

QUEENSLAND PARLIAMENT

Infrastructure, Planning and Natural Resources Committee

Inquiry

Water Legislation Amendment Bill 2015

Referred 10th November 2015

SUBMITTER

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My submission focuses on the groundwater framework – particularly as to mine dewatering. The Honourable the Minister, Dr Lynham, confirmed in his First Reading speech for the Bill and in his Media Release of 10th November 2015 that, apart from matters amended by the Bill, the Government will proclaim the previous government's WROLA Act which, *inter alia*, grants groundwater rights to miners.

That proclamation would give miners what is politely called a statutory right to take unlimited groundwater. I call it open slather.

That proposed deregulation of mine dewatering contrasts with the present approval system where a water licence is required for dewatering by miners, and interested parties have a right to appeal in the Land Court against grant of that licence. Viewed in isolation we currently have a basically sound dewatering approval system - but in the bigger picture nothing has been done to address the fact it is under a separate Act, effectively quarantined from and not synchronised with the overall environmental assessment of proposed mining. Together with the way it is administered, those drawbacks downgrade it to a rubber-stamping process.

There is a critical need for change, but I seek to persuade the Committee that in respect of mine dewatering the WROLA Act's groundwater framework is not the answer – it is deeply misguided and should never be proclaimed. It gives extravagant and unwarranted privilege to miners while being extremely bad for landholders, other bore water users and the environment.

This comes at a time when all around us are signs that our grazing and cropping industries have their best-ever prospects of growing markets in Asia. Over recent decades these industries have extended their harvesting and efficient usage of surface water – they will have to look more to groundwater for the next, bigger expansion. In that context it beggars belief that the State Government intends to give miners open slather to take and dispose of as much of the available groundwater as they wish.

Parliament should amend this Bill to give appropriate control by upgrading the present dewatering licence (under the Water Act) and harmonising it with environmental impact assessment under the Environmental Protection Act as explained in this submission.

SUMMARY

It is submitted:

- (1) Dewatering by a Mineral Development Licence (MDL) holder occurs infrequently and is short-lived, with a legislative background that is different to mine dewatering. It should be treated separately in the Bill. Provision should be made for continuation of the present water licence for MDL dewatering administered by DNRM, the grant of which should be subject to a recommendation of DEHP.**
- (2) Approval of mine dewatering must be coordinated and harmonised with the overall environmental authority approval process. DNRM should decide a dewatering licence application subject to a recommendation from the Land Court (where there are objections) and from DEHP (where there are no objections). With that change as set out in paragraph 20 below, it would be appropriate to abolish the current provision for interested parties to appeal to the Land Court against grant of a dewatering licence.**
- (3) Parliament should create an effective, credible and unbiased groundwater make good framework that is technically and legally adequate and enforceable. That can be done**

by upgrading the make good provisions of the existing Water Act Chapter 3 as proposed in the attached proposal – then (and only then) the make good framework should be extended to mine dewatering.

Mineral Development Licence (MDL)

1. I'm not sure why dewatering by an MDL holder is included in the proposed framework. I believe it only occurs infrequently, on a smaller scale and for shorter time periods than mine dewatering – usually when a bulk sample of, say 5,000 tonnes of coal is required for testing, and if the area to be excavated contains groundwater. I submit that the Bill should amend the WROLA Act for the reasons, and by the methods, as follows:
 - a. I think it has been included not because there is any practical need for it but because, like holders of a mining lease, MDL holders are defined in the Water Act as 'owners' and require a water licence for dewatering.
 - b. It is a vastly different situation than dewatering by the holder of a mining lease, for example because:
 - (i) there is no public notice or provision for objections, hence the Land Court is not involved;
 - (ii) there is no prerequisite requirement for compensation to the affected landowner to be agreed or determined;
 - (iii) owners of nearby land whose water bores may be affected are not notified, have no right to object and no entitlement to compensation.
 - c. bulk sampling under an MDL typically requires, among other things, an agreement with the landowner and specific authorisation in the environmental authority;

Amend the WROLA Act framework for MDL dewatering so that:

- (a) DEHP has a recommendatory role as the body responsible for assessment of environmental impacts;
- (b) when dewatering by an MDL holder is proposed anywhere in the State, a water licence should be required, and:
 - (i) DEHP should make a recommendation to the Chief Executive of DNRM on grant or refusal of a licence;
 - (ii) DNRM should consider any favourable licence recommendation;
 - (iii) DNRM should act in accordance with any unfavourable recommendation.

Dewatering of Mines

2. This submission seeks to show there is an obligation on Members of Parliament to ensure that the impacts of dewatering on landowners, on other groundwater users and on

groundwater-dependent ecosystems are fully, fairly and openly identified and tested as part of the mining approval process.

3. I ask whether Members are prepared to insist that the process for approval of dewatering be designed in accordance with the principles of sustainable management consistent with the Purposes of the Water Act as amended by the Bill (Clause 12) - or is that just a motherhood statement that can be conveniently ignored when it suits ?
4. Many coal mines, whether open cut or underground, and some other mines need to dewater their sites and surrounding areas to allow extraction of the coal or mineral. I understand that about 60 mines are currently in that group – 30 for which water licences have been issued and around the same number that require no licence as they are located outside of groundwater management areas.
5. In dewatering, groundwater inflow is pumped from the pit and groundwater moving towards the pit is intercepted via bores located around the site. The pit acts as a sink (ultimately a permanent sink in the final void) into which all the aquifers that are intersected discharge. Depending upon interconnections such as geological faults and relative pressures in the aquifers, the deeper aquifers may also give up water to the dewatering process. Impacts on water bores can begin soon after dewatering commences, but will take a long time – centuries in some cases - to reach finality.
6. Open cut mines now go as deep as 400 metres in specific cases, and longwall mines deeper still. Any aquifers so intersected will be affected by dewatering. At current dewatering sites, many are suffering progressive deterioration right now.
7. Dewatering creates a cone of depression radiating outwards, drawing down the water level of the intersected aquifers and any water bores tapping into them. The radial extent of drawdown depends mainly on the geology of the site, but one expert estimated a radius of 30km in the Galilee Basin.

Dewatering Affects Bore Owners

8. It is certain that each mine that is dewatering poses a threat to water bores in its surrounding area, as well as to any groundwater-dependent ecosystem (eg. where an aquifer discharges into a watercourse or via springs). It is surely not too much to ask that the predicted extent of that drawdown, and its effects on bore owners, on other groundwater users and on groundwater-dependent ecosystems, be assessed and taken into account as a fully-fledged part of the mining approval process.
9. The rural landowners and town residents who depend on those aquifers for stock, domestic and in some cases irrigation supply are suffering loss or partial loss of their water supplies – only a few are protected by effective make good agreements and some of the major coal companies have fulfilled their make good obligations in good faith.
10. On the other hand, some mining companies and most, if not all, CSG companies use the flawed make good framework in Chapter 3 of the Water Act as a shield – they assert they do not have to undertake the more rigorous and detailed process that is the minimum standard for an effective make good agreement. In reality, only the relatively few bore owners who, by their own efforts, manage to generate sufficient bargaining power can achieve an effective,

enforceable make good agreement. And for reasons explained above, it has to be achieved in spite of the biased role played by the Government.

11. Few if any aspects of the environmental impact of mining are more environmentally significant and more geographically extensive or more thoroughly investigated than the impacts of dewatering. The scope of each EIS is dictated by Terms of Reference set in accordance with the Environmental Protection Act or State Development Act, and groundwater impacts are invariably a major component. The EIS typically costs the applicant millions and often takes some 4 years to complete. Both miners, and the objectors who commit their resources to challenging the EIS, have legitimate grounds for complaint when their efforts, as well as any relevant conclusions of the Land Court are overlooked (as currently happens in respect of dewatering licenses) – or bypassed by statute (as in if the WROLA Act is proclaimed).
12. Queensland Parliament's objective should be to establish, for the first time as an integrated component of overall mine approvals, a balanced and environmentally responsible system for approving and managing mine dewatering. If the WROLA Act (as it currently provides in respect of dewatering) is proclaimed, the Queensland Parliament will have squandered its opportunity to fix this glaring gap in the legislation, and worse still, abdicated its responsibility to protect the environment.
13. We need, and are entitled to expect, a framework for dewatering approval which actually implements sustainable management and ecologically sustainable development while ensuring the groundwater resources are allocated and used efficiently for the wellbeing of Queenslanders but with ecosystems preserved.
14. The WROLA Act's groundwater framework (which the Government intends to proclaim) fails all of those tests.

The Minister's Statements

15. Minister Lynham, in a media release of 10th November 2015, was apparently trying to justify adopting the WROLA Act framework for mine dewatering with these remarks:
 - a. Minister Lynham stated: *The framework does not affect the amount of underground water the resource sector uses, or affect the Great Barrier Reef.*
 - Firstly, the primary concern is the damage which the taking typically causes to surrounding aquifers at an individual site, as well as to private bores and groundwater-dependent ecology - the total volume of water taken by resource projects is just an outcome of the system overall.
 - In any case, of course the proposed framework affects the amount of water taken by the resource sector – how could it not when it grants an unlimited statutory right to take or interfere with groundwater. And, I ask: *no effect as compared to what* – the current water licence is capable of controlling the volume taken, although neither DNRM nor the Coordinator General (in coordinated projects) exercise that power.
 - b. Minister Lynham stated: *This framework will give landholders the protection of a statutory obligation on miners to make good any impact on their water bores.*

- Strenuous efforts by various people including myself have gone into informing the Government of the deplorable inadequacy and pro-resource operator bias of the official groundwater make good provisions of the Water Act, Chapter 3 (which, upon proclamation of the WROLA Act, will extend to mine dewatering). That framework was designed by bureaucrats to give them the data they wanted at minimum inconvenience and cost to resource operators. They had the deeper CSG bores in mind rather than shallower mine dewatering operations.
- They apparently thought their 5-metre universal trigger value for declining water level in an aquifer (not in the individual bore) suited those typical CSG aquifers. Even in that context they gambled on a very speculative and unscientific trigger. They elected to ignore the availability of well-proven baseline testing and monitoring methods to define actual yield and pumping capacity. They showed they were ignorant of the fact that trigger values should be set, individually for each bore, first as interim by assessment of baseline data and, when sufficient monitoring data has accrued - say over 2 years - as final. Even if their 5-metre aquifer fall had some merit as a universal trigger for deeper CSG aquifers (it doesn't), it is seriously inappropriate and very misleading for the shallower aquifers affected by mine dewatering.
- If those authors of Chapter 3 had any knowledge of, or regard for the technical and legal facts of life confronting those affected by dewatering, and of the critical need for factual evidence on the individual bore, they gave no hint of it in their plan. And their lack of worldly awareness was further exposed when they assumed their framework would properly equip their Chief Executive to identify damage to private bores and to ensure the perpetrator makes it good. In fact the onus of proof ultimately rests with the bore owner and any successful make good scheme must make quality data available to the two parties.
- The Chapter 3 make good framework is so badly designed that in a contested claim, make good will most likely prove unenforceable, with likely catastrophic effects on the bore owner and severe embarrassment for the Government which assures bore owners they are protected.
- In recent years a number of large proposed coal mines – such as Alpha Coal, Adani, Kevin's Corner etc. - have proceeded as coordinated projects with an EIS conducted by the Coordinator General. Typically the Coordinator General has recommended to DNRM the conditions for any water licence authorising dewatering.
- Each such set of conditions includes make good conditions and, while somewhat more purposeful than the very basic make good conditions DNRM has applied in the past, the Coordinator General's recommended conditions still fail the tests of technical and legal adequacy.
- The technical inadequacy of make good government-style is well illustrated in the Coordinator General's conditions for the Adani EIS. No baseline or monitoring tests of a bore's yield are required. A bore is unduly affected if, in the opinion of the Chief Executive, water level has declined due to dewatering, and that decline in water level has caused a material reduction in the supply of water (ie the yield) or in the quality of water. (copy of the Adani conditions attached)
- While declining water level is usually associated with declining yield, in practice the relationship between the two is highly variable between bores. The 5-metre decline in water

level of aquifers (ie. the Chapter 3 trigger) would be associated with drastic yield and/or quality reduction in some bores, while other bores would be relatively unaffected. Without baseline and monitoring yield data for each bore it is very doubtful whether the Chief Executive could satisfy a Court that dewatering caused declining water level which in turn caused reduced supply or quality to a specified extent. There are myriad alternative conclusions which could be derived from such limited, circumstantial evidence.

- Legal inadequacy is also illustrated in the Adani EIS. Assuming the Chief Executive has deemed a bore unduly affected as above, if the miner and the landholder cannot agree on make good despite all reasonable efforts to agree, the Chief Executive may give the miner notice to provide the necessary data for determination of make good measures, and will in consultation with the parties determine those measures.
- But in practice in a contested make good claim, the miner would be entitled to challenge the Chief Executive's directives in court – it goes without saying that the Chief Executive will need to meet a high standard of proof as to the evidence from which he derived that belief. I believe such a challenge is likely to succeed because:
 - a. the notice is founded on:
 - (i) a belief, based only on circumstantial evidence, that water supply and/or water quality are materially affected, and
 - (ii) a belief, also based only on circumstantial evidence, that those perceived material effects are caused by a reduction in the water level of the bore; and
 - (iii) a belief, also based only on circumstantial evidence, that the perceived reduction in water level is caused by the mine dewatering.
 - b. Because yield has not been measured either in baseline or monitoring tests, the required standard of proof of the bore's baseline yield or even its current yield will be not be met. Monitoring data tracing the decline in yield relative to the progress of mine dewatering and changing water level will be non-existent.
 - c. That is, the Chief Executive will not have the essential evidence for proving a material reduction in the water supply due to dewatering. Water level and water quality data, some of it for a subject bore, will be available but it will not provide the necessary proof of cause and effect – on the contrary, there will be scope for a wide divergence of interpretation of the data that is available.
 - d. And, the Coordinator General's make good and the Chapter 3 make good both leave the bore owner dependent upon that Chief Executive actually taking the enforcement steps when a bore is unduly affected. But those same dysfunctional provisions which fail to ensure baseline measurement of yield, etc. for the subject bore will also mean that if the Chief Executive fails to act, it is unlikely a bore owner will have the evidence needed to win a court order requiring the Chief Executive to do so.
 - e. I attach a proposal for upgrading the Chapter 3 make good framework, as previously given to the relevant Ministers. In a nutshell, the prerequisites for a make good framework to be reliably enforceable include:
 - (a) Thorough and independent baseline testing of each individual bore – water level and water quality are just not enough. A recognised pumping test to ascertain yield such as specific capacity, then water quality, water level and the extent of gas intrusion are required.

- (b) Regular monitoring of all baseline parameters of the individual bore including yield.
 - (c) Scientifically-based interim trigger levels to be independently set at the outset for each individual bore, then replaced by final trigger levels once sufficient monitoring data is available.
 - (d) A process for consulting on and resolving the action to be taken if one or more trigger levels is reached or exceeded.
 - (e) Dispute resolution process is required for each step of the process.
 - (f) Minister Lynham stated: *Mines will continue to be subject to rigorous impact assessments and landholders' rights will be protected.*
- What on earth is the purpose of rigorous environmental impact assessments if, on this watershed issue of properly managing the impacts on landholders of mine dewatering, no regard is paid to the very considerable body of relevant environmental assessment, or to the certain knowledge that environmental harm will be caused.
 - How can the Minister on the one hand remove existing controls so as to give miners unlimited right to take the water on which landholders depend, yet still honour this promise that their rights will be protected ?

Existing Dewatering Licence

16. Another reason for decisive action now is that in practice the existing (pre-WROLA Act) water licence system fails to deliver any meaningful control of mine dewatering – partly because it is deliberately operated that way, which is just another example of official pro-mining bias. Another glaring deficiency is that mines located outside of the declared groundwater areas are not even required to have a licence for dewatering.
17. The existing dewatering licence requirement only amounts to a pointless paper-shuffling formality because:
 - a. Timing of the water licence application always lags approval of the mining lease and environmental authority – ie. the water licence application is only made after a mining lease has already been granted and dewatering is to commence, which may not be until mining has been underway for some time. The benefits of the relevant mine (eg. jobs and royalties) will have already been well and truly factored in and are being relied upon by government and the public.
 - that makes it extremely unlikely a water licence will be refused by DNRM (I believe there never has been a refusal, nor has a grant of licence been quashed by an appeal to the Land Court).
 - I believe there are some 30 dewatering licenses in force, and there is a similar number of mines outside of declared groundwater management zones where dewatering is occurring but no licence is required.
 - It is DNRM's practice to issue dewatering licences with no volume limit and there is usually no obligation to report or record the volumes of water taken in dewatering at those 60 or so mines.

- If the current licence system was managed so it actually works instead of being dumbed down to just a rubber-stamping process, refusal of a licence could retrospectively negate mining and environmental approvals and stop the project, which would severely disadvantage the miner.

18. The present framework is artificially fragmented and dysfunctional. The Land Court, as the independent assessor hearing objections then making recommendations to the Mines and Environment Ministers, is limited to matters covered by those two Acts and, despite hearing considerable evidence relevant to dewatering, cannot recommend in respect of water licence applications.

- a. Typically, dewatering licences have a simplistic condition purporting to impose an obligation to make good in the event a water bore is damaged by dewatering:
 - that is just a façade, because that condition is not backed by any process for gathering of relevant evidence or establishment of the comprehensive technical and legal process required to prove the bore is damaged and why, then ensure make good is enforceable in a worthy but disputed claim.

Comparison with CSG Dewatering

19. When the WROLA Act was debated in 2014, the government of the day claimed that a statutory right for miners to take water by dewatering was needed to put them on an equal footing with CSG operators. I submit that was, and still is, wrong because:

- a. The statutory right of CSG operators to take water was first created a decade or more ago, at a time when the impacts of dewatering were very poorly understood and when, in particular, both the fledgling CSG operators and the then EPA proclaimed that CSG dewatering only affected deeper aquifers and posed no threat to users of bore water.
- b. It is now a well established and accepted fact that such assertions were wrong – there can be and there are situations where CSG dewatering adversely affects water bores, including where destabilisation of water pressures permits water from aquifers that are both above and below the target coal seam to migrate and be pumped out.
- c. At least CSG operators face strict controls on disposal of their ‘produced water’ - they are no longer allowed to evaporate it and have invested vast sums in piping, storage and reverse osmosis plants – with strictly controlled beneficial use regulations covering the treated water. No such discipline is proposed over mine dewatering and miners will be able to dispose of the water in any way they choose.
- d. It is certain and inevitable that mine dewatering will adversely affect any aquifers that are intersected, any other aquifers that are interconnected with intersected aquifers, and any water bores that are within the cone of depression at a particular site. But with CSG dewatering, such adverse impacts are possible depending on conditions at individual sites, but are neither certain nor inevitable.

Proposed Solution

20. I submit that it is a simple matter, by way of relevant amendments, to integrate and harmonise mine dewatering with the existing overall environmental assessment and approval system:
- a. all mine dewatering anywhere must be authorised by a water licence.
 - b. where objections to an environmental authority application are lodged:
 - (i) if mine dewatering is proposed, DNRM is to be a statutory party in the objections hearing (as is the case with DEHP now);
 - (ii) the Land Court is to make recommendations to the NRM Minister:
 - c. as to application to DNRM for a dewatering licence:
 - (i) DNRM has discretion but must consider any favourable Land Court recommendation; and
 - (ii) DNRM is bound by any unfavourable Land Court recommendation.
 - d. where there are no objections and DEHP has sole discretion over the environmental authority application, DEHP must make a recommendation on grant of a dewatering licence to the Chief Executive, DNRM who:
 - (i) has discretion but must consider any favourable DEHP recommendation;
 - (ii) is bound by any unfavourable DEHP recommendation.

SIGNED: 
George Houen

DATE:  December 2015

Appendix 5 Standard dewatering conditions for a water licence under the *Water Act 2000*

1. The Schedule B conditions associated with this licence are attached in Annexure A and are conditions, which the licensee must comply with under authority of this licence.

Annexure A

Recitals

XXXX Coal Pty Ltd (hereinafter "the licensee") is the Principal holder of mining lease numbers ML XXXX and ML XXXX for the XXXX Coal project which proposes to construct and operate an open cut coal mine near XXXX ("the mine") on the mining leases. The licensee will construct works (comprising bores and works that pump groundwater from a sump) accessing the XXXX Coal Measures. These works are referred to as the Dewatering Works. The water taken through the dewatering works may be used for the consumptive purpose/s authorised under this licence.

The operation of the Dewatering Works will impact on the piezometric levels in the region of the mine during the life of the mine and for a period after the mines closure.

The licensee prior to the time of making application for a Licence, prepared an EIS that deals with the hydrology of the area and the effects of the proposed extraction on groundwater. The EIS included predictions of the impact of the Dewatering Works on the aquifers in the region. These predictions, were referenced in the Report titled:

"XXXX Groundwater Impact Assessment – Appendix X of the XXXX Mine Project – Environmental Impact Statement - 2014"

The report "XXXX Mine Groundwater monitoring plan" outlines the proposed groundwater monitoring program.

The conditions set out in Schedule A and Schedule B of this Licence are herewith after referred to as "the Conditions".

DEFINITIONS

In this Licence, unless the context otherwise requires:

"bore owner" means the registered owner of the land on which a bore exists as approved development under the *Sustainable Planning Act 2009* and/or from which water is taken under the authority of the *Water Act 2000*;

"Business day" means a day on which trading banks are open for normal banking business in Brisbane;

"Chief Executive" means the Chief Executive, Department of Natural Resources and Mines.

"Measures to make good" has the meaning ascribed to it in Schedule B condition 3.1;

"Licensee" has the meaning ascribed to it in the Recitals;

"Dewatering Works" has the meaning ascribed to it in the Recitals;

"Monitoring Bores" means the monitoring bores as identified the report "XXXX Mine Groundwater monitoring plan" and any subsequently drilled bores for monitoring purposes;

"Pre-existing bore" has the meaning ascribed to it in Schedule B condition 1.1;

"Restoration measures" has the meaning ascribed to it in Schedule B condition 3.1;

"Conditions" has the meaning ascribed to it in the Recitals; and

"Unduly affected" has the meaning ascribed to it in Schedule B condition 1.2.

INTERPRETATION

In this Licence:

- (a) headings to Conditions are for ease of reference only and shall not in any way affect the meaning of the Conditions;
- (b) a reference to days or months is a reference to Business days and calendar months; and
- (c) words in the singular shall include the plural and vice versa.

NOTICES

- (a) Form of Notice

Any notices, consents, document, invoice or other communication ("notice") required or permitted to be given by this Licence:

- (i) must be in writing; and
- (ii) may be given by being delivered or sent by prepaid registered post (or by facsimile transmission where facsimile transmission facilities are available for receipt of such a communication) to the address of the parties set out below or such other address as may be notified as the appropriate address from time to time for the purposes of this Licence.

The Chief Executive:

The Chief Executive
C/- The Manager

Water Management and Use

Department of Natural Resources and Mines
PO Box 1762
ROCKHAMPTON QLD 4700
Telephone: 1800 822 100
Facsimile: (07) 4999 6904
Email: centralwaterservices@dnrm.qld.gov.au

Licensee:

XXX Coal Pty Ltd
Environmental Superintendent – XXXX Mine
GPO Box XXX
BRISBANE QLD 4001

(b) Time Service Occurs

A notice is deemed to be served on a party, in the case of post, on the third business day after posting and, in the case of facsimile, on the day of transmission if the transmission is before 5.00pm on a business day and in all other circumstances on the business day following transmission of the facsimile provided that the sending party has received a report that there has been a correct and complete transmission.

1 EXISTING WATER SUPPLIES TO BE PROTECTED

1.1 Existing bores

(a) Any bore that:

- is in existence at the date of issue of this licence, and
- is approved development under the *Sustainable Planning Act 2009*; and
- takes water from any aquifer; and
- takes that water under the authority of the *Water Act 2000*;

is a "pre-existing bore."

(b) Any bore that is constructed to replace a pre-existing bore is taken to be a pre-existing bore.

(c) Any bore that is constructed as a measure to make good the supply of water from a pre-existing bore under the licence is taken to be a pre-existing bore.

1.2 For a pre-existing bore, if at any time, in the opinion of the chief executive:

(a) the taking of water under the licence causes a material reduction in the piezometric level in the pre-existing bore relative to the piezometric level existing immediately before the commencement of the taking of water under the licence; and

(b) that reduction in piezometric level causes, either:

- (i) a material reduction in the supply of water from the pre-existing bore relative to the supply available immediately prior to the taking of water under the licence; or
- a material increase in the cost of maintaining the supply of water from the pre-existing bore relative to the cost of supply immediately prior to the taking of water under the licence;

(c) the taking of water under the licence causes a material reduction in the quality of water available to the owner of the pre-existing bore, then the pre-existing bore will be regarded as being "unduly affected" by the taking of water under the licence.

1.3 The licensee must co-operate with the owner of any pre-existing bore that is unduly affected, or is likely to become unduly affected, to collect piezometric, water supply and water quality information necessary to support conclusions concerning impact of the taking of water under the licence on the supply, reliability, quality or quantity of water available from such pre-existing bore.

2 UNDULY AFFECTED PRE-EXISTING SUPPLIES TO BE MADE GOOD

2.1 Where a pre-existing bore is unduly affected by the taking of water under the licence, the licensee shall, at the cost of the licensee, carry out such measures, or

cause such measures to be carried out, as are necessary to make good the supply of water to the owner of the unduly affected bore, pursuant to the terms of the licence (the "measures to make good").

2.2 A water supply to the owner of a pre-existing bore unduly affected by the taking of water under the licence will be considered to be made good if:

- (c) the supply of water available to the owner of the pre-existing bore, whether from the pre-existing bore or another source, is not materially less than that which would have been available from the pre-existing bore but for the taking of water under the licence; and
- the reliability and the quantity of water is equivalent to that which was available from the pre-existing bore immediately before the commencement of the taking of water under the licence; and
- the owner of the pre-existing bore does not suffer increased cost in the operation of the made good water supply; and
- the quality of the water available to the owner of the pre-existing bore is suitable for the purposes for which the owner uses the water.

3 MEASURES TO MAKE GOOD PRE-EXISTING SUPPLIES

3.1 Measures to make good an unduly affected pre-existing bore may include one or more of the following:

- (d) deepening a pre-existing bore;
- replacing a pre-existing bore with another bore;
- replacing or modifying existing water supply equipment;
- providing a water supply of an equivalent quantity of suitable quality by piping from an alternate water source;
- providing a cash settlement to the owner of a pre-existing bore; or
- other measures as may be agreed between the Licensee and the owner of the pre-existing bore.

3.2 If a pre-existing bore is unduly affected by the taking of water under the licence then the licensee shall agree with the owner of the unduly affected pre-existing bore on measures to make good the supply of water from such pre-existing bore.

3.3 If, after advice from the parties that agreement pursuant to Schedule B condition 3.2 cannot be reached, and in the opinion of the chief executive all reasonable attempts have been made to achieve agreement, then the chief executive:

- (e) may give a notice to the licensee to require the licensee to provide to the satisfaction of chief executive any data necessary to determine the measures necessary to make good the supply of water from the pre-existing bore;
- (f) will, in consultation with the licensee and the owner of the pre-existing bore, determine the measures to be taken to make good the supply of water from the pre-existing bore; and

- (g) will, upon determining the measures to be taken to make good the supply of water from the pre-existing bore, give the licensee a notice to inform the licensee of the determination.

3.4 The licensee must implement, at the cost of the licensee, all measures necessary to make good the supply of water from an unduly affected pre-existing bore, either as agreed between the licensee and the owner of such bore under Schedule B condition 3.2 or as determined by the chief executive and notified under Schedule B condition 3.3.

4 URGENT RESTORATION

4.1 If, in the reasonable opinion of the Chief Executive,

- (h) restoration measures agreed pursuant to Schedule B condition 3.2 or as determined pursuant to Schedule B condition 3.3 need to be carried out urgently to maintain an adequate supply of water, and
- (i) the licensee is not responding with appropriate haste to carry out the restoration measures;

then the Chief Executive will issue a notice to the licensee directing the licensee to commence an appropriate program for implementation of restoration measures within forty-eight hours of receipt of the notice.

4.2 If, in the opinion of the Chief Executive, the licensee fails to adequately comply with a notice issued pursuant to Schedule B condition 4.1, the Chief Executive will:

- (j) carry out the necessary restoration measures; and
- notify the licensee of the cost of the restoration measures and direct the licensee to reimburse the Chief Executive for the cost of the restoration measures

The licensee shall pay to the Chief Executive the costs so notified.

5 MONITORING AND ASSESSMENT

5.1 Monitoring will be undertaken in accordance with the recommendations of the report entitled "XXXX Mine Groundwater Monitoring Plan" and any subsequent revisions of this report. Subsequent provisions of this report must be approved by the Chief Executive.

5.2 The Licensee must implement the monitoring program outlined in the report entitled "XXXX Mine Groundwater Monitoring Plan" and any subsequent revisions of this report. Subsequent provisions of this report must be approved by the Chief Executive.

5.3 The licensee must provide monitoring reports to the Chief Executive annually during the operational life of XXXX Mine. These reports must include water level data from those bores mentioned in the report entitled "XXXX Mine Groundwater Monitoring Plan".

5.4 The Licensee must, if directed by the Chief Executive, make any amendments considered necessary to the monitoring report entitled "XXXX Mine Groundwater Monitoring Plan" to ensure that the monitoring program is adequate to assess the effects of the extraction of water authorised under this license.

5.5 The licensee shall provide to the Chief Executive a Performance Review Report in respect of the performance of the XXXX Mine project dewatering works and those monitoring bores as identified in the "Definitions" at the times stated in Schedule B condition 6. One hard copy and an electronic copy shall be furnished to the chief executive. Topics addressed in any Performance Review Report shall include:

- (k) the monthly volume of water extracted from Dewatering Works;
- any changes in water quality in the Dewatering Works and monitoring bores;
- the piezometric levels on a quarterly basis in the Monitoring Bores;
- an assessment of the need for adjustment of the model used to assess piezometric impact;
- details of any adjustment since the previous Performance Review Report to the model used to predict piezometric impact, and if adjustments have been made to the model, plans are to be provided showing:
 - the revised prediction of the total piezometric impact from the commencement of pumping to xx years after the commencement of pumping or such other period as the Chief Executive may determine, made using the adjusted model; and
 - the difference between these predicted piezometric impacts and the piezometric impacts as predicted at the time of application for licences by the licence holder.
- an assessment of any material departure of the performance of the Dewatering works (including piezometric impact) from the performance predicted for a withdrawal amount of the volumes predicted in the Environmental Impact Statement
- plans showing the piezometric impact caused by the operation of the Dewatering Works, using the then current model, are to be included in the next scheduled Performance Review Report pursuant to Schedule B condition 6.1;
- details of any pre-existing bores which are predicted by the then current model to become unduly affected by the Dewatering Works to be included in the next scheduled Performance Review Report; and
- details of any restoration measures carried out since the commencement of pumping if it is the first Performance Review Report or since the previous Performance Review Report, in respect of pre-existing bores unduly affected by the Dewatering works including details of piezometric drawdown, bore description and licence number

5.6

- (l) In conjunction with the second Performance Review Report, the licensee will provide the Chief Executive with a Peer Review Report (PRR) of the model used by XXXX Coal Pty Ltd to predict piezometric drawdown and associated impacts of the Dewatering Works. The peer review must be undertaken external to XXXX Coal Pty Ltd and the models developing consultants. The PRR must at least review the following:
 - the assumptions about the hydrogeology of the aquifers;

- impacts on the physical integrity of the aquifers;
- the ability of the geological formation to contain the piezometric drawdown and impacts due to the extraction of the water;
- any other matter the Chief Executive considers reasonable;

(m) The name and contact details of the reviewers who undertake the PRR in Schedule B condition 5.6(a) must also be provided to the Chief Executive.

6 FREQUENCY OF REPORTING

6.1 The first water year shall be defined as the period covering the period from the commencement of extraction (under the authority of this licence) of water from the Dewatering Works to the end of the next following June. Thereafter the water year shall commence on 1 July of any year and end on 30 June the year following. The first Performance Review Report shall cover the period as defined by the first water year. Thereafter scheduled Performance Review Reports shall then be provided in respect of the relative intervening periods, at the end of the 2nd, 3rd, 4th, 5th, 7th water years and thereafter every three years. The Chief Executive may call for a Performance Review Report at any other time during the currency of the Licence (unscheduled Performance Review Report) if he is of the reasonable opinion that the piezometric impact of the Dewatering Works is greater than the most recent prediction of piezometric impact reported by the licensee.

6.2 An unscheduled Performance Review Report will cover the period from the date of the immediately preceding Performance Review Report, be it an unscheduled or a scheduled Performance Review Report, and the date notified by the Chief Executive as the date of the unscheduled Performance Review Report, or such other period as the Chief Executive may determine. The scheduled Performance Review Report next following an unscheduled Performance Review Report will cover the period from the date of that unscheduled Performance Review Report and the date of the scheduled Performance Review Report.

6.3 A Performance Review Report will be due three months after the end of the relevant water year, or three months after notification of requirement of an unscheduled report.

6.4 The Chief Executive will advise the licensee of the acceptability of a Performance Review Report or Monitoring Report within 60 days of the date of receipt of same. If the Chief Executive reasonably considers a report unacceptable, he will notify the licensee in writing of the deficiencies. The licensee will then submit a further report within 60 days of such notification, or such longer period as determined by the Chief Executive and the same procedure shall be followed as with the original report.

7 Closure Of XXXX Mine PROJECT OPERATIONS

7.1 One year prior to the closure of the mine, the licensee will:

- (n) In the case of a pre-existing bore that has become unduly affected since the commencement of pumping from the Dewatering Works and where the restoration measures carried out by the licensee depend on matters beyond the control of the bore owner, enter into arrangements with the bore owner, to the

reasonable satisfaction of the bore owner, to maintain a supply at the affected bore in accordance with Schedule B condition 3.2;

- Provide to the Chief Executive a XXXX Mine Project Operation Pre-Closure Report

7.2 It shall be acceptable for the bore owner entering into an arrangement with the licensee pursuant to Schedule B condition 7.1 to require that the arrangement reasonably provides the bore owner with independent control over restored water supply.

7.3 A XXXX Mine Project Operation Pre-Closure Report pursuant to Schedule B condition 7.1 shall contain:

- (o) the piezometric levels in the Monitoring Bores and the Dewatering Works;
- an assessment of the need for adjustment of the model used to assess piezometric impact;
- details of any adjustment since the previous Performance Review Report to the model used to predict piezometric impact;
- details of any restoration measures carried out since the last Performance Review Report;
- plans showing the prediction, using the then current model, of the total piezometric impact from the commencement of pumping to XXX years after commencement of pumping or such other period as the chief Executive may determine;
- details of any unduly affected bores for which arrangements could not be successfully made pursuant to Schedule B condition 7.1;

7.4 The Chief Executive will advise the licensee of the acceptability of a XXXX Mine Project Operation Pre-Closure Report within 60 days of the date of receipt of the same. If the Chief Executive considers the report unacceptable, he will notify the licensee in writing of the deficiencies. The licensee will then submit a further report within 30 days of such notification or such longer period as determined by the Chief Executive and the same procedure shall be followed as with the original report until the final report is reasonably accepted by the Chief Executive.

7.5 The licensee will fully implement arrangements pursuant to Schedule B condition 7.1 at least 90 days before XXXX Mine Project Operation closure.

7.6 Schedule B condition 7 will operate even if this licence has expired at the relevant time unless a licence is then in place and otherwise regulates closure.

8 GENERAL PROVISIONS

8.1 The taking of water under the authority of this water licence is only permitted for the express purposes listed on this licence and only during the mining operation authorised on ML XXXX and ML XXXX.

8.2 This licence expires on the day stated in the licence, or the day stated in any subsequent renewal of the licence, or upon the closure of the mine referred to in Schedule B condition 8.1.

Groundwater Make Good - Chapter 3 Reform

The upgraded standards would apply to all baseline tests under Chapter 3 of the Water Act occurring after commencement.

Within 1 year of commencement of the new baseline standard, all baseline assessments for resource operations which pre-date commencement must be reviewed. Where the existing baseline assessment does not meet or exceed the upgraded standard, a new baseline test must be conducted.

Make Good means:

The Tenement Holder must replace the Bore Owner's adversely impacted water supply with a secure and durable supply having yield/capacity, water quality and gas content at least equivalent to the baseline levels of the relevant bore(s). The water supply to be replaced includes the bore's reserve capacity (if any) in excess of the then current actual water usage as at the date of its baseline assessment.

Compensation means:

- a. The difference between market value of the Bore Owner's property before and after the damage to the relevant bore(s); and
- b. Any costs or losses reasonably incurred by the Bore Owner and which are not reimbursed as part of make good.

Make Good Agreement means: An agreement between the Tenement Holder and Bore Owner, details of which are set out below.

Obligations

- All baseline assessment, monitoring, setting of trigger values, investigations and make good actions specified below are to be arranged and paid for by the Tenement Holder and conducted and delivered through an independent, suitably experienced and qualified hydrogeologist (Independent Expert).
- The Tenement Holder is to promptly provide the Bore Owner with each of the Independent Expert's reports described below.

Baseline Test

- Baseline testing of each private bore to new minimum standards requiring at least:
 - a. Standing Water Level measurement (no exceptions). The Independent Expert (at the Tenement Holder's cost) to make any necessary modifications to bore equipment to facilitate SWL measurement (unless the Bore Owner unreasonably refuses to permit the modifications in which case such bore(s) will be excluded from the make good scheme).
 - b. For bores that are equipped with electric or engine powered pumps (including those equipped with a pump jack), pumping and recovery tests (in accordance with relevant standards) to assess specific capacity (ie. a short-form version of sustainable yield).

NOTE: A full sustainable yield test is desirable and may be adopted as an alternative to specific capacity if the Tenement Holder and bore owner agree.

- (i) Data loggers to be installed in all equipped bores at the time of baseline testing.
- c. Water quality tests – pH, EC, Temperature, Turbidity and laboratory testing of total dissolved solids (by evaporation) plus a full chemical test.
- d. Gas intrusion test of % LEL which must not exceed 20% LEL.
- e. Comprehensive assessment and documentation of the bore and its infrastructure, from which to derive data showing the water volume actually delivered, the pumping rate, stock watered or area of irrigation or other uses quantified, and any reserve capacity as at baseline date, including:
 - (i) detailed inventory of bore equipment and capacities, including water storage tanks, reticulation pipelines, troughs, etc;
 - (ii) grazing area and the number of stock the bore is supporting;
 - (iii) for bores supplying irrigation water, as in (i) and (ii) above with any necessary changes;
 - (iv) measurement (or, if it cannot reasonably be measured, an estimate) of pumping and recovery performance including data logging results if available;
 - (v) records of any relevant yield or capacity or quality data provided by the bore owner;
 - (vi) assessment of reserve capacity, if any, over and above existing usage;
- f. For bores that are unequipped as at baseline date, install a temporary pump of appropriate capacity to test for the specific capacity. Also conduct SWL, water quality and %LEL tests.
- g. On receipt of the Independent Expert's Draft Baseline Assessment either party may, within three weeks, respond to the Independent Expert with any query or to supply any additional information.
- h. Upon their receipt of the Final Baseline Assessment, both parties will be taken to have accepted it if, within three weeks, they have not referred it to dispute resolution.
- i. In the event of a dispute over trigger values or make good, the Final Baseline Assessment (as accepted by the parties or as determined through dispute resolution) will, if required, be used as evidence of the baseline qualities of a bore.

Trigger Values

- Interim Trigger Values for each equipped bore - specific capacity (or sustainable yield if the parties have consented to that as an alternative), water quality, and gas intrusion (ie. % LEL) to be set by the Independent Expert upon completion of the Baseline process.
- Final Trigger Values are to replace Interim Trigger Values for each bore as and when the Independent Expert judges that sufficient monitoring data is available on which to determine them.

- Either party may refer Interim Trigger Values or Final Trigger Values to dispute resolution.

Monitoring

- Mandatory periodic monitoring of all equipped bores, at time intervals determined by the Independent Expert. Monitor for all baseline parameters, downloading of data loggers.
 - a. Monitoring of unequipped bores to be limited to Standing Water Level and Gas Intrusion.

Investigation

- If monitoring shows one or more Interim Trigger Values or Final Trigger Values reached or exceeded, the Independent Expert will review the data and investigate as necessary in order to notify the Tenement Holder and the Bore Owner of his or her determination of:
 - a. the scale of Trigger Value exceedance,
 - b. the Independent Expert's determination as to whether the exceedance results from the Tenement Holder's activities or if not, the actual cause,
 - c. whether there is a requirement for Make Good, and
 - d. an opinion as to whether and in what way(s) it is feasible to make good by restoring the water supply at, or better than, baseline values.
- Either party may refer the determination to dispute resolution.

Bore Owner's Trigger

- Notwithstanding that a monitoring program is in place, if at any time a Bore Owner considers that a Bore has become adversely affected because of the Tenement Holder's activities - to the extent that one or more Trigger Values have been reached or exceeded - the Bore Owner may give notice, together with supporting information, to the Tenement Holder.
 - a. Unless it can demonstrate that the Bore Owner's claim of damage is manifestly untrue, the Tenement Holder must promptly arrange for the Independent Expert to carry out appropriate investigations.
 - b. If after investigations the Independent Expert confirms that one or more Trigger Values have been reached or exceeded, then the investigation procedure must be promptly initiated.

Make Good Commissioner

Establish the statutory position of Make Good Commissioner to provide an independent and credible process for resolving disputes arising in baseline assessments, trigger value determinations or make good determinations as described above.

The Commissioner would preferably be qualified and experienced in groundwater assessment and management as well as dispute resolution, and could perhaps be a Member of an existing judicial body who is seconded as Make Good Commissioner as required.

The Commissioner would follow established ADR procedures and have authority to engage one groundwater technical expert, with qualifications and experience relevant to the issues, to act as adviser to the Commissioner in a particular case.

The Commissioner would also be empowered to call on the CSG Compliance Unit of DNR&M to provide detailed assessments of relevant bores and to make its officers available for examination. All material provided by the CSG Compliance Unit to the Commissioner must also be provided to the relevant Bore Owner and Tenement Holder.

The Tenement Holder would carry the onus of proof and be obliged to show, to the Commissioner's satisfaction, that either the bore was not unduly affected or alternatively that the resource activities were not the cause, or not the whole cause, of the damage.

The Commissioner would not be bound by the rules of evidence or formal hearing procedure, just the best practice ADR rules. The legislation would specify that, due to the nature of groundwater issues, the Commissioner's determinations may, of necessity, rely to an appropriate extent on circumstantial evidence and expert opinion regarding matters arising in disputes.

Where satisfied that make good by the Tenement Holder is called for and is feasible, the Commissioner would so order. If requested by either party, the Commissioner could make orders as to the form of make good that is required of the Tenement Holder.

Costs

Where a dispute is referred to the Make Good Commissioner, the bore owner's reasonable costs of technical and legal representation and advice in formulating and pursuing its claim must be paid, as incurred, by the Tenement Holder - unless the Commissioner finds that the Bore Owner's claim was manifestly without merit or that the Bore Owner behaved frivolously or vexatiously. The Tenement Holder must bear its own costs of the dispute resolution regardless of the outcome.

Compensation

Where satisfied that make good is called for but is not feasible, the Commissioner would so order, at the same time ordering a period after which, if they have not reached agreement on compensation, either party may apply to the Land Court to have compensation determined.

The basis upon which the Land Court would determine compensation would be:

- A before and after comparison of the market value of the Bore Owner's property
- Any costs incurred by the Bore Owner arising from disruption of water supply, such as –
 - (i) Costs of emergency or temporary alternative water supply
 - (ii) Costs of mustering or moving or otherwise attending stock
 - (iii) Costs reasonably and necessarily incurred for advice and representation, including formulation of a Trigger Notice, Dispute Notice and related representation
- Any losses incurred by the Bore Owner, such as –
 - (i) Deaths of stock
 - (ii) Loss of sales, or lower value of sales of stock or crops

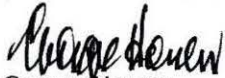
- (iii) Reduced production from stock or crops
- (iv) Consequential losses to the Bore Owner's business.

Make Good Agreement

Before commencing any dewatering by taking groundwater from a bore or by pumping of groundwater discharged to a pit as part of any Resource Operations, the Tenement Holder must enter into a Make Good Agreement with the owner of every bore which may potentially be affected by the dewatering at any time (including after closure of the Tenement Holder's project).

A Bore Owner, who considers its bore(s) is/are at risk from dewatering by a Tenement Holder who has not settled a Make Good Agreement, may apply to the Commissioner who may order that a Make Good Agreement is required and the dewatering must cease until an agreement has been signed.

If terms of the Make Good Agreement are inconsistent with provisions of Chapter 3, the Agreement prevails to the extent of that inconsistency .



George Houen
Landholder Services Pty Ltd

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