted from the Bill and addressed in more-appropriate amendments to the *Environmental Protection Act 1994* and the *Water Act 2000* at a later date.

EXPLANATION OF THE UNDERGROUND WATER MANAGEMENT BILL

37. The author’s experience as an environmental engineering consultant in addressing the technical and scientific aspects of compliance by rural and resource industries with the government’s environmental management policies, suggested attendance at the departmental briefing of the Agriculture and Environment Committee.
38. The introduction to the Bill by DEHP’s Mr Laurie Hodgman simplified understanding of the Bill by stating that “there are essentially three key features” to the Bill – the first two being matters addressed by DEHP’s input to the Bill, i.e. better managing the environmental impacts of groundwater take by the mining industry and to strengthen protection for farmers and other rural landholders in negotiating make-good agreements with the resources industry.
39. The third feature of the Bill was addressed by DNRM’s Ms Leanne Barbeler, namely the inclusion of a licensing process for advanced mining projects.
40. It is now apparent from the transcript of the briefing that the decisions reached by successive meetings of DNRM’s long-standing Water Engagement Forum may have been unduly influenced by the weight of mining and CSG representatives in that compared with that of those considered by DNRM as being representative of agricultural and rural community stakeholders.
41. This was emphasised, in the author’s opinion, by DNRM’s representative at the briefing making a point of recognising the input to the Underground Water Impact Bill by members of the above Forum – whose membership now appears skewed towards the resource industries.
42. The responses by departmental officers to the Chair’s queries concerning the activities and minutes of meetings of the Water Engagement Forum further

indicates why the WROLA Act is so complex and convoluted that it needs to be replaced by further amendments to the Underground Water Management Bill yet apparently still retain unacceptable parts of the WROLA Act.

43. This has raised the author's concern as a rural landholder exposed to CSG water extraction, that a non-transparent and complex bureaucratic process may have led to the WROLA Act and the Underground Water Management Bill still supporting an inequitable distribution of underground water rights between resource industries taking underground water and those of landholders and other rightful underground water users.
44. The proposed amendments in the Bill still leave the issue of managing the take and making good of water extracted for CSG production to Chapter 3 of the Water Act, whereas the Underground Water Management Bill could be amended to include provisions of the *Environmental Protection Act 1994* - so extending the powers of DEHP to manage the current and future make good obligations of both current and future CSG tenure holders and mining tenement holders as conditions of their environmental authorities.
45. Queries raised by the committee members at the departmental briefing and the nature of the explanations offered by some departmental officers also indicated to the author that the *Explanatory Notes* have not clearly explained the differences between the quantum and nature of the underground water rights of underground coal mining, open cut coal mining, coal seam gas extraction and rural stakeholders – all of which are fundamental to any underground water impact assessment.
46. Neither do the *Notes* explain that there are huge differences in the volumes of water required to be “taken” specifically from aquifers of potential value to other water users and, as a consequence, large differences in the potential impacts of each type of resource activity upon the environmental values of underground waters which would otherwise be accessible by other users of economic quantities of underground water of suitable quality.

BETTER MANAGEMENT OF THE ENVIRONMENTAL IMPACTS OF UNDERGROUND WATER EXTRACTION BY RESOURCE INDUSTRIES

47. Under legislation preceding the WROLA Act, DEHP was able to act upon conclusions reached in environmental impact assessments by setting draft conditions for environmental authorities to be issued to resource tenure applicants. Such conditions were drafted to ensure that the operations of tenure holders did not detract unreasonably from the environmental values to be protected under the *Environmental Protection Act 1994* (EP Act).

48. It is considered that Clause 33 (1) of Part 4 of the Bill supports the concepts of describing and assessing the impacts of the take of underground water by

resource activities upon “environmental values” and by Clause 33(2) of the Bill requiring adoption of the definition of an “environmental value” in that context to be that which is described in Section 9 of the EP Act.

49. The management process through which DEHP seeks to achieve the ecologically sustainable development objectives of the EP Act is described in Clause 4 of Part 2 of the EP Act as a cyclical integrated management program involving four phases which include:

- establishing baseline environmental descriptors and defining environmental objectives;
- developing effective environmental strategies;
- implementing environmental strategies and integrating them into efficient resource management; and
- ensuring accountability of environmental values.

50. Clause 8 of the EP Act describes “environment” as including the following:

- (a) *ecosystems and their constituent parts, including people and communities; and*
- (b) *all natural and physical resources;*
- (c) *....; and*
- (d) *the social, economic, aesthetic and cultural conditions that affect, or are affected by, things mentioned in paragraphs (a) to (c).*

51. Clause 9 of the EP Act defines an “environmental value” as :

- (a) *a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety; or*
- (b) *another quality of the environment identified and declared to be an environmental value under an environmental protection policy or regulation.*

52. The *Environmental Protection (Water) Policy* administered by DEHP defines the environmental values and water quality objectives of the natural waters of Queensland, with such waters including ground waters, as well as surface waters and wetlands.

53. DEHP’s *Fact Sheet* describes environmental values as *...the qualities that make water suitable for supporting aquatic ecosystems and human use.* The *Fact Sheet* lists the following environmental values which are relevant to the *Policy’s* protection of ground waters:

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- agricultural uses (e.g. stock watering and irrigation)
 - drinking water (raw water supply) and
 - industrial uses (e.g. power generation and manufacturing, mining and minerals refining/processing)

54. It is considered therefore that the above *Policy* supports the DEHP's right to have the principal role in the management of underground waters of socio-economic value which might otherwise be unduly impacted upon by mining or petroleum gas activities - unless regulated by conditions in the environmental authorities issued by DEHP.

55. The *Coal Seam Gas Water Management Policy 2012* administered by DEHP addresses the issue of managing the extraction of associated water in the *Policy's* Glossary as follows:

Best practice environmental management has the meaning given to it under section 21 of the *Environmental Protection Act 1994*.

CSG water means groundwater that is necessarily or unavoidably brought to the surface of the earth, or moved underground in connection with exploring for, or producing coal seam gas. *CSG water* is a waste as defined under section 13 of the *EP Act*.

CSG Environmental Management Plan means an environmental management plan required under section 310(d) (query!) of the *EP Act*, including information relevant to the management of *CSG water* as prescribed under subsection 5.

CSG water measurable criteria means the management criteria required by section 310D 5(e)(query!) of the *EP Act*.

56. Table 1 of the *Coal Seam Gas Water Management Policy 2012* summaries the management options and management criteria adopted to support the following management principle behind the management of this type of underground water:

Water is a fundamental resource that underpins the prosperity and wellbeing of all Queenslanders..... Wherever feasible water should be beneficially used.

Beneficial use of CSG water may include things like:

- *injection into depleted aquifers for recharge purposes;*
- *substitution for an existing water entitlement;*

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- *supplementary water for existing irrigation schemes;*
 - *new irrigation use, with a focus on sustainable irrigation projects;*
 - *livestock watering;*
 - *urban and industrial water supplies;*
 - *coal washing and dust suppression;*
 - *release to the environment in a manner that improves local environmental values.*

57. It might be noted from the above that there is a provision in the *Policy* for underground water removed as part of a resource activity to be utilised under the EP Act for coal washing - probably the biggest demand for water from an underground or open cut coal mine that could be substantially satisfied by on-site treatment of water removed from the mine site by dewatering or overland flow diversion. These are matters which are now being addressed in the environmental authorities issued for existing and new coal mining projects.

58. Table 1 of the *Policy* also adds the following comments to its management principles which could be relevant to amendments of the Underground Water Management Bill or any revisions to the EP Act and the Water Act that might follow approval of the Bill:

- *CSG water is considered a waste under the EP Act. Where the waste is used on petroleum tenure as part of the authorised petroleum activities, the use can be approved under the environmental activity.*
- *Off tenure use of water may require a beneficial use approval, as well as any other relevant approvals under other legislation, for example an operational works approval under the Sustainable Planning Act.*

59. In addition to the above, the guidelines prepared to guide understanding of the make good process for CSG water are issued by DEHP but refer to the framework established under Chapter 3 of the Water Act. It offers a simple explanation of the relevance of the adopted *UWIR*, the concept of impairment, the differences between existing and new bores and that there may a need for the tenure holder to make good if the decline in water levels in the aquifer would prevent an existing or new bore from extracting “a reasonable quantity and quality of water for its authorised use”.

60. It might be seen from the above that DEHP regards the quantity and quality of water as environmental values of underground water, whereas the Water

Act and the *UWIR* are only concerned with a monitored or modelled decline in a bore's operating water level – the last comprising a change in another “environmental value” of the water in the impacted aquifer.

61. The DEHP guideline recognises that, as it is the department which authorises environmental authorities, underground water impact reports and places water management conditions upon tenure holders and further advises that concerned persons can access the DEHP website www.ehp.qld.gov.au for clarification of their concerns.
62. This further supports the author's submission that the EP Act should be amended to include revised amendments to Chapter 3 of the Water Act, of which section 361(1) (p.309) states its limitations to CSG tenures, viz.:

The purpose of this chapter is to provide for the management of impacts on underground water caused by the exercise of underground water rights by petroleum tenure holders

and for this to be achieved (retrospectively) by providing a regulatory framework requiring the monitoring and assessment of the impacts of their water extraction on “water bores”, to enter into make good agreements with the owners of bores and to manage the cumulative impacts of several petroleum tenure holders.

63. The author supports submissions by other concerned parties which call for further parts of Part 4 of the Underground Water Management Bill to be revised , particularly revisions of the definitions of the following terms to reflect that the impacts of resource extraction should be measured as impacts upon the volumes, hydrostatic pressures and accessibility of water of suitable quality water from economically viable aquifers :

- environmental values of underground water (see para 33 of this submission);
- environmental management of underground water impacted upon by resource activities;
- impairment of bores (see para 34 of this submission);
- new bores (see para 35 of this submission); and
- a revised make good framework to be included in the policies issued under the *Environmental Protection Act 1994*.

64. In conclusion, the author submits that the prime objective of the *Environmental Protection (Underground Water Management) and other Legislation Amendment Bill 2016* should be ensuring that the administering authority for the *Environmental Protection Act 1994* is the decision maker for specific applications relating to issuing new environmental authorities or to

making revisions to existing environmental authorities to resource tenure holders.

65. DEHP would then be in a position to consider reports of bore water level monitoring, or of the potential impacts predicted by validated hydrogeological models of an appropriate scale, and establish the need or otherwise to impose relevant conditions to that environmental authority to mitigate or offset existing or future impacts upon the environmental values of affected underground waters.

66. The tenure holder and any dis-affected stakeholder would then have substantive technical information to rely upon in the resolution of disputes through informed negotiation, alternative dispute resolution or appeal to the Land Court or, potentially, to the Planning and Environment Court.

67. The contact details of the author of this submission are:

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