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## **Mining Access to Water Resources – Traditions and Developing Principles**

Alex Gardner

# **Mining Access to Water Resources – Traditions and Developing Principles**

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## **SUMMARY**

*Is mining and coal seam gas production subject to the key legal principles that apply generally to water resources management, especially the allocation of water resources in circumstances of water scarcity and competing uses?*

*In 2010 the National Water Commission said that frequent resort to environmental approval laws to make special arrangements for water use in these projects was no substitute for better integrating their use of water resources into general water planning and entitlement regimes.*

*This paper reviews the extent to which the regulation of mining's and coal seam gas production's use of water has been reformed to bring it under the general regulatory regimes for water resources management. It analyses aspects of the relevant legislative regimes of New South Wales, Queensland, Western Australia and the Commonwealth, to evaluate the extent to which the National Water Commission's recommendations have been implemented by legislative reforms, and the key principles of those regimes.*

## **INTRODUCTION: THE NATIONAL WATER POLICY CONTEXT**

There is a notable trend towards regulatory oversight of the taking, diversion and use of water resources by the mining and petroleum sectors under the general water resources law, administered by government agencies for water resources management. This is a policy and legislative response to increasing community concerns about the impacts of minerals and coal seam gas (CSG) production on water resources, especially in respect of the cumulative effects of the abstraction of groundwater in mine dewatering and the CSG production of associated water.

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This paper considers the general principles of Australian water resources legislation, and outlines why the author believes this trend is notable.

The general principles are defined by the past two decades of significant reform of the mainly state-based water resources regulatory regimes. This is guided by national water policy agreements of the Council of Australian Governments – particularly the 1994 Water Reform Framework<sup>1</sup> and the 2004 Intergovernmental Agreement on National Water Initiative (NWI).<sup>2</sup> There has been a paradigm shift in the essential model of water resources entitlements law which regulates access to quantities of water for various consumptive use purposes. Formerly, water use was regulated by the public administration of statutory privileges or licences for landholders. The NWI model provides for more precise volumetric management of water resources under statutory plans that secure water for the environment and provide the foundation for proprietary water access entitlements tradable in regulated markets.

Western Australia and the Northern Territory have not yet legislated to fully adopt the NWI model, but Western Australia is again actively considering relevant reforms.<sup>3</sup>

What is notable about this trend of bringing the mining and petroleum sectors under the NWI model? Initially, it seemed like these industry sectors had been exempted from its general application. Clause 34 of the NWI provides:

“The Parties agree that *there may be special circumstances facing the minerals and petroleum sectors that will need to be addressed by policies and measures beyond the scope of this Agreement*. In this context, the Parties note that specific project proposals will be assessed according to environmental, economic and social considerations, and that factors specific to resource development projects, such as isolation, relatively short project duration, water quality issues, and obligations to remediate and offset impacts, may require specific management arrangements outside the scope of this Agreement.”  
(*emphasis added*)

The National Water Commission (NWC) commented about the operation of clause 34 in its 2010 position statements on mining and coal seam gas:<sup>4</sup>

<sup>1</sup> Australian Government, Department of Environment, “The Council of Australian Governments’ Water Reform Framework”, <http://www.environment.gov.au/water/publications/action/policyframework.html>.

<sup>2</sup> Intergovernmental Agreement on National Water Initiative, signed by the Prime Minister and Premiers in 2004, though Tasmania and Western Australia signed in 2005 and 2006 respectively. Australian Government, Department of Environment, “National Water Initiative”, <http://www.environment.gov.au/water/australia/nwi/>. See also the National Water Commission website: <http://www.nwc.gov.au/nwi>.

<sup>3</sup> Government of Western Australia, Department of Water, “Securing Western Australia’s Water Future; Position Paper – Reforming Water Resources Management”, September 2013.

<sup>4</sup> Australian Government, National Water Commission, “Mining Position Statement, May 2010” and “Position Statement – Coal Seam Gas and Water, December 2012”, <http://www.nwc.gov.au/nwi/position-statements>. The quotation is taken from the former.

“The Commission found in its 2009 Biennial Assessment of progress in implementation of the NWI that the circumstances in which special clause 34 would apply are not defined and identified in a consistent and transparent manner. Little progress has been made in the five years since the signing of the NWI in fleshing out the special provisions for the minerals and related industries. As a consequence, there has been little integration of those industries with broader water markets and water planning processes, despite the potential for considerable benefits in many cases.”

The NWC noted further that “Clause 34 of the NWI is only intended to operate in exceptional circumstances”. It commented specifically in relation to CSG that the frequent resort to environmental approval laws to make special arrangements for these resources projects was no sufficient substitute for better integrating these sectors’ use of water resources into the general water planning and entitlement regimes. This comment is also pertinent to some regulation of mining projects.

The NWC and the Commonwealth and State Governments have been responding to community concerns. Enhanced perceptions of water resource values, and better defined legal rights attached to them, are greatly challenged by the new mining and CSG mega-projects and regional scale developments. These portend cumulative impacts on water resources beyond previously perceived geographic perspectives and resource management timeframes. One response of the New South Wales Chief Scientist and Engineer in her *Initial Report on the Independent Review of Coal Seam Gas Activities in New South Wales* is to propose a “... commitment to ramping up research on difficult issues such as continuing to develop comprehensive and detailed models of the State’s underground water and how to build robust engineering approaches to assessing cumulative impact [sic] of multiple industries affecting underground resources in a dynamic way”.<sup>5</sup>

The Commonwealth Parliament has enacted two amendments to the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act).<sup>6</sup> The 2012 amendment creates an expert scientific committee to assist with environmental assessment; the 2013 amendment inserts the new “water trigger” for environmental approval of CSG and large coal mine developments that have significant impacts on water resources. New South Wales and Queensland have made repeated attempts at legislative and policy reform, which have attracted much commentary.<sup>7</sup> There has also been litigation, especially in New South

<sup>5</sup> New South Wales Chief Scientist and Engineer, *Initial Report on the Independent Review of Coal Seam Gas Activities in New South Wales*, July 2013, vii, extract from first recommendation.

<sup>6</sup> *Environment Protection and Biodiversity Conservation Amendment (Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development) Act 2012* (Cth) and *Environment Protection and Biodiversity Conservation Amendment Act 2013* (Cth). D Roe, “Federal Environmental Approvals for Coal Seam Gas and Coal Mining: Injecting Independent Science” [2012] *AMPLA Yearbook* 697.

<sup>7</sup> C Bozonji, “Management of Coal Seam Gas Associated Water” [2010] *AMPLA Yearbook* 555; M Walton, “The Queensland CSG Industry: Miners v Farmers – Do the 2010 Water Act Amendments for Underground Water Management Ease the Tension?” (2013) 32(1) *ARELJ* 19; “Coal Seam Gas Issue” (2012) 29(2) *EPLJ*, six articles; and D Townsend,

Wales, relating to the land use development and environmental approvals that also need to be obtained for resource extraction in that State.<sup>8</sup> Ironically, there is no significant case law relating directly to the operation of the water resources law.

A distinction should be made between the water resources regulation of the mining and petroleum industries. There is well-recognised potential for mining operations to involve the diversion, use and discharge of significant volumes of water. This has seen a role for water resources regulation of mining operations alongside the operation of mining legislation for three or four decades. This role has increased in recent years because of the perceived cumulative impacts of very large iron ore and coal mining projects.

On the other hand, conventional petroleum production operations have generally been seen as having only a limited and incidental impact on water resources. The particular interest with the petroleum sector has come with the recent rapid escalation of the CSG industry, regulated primarily under the petroleum legislation.

The purpose of this paper is to ask to what extent the taking, diversion and use of water resources in mining and CSG production are subject to the operation of the core legal principles that apply generally to water resources management, especially under legislation implementing the NWI concepts. This purpose is pursued with an analysis of key elements of the relevant laws of Western Australia, Queensland and New South Wales<sup>9</sup> with respect to the mining and CSG industries, and a brief review of the 2013 “water trigger” amendment of the EPBC Act. To address this task, the paper:

1. explores some of the history of the mining and petroleum laws in respect of the taking, diversion and use of water resources up to the current day;
2. outlines the essential concepts of the NWI model of water access entitlements based on statutory water plans and industry concerns with their potential application to the mining and CSG operations, and then analyses to what extent the NWI model is being applied in the current key statutory and policy propositions of the three States and under the Commonwealth’s new “water trigger” for environmental approvals; and

“The NSW Strategic Regional Land Use Policy and Aquifer Interference Policy in Context” (2012) 28(1) *Australian Environment Review* 415.

<sup>8</sup> *BHP Billiton Minerals Pty Ltd v Martu Idja Banyjima People as Registered Native Title Claimants* [2010] WAMW 1; *Hunter Environment Lobby Inc v Minister for Planning* [2011] NSWLEC 221 [109]ff; *Barrington – Gloucester – Stroud Preservation Alliance Inc v Minister for Planning and Infrastructure* [2012] NSWLEC 197; *Fullerton Cove Residents Action Group Inc v Dart Energy Ltd* [2012] NSWLEC 207; *SHCAG Pty Ltd v Minister for Planning and Infrastructure and Boral Cement Ltd* [2013] NSWLEC 1032; *Xstrata Coal Queensland Pty Ltd and Others v Friends of the Earth and Others* [2012] QLC 013.

<sup>9</sup> The discussion of New South Wales legislation focuses on the *Water Management Act 2000* (NSW) and omits the *Water Act 1912* (NSW). The operation of that legislation in 2005 is discussed in C Ireland and S Williamson, “Access to Water for Mining Projects: What Has Changed in the Last Year?” [2005] *AMPLA Yearbook* 442.

3. briefly reviews the application of the precautionary principle and adaptive management – two important associated principles that are seen as central to the regulation of mining and CSG projects' impacts on water resources.

The paper concludes with some comments about what model of water management should be adopted for mining and CSG operations and notes the unresolved question of liabilities for very long term impacts.

## HISTORICAL TRADITIONS AND LEGISLATIVE EVOLUTION

Mining industry access to water resources was initially governed by common law principles that were soon replaced by legislative regimes when mining activity intensified in the 19th century. A brief comparison with western American common law shows some differences in legal traditions, and an indication that varied geographic and socio-economic conditions of mining activity may give rise to different legal principles regulating industry interaction with water resources. The legislative evolution of mining and petroleum industries' access to water resources in Western Australia, Queensland and New South Wales can, in some ways, support an argument for regional variation of access rights. However, recent developments in that legislation suggest a trend towards consolidation of mining and CSG sector access to water resources under the water resources legislation. There are, however, ongoing issues of integration of approval processes.

### Common Law

There is a long historical association between the development of mining and water resources law doctrine, at least in the western parts of North America and Australia. Since the 19th century, the laws of mineral resources and water resources have been founded on strong traditions of the public "ownership" of the raw natural resource. Alongside that, the legal understanding of water as a common resource subject to private usufructuary rights of access has an important ongoing influence in water resources law.<sup>10</sup> Rights to exploit these natural resources have historical elements of public access,<sup>11</sup> but both legal regimes soon developed core principles of private resource access based on land tenure. Mining and petroleum law developed sophisticated tenures to authorise exploration and production rights over land tenure that others held, while water law aligned water resource access rights more closely to surface land tenure. To this day, we still see disputes over access to water resources being played out in land tenure contests.

How did the common law regulate mining access to water resources? In the 19th century, the activities of the mining industry in the American west led to the

<sup>10</sup> "Usufructuary" rights are those that give rights to exploit a resource that one does not own.

<sup>11</sup> For example, miners' rights to explore for minerals on Crown land and public rights to take and use publicly accessible surface water for domestic and stock watering purposes.

acceptance of the “first in time” principle in the allocation of resource titles, for access to both minerals and water resources.<sup>12</sup> That principle still has an underlying importance in the allocation of mining tenures in Australia<sup>13</sup> and has even been applied in the allocation of statutory water resource entitlements, though without express statutory endorsement.<sup>14</sup> However, the full effect of the “first in time” principle, adopted into the western American “prior appropriation” doctrine of surface water rights, was not ultimately adopted in Australian law, despite some experimentation with it in regulations adopted on the New South Wales goldfields as early as 1852.<sup>15</sup> Rather, for surface water in watercourses and wetlands (streams, rivers and lakes), Australia adopted the English riparian doctrine that permitted the riparian owner to take and use water for ordinary domestic and stock watering purposes and for additional extraordinary purposes (e.g. irrigation and mining) so long as the abstraction and use was reasonable and did not sensibly diminish the water resource.<sup>16</sup> The riparian doctrine also protected the quality of the water resource from sensible diminution; a protection that likely survives today for riparian owners.<sup>17</sup>

The common law of groundwater contrasted greatly. The 19th century principle developed by the English courts and adopted into Australia was the “rule of capture”. The owner of the surface of the land was entitled to access groundwater percolating below their land and to extract and use it without limit. Indeed, the leading English case on the proposition involved an action by a mill owner against a defendant conducting coal mining.<sup>18</sup> Because of a perceived lack of common understanding of the movements of groundwater, the English courts refused to intervene to restrain the extraction of groundwater, even though it might lead to a depletion of an associated stream flow, a view still endorsed in Australia in recent times.<sup>19</sup> In contrast, the common law does protect groundwater quality.<sup>20</sup>

<sup>12</sup> D Schorr, *The Colorado Doctrine: Water Rights, Corporations and Distributive Justice on the American Frontier* (Yale University Press, 2012).

<sup>13</sup> For example, *Mining Act 1978* (WA) s 105A.

<sup>14</sup> A Gardner, R Bartlett and J Gray, *Water Resources Law* (LexisNexis Butterworths, 2009) [20.18].

<sup>15</sup> E Jean, “A History of Water Entitlements and Disputes in Nineteenth and Early Twentieth Century Rural New South Wales”, PhD thesis, Australian National University [in draft October 2013]. See also Edwyna Harris, “Scarcity and the Evolution of Water Rights in the Nineteenth Century: The Role of Climate and Asset Type” (Discussion Paper No. 45/10, Monash University Department of Economics, 2010), <http://www.buseco.monash.edu.au/eco/research/papers/2010/4510scarcityharris.pdf>.

<sup>16</sup> Gardner et al, above n 14, [8.14]-[8.19]. See also the discussion in the context of mine dewatering in A Dauwalder, “Muddying the Waters: Mine Dewatering in Queensland From 1898 to the Present” (2011) 30 *ARELJ* 273, 274-275.

<sup>17</sup> Gardner et al, above n 14, [8.23] and *Van Son v Forestry Commission of New South Wales* (1995) 86 LGERA 108 where it was held that the legal protection of the water quality arose, at least, under the law of nuisance.

<sup>18</sup> *Acton v Blundell* (1843) 152 ER 1223. See also Gardner et al, above n 14, [8.33]-[8.36].

<sup>19</sup> *Xuereb v Viola* [1990] *Australian Torts Reports* 67,667. Also *Kennedy v Minister for Works* [1970] WAR 102.

<sup>20</sup> Gardner et al, above n 14, [8.37].

## Historical Overview of Mining Legislation

### Western Australia

#### Background

The enactment of early mining legislation established, in effect, new forms of land tenure that carried rights to take and use water resources. Thus, the *Mining Act 1904* (WA) conferred on the holders of miners' rights the authority to take or divert surface water and to sink bores and extract and use groundwater "for any purpose connected with mining".<sup>21</sup> In contrast, the provisions for gold mining leases and mineral leases (other than for gold) authorised the Governor to issue a "lease of any Crown land" for listed purposes, including "[f]or mining, and for all purposes necessary to effectually carry on mining operations ...".<sup>22</sup> The respective provisions also confer the rights to construct works for the purposes of taking surface and groundwater, but they do not actually expressly authorise the taking, diversion or use of water.<sup>23</sup> In the years before the enactment of specific water resources legislation in Western Australia, it appears that the common law understanding of a lease was enough to confer on the mineral lessees the common law rights to take and use water resources.<sup>24</sup> A mineral lessee could also, with the approval of the Minister, discharge water from the land comprised in the lease.<sup>25</sup>

#### The RiWi Act

The enactment of the *Rights in Water and Irrigation Act 1914* (WA) (RiWi Act) had, as the name suggests, a primary purpose of regulating the provision of water for irrigation districts. The RiWi Act provided for the Crown vesting of the right to the use and flow and to the control of all surface and subterranean water resources until appropriated under the same Act or some other existing or future Act of Parliament. Despite the breadth of the Crown vesting provision, the licensing provisions were restricted to regulating the use of surface water for more than stock and domestic use in irrigation districts and to regulating the construction and operation of artesian wells anywhere.<sup>26</sup> Thus, the legislation as originally enacted did not regulate access to surface waters not needed for irrigation districts, or regulate the access to groundwater by non-artesian wells. Section 10 of the RiWi Act did purport to regulate pollution of surface waters, but expressly exempted from the operation of that provision the exercise of any right or privilege conferred under the *Mining Act 1904* (WA). There is otherwise no mention in the legislation as enacted of mining or minerals, and one can surmise that, one hundred years ago, the two Acts had little geographic cause for integrated

<sup>21</sup> *Mining Act 1904* (WA) ss 26(4) and (5).

<sup>22</sup> *Ibid* ss 42(1) and 48(1).

<sup>23</sup> *Ibid* ss 42(2) and (4) and 48(2) and (4).

<sup>24</sup> Compare the current understanding of the legal effect at common law of leases under the *Mining Act 1904* (WA): *TEC Desert Pty Ltd v Commissioner of State Revenue (Western Australia)* [2010] HCA 49; 241 CLR 576, where the High Court held that such leases were personal property, not interests in land.

<sup>25</sup> *Mining Act 1904* (WA) s 112.

<sup>26</sup> RiWi Act ss 4(1), 6, 16, 18 and 27, as enacted in 1914. See also Gardner et al, above n 14, [9.7].



operation. Most mining access to water resources would have been regulated under the *Mining Act 1904* (WA).

Decades later the water resources legislation was amended in a way that would have brought mining operations more under its purview. In 1962, the RiWI Act was amended to require the licensing of non-artesian wells in proclaimed groundwater areas, something likely to have been relevant to mining operations. In 1965, in *Garbin v Wild*<sup>27</sup> the Supreme Court held that these specific licensing provisions prevailed over the general provisions of the *Land Act 1933* (WA) providing Crown lessees had the right to construct and operate wells. Subsequently, the enactment of the *Mining Act 1978* (WA) expressly made the taking and diversion of water under the authority of any mining tenement subject to the RiWI Act. However, as explained by a number of commentators,<sup>28</sup> the two regimes were not well-integrated and coordinated. The key criticisms from the mining lawyers' perspective were most effectively explained by Mark Gerus,<sup>29</sup> who identified problems with an over-reliance on policy rather than statute to set the water resource framework, uncertain authority to require a water licence for mine dewatering, uncertainty over the eligibility of mining tenement holders (other than mining lessees) to hold a water licence, uncertain authority for the groundwater "exploration" licences issued by the water agency, poor statutory definition of condition setting on RiWI Act licences, and the lack of transferability of water licences.

Amendments to the RiWI Act in 2001<sup>30</sup> largely answered these criticisms but new issues were raised,<sup>31</sup> in part because the reforms did not go far enough. Under these amendments, which are still in force, the water licensing provisions operate only in proclaimed surface and groundwater management areas<sup>32</sup> and the RiWI

<sup>27</sup> [1965] WAR 72. In that case, the defendant irrigators were held to have breached their RiWI Act licence requirements by drawing water from unmetered wells in a proclaimed groundwater management area. In fact, the Crown lease rights were expressly stated to be subject to the provisions of the RiWI Act.

<sup>28</sup> M Crommelin and R Hunter, "Water and Mining: Controls in Conflict" (1989) *AMPLA Yearbook* 201, and associated commentaries by B Blanshard and P Watson, 225-247. M Gerus, "Mining and Water Resources" in R Bartlett, A Gardner and B Humphries, *Water Resources Law and Management in Western Australia* (The Centre for Commercial and Resources Law, The University of Western Australia and Murdoch University, Perth, 1996). K Winterbourne, "Obtaining Access to Water for Mining Purposes in Western Australia" (1997) 16 *AMPLJ* 166.

<sup>29</sup> M Gerus, *ibid*, 313-316.

<sup>30</sup> The *Rights in Water and Irrigation Amendment Act 2000* (WA), which came into operation in January 2001, was enacted to implement the 1994 Council of Australian Governments' Water Reform Framework. See also O O'Hagan, "A Tidal Wave of Change: Recent Developments in Water Law" [2000] *AMPLA Yearbook* 516.

<sup>31</sup> The amendments were again analysed by Mark Gerus in "Transferable Water Entitlements in Western Australia: Water Markets and Property Rights for the Mining Industry" [2001] *AMPLA Yearbook* 474. See also A Gardner, "Water Resources Law Reform" (1998) 15 *Environmental and Planning Law Journal* 377 and "Water Resources Law Reform in Western Australia: Implementing the CoAG Water Reforms" (2002) 19 *Environmental and Planning Law Journal* 6.

<sup>32</sup> RiWI Act s 5C(2). The website of the Western Australian Department of Water includes a page identifying the licensing purpose of the proclamation of surface and groundwater

Act still acknowledges that rights to take water may be allocated under “another written law”.<sup>33</sup> The tenement provisions of the *Mining Act 1978* (WA) still confer on the tenement holder the right “to take and divert, subject to the *Rights in Water and Irrigation Act ... water*” from any watercourse or wetland or from any excavation previously made for mining purposes, as well as to sink a well on the mining tenement land and to use the resultant water for domestic purposes or for mining operations on the tenement.<sup>34</sup> Perhaps the most important of these tenements for water resource purposes is the miscellaneous licence, which may be sought for a range of ancillary prescribed purposes, including taking water, searching for groundwater, a bore or bore field, or a water management facility.<sup>35</sup> The mining tenements provide the land tenures that are the foundations for seeking water licences under the RiWI Act,<sup>36</sup> if such are required, and also provide the direct authority to take and use water for mining purposes if the operation of the RiWI Act does not apply to the particular location. Most significant water resources are now covered by proclaimed water resource management areas, so there will not be many mining operations that are not subject to the licensing provisions of the RiWI Act. Any that are rely solely on the water resource access provisions of the mining legislation.

### **The role of the Mining Warden**

An ongoing issue is the role of the Mining Warden in resolving competition over access to water resources, both between tenement holders and applicants and between miners and other land users.<sup>37</sup> Does the Warden have such a role or is the allocation of water resources simply a question for the agency administering the RiWI Act?<sup>38</sup> The gravity attending this issue reflects both a tradition of the mining legislation providing for all things mining and the relative paucity of the water licensing procedures under the RiWI Act.

The basic legal question was addressed by the Supreme Court in *Re Roberts; Ex parte Western Reefs Ltd v Eastern Goldfields Mining Company Pty Ltd*.<sup>39</sup> In that case, the holder of one mining lease, C, applied for a miscellaneous licence over part of A’s mining lease to access water from an old mine shaft that A had spent money on to develop its own water supply. A also had plans to eventually mine for gold under the mine shaft. The primary legal issue was whether the Warden should be obliged to grant an application for a miscellaneous licence for water if

areas and the location of those areas: <http://www.water.wa.gov.au/Business+with+water/Water+licensing/Proclaimed+areas/default.aspx>. There are also provisions for prescribed water management areas, but no evidence that those provisions have been used.

<sup>33</sup> RiWI Act ss 5A and 5C(1).

<sup>34</sup> *Mining Act 1978* (WA) ss 48(d), 66(d), 70J(d), 85(1)(c) and 91(1).

<sup>35</sup> *Mining Regulations 1981* (WA) reg 42B.

<sup>36</sup> RiWI Act Schedule 1, cl 3(d).

<sup>37</sup> This issue has been analysed by various commentators: Crommelin and Hunter, above n 28, 203; Gerus, above n 28, 322-323 and 325-329; Winterbourne, above n 28, 177-179.

<sup>38</sup> The naming of the responsible agency has changed over the past 20 years, from the Water Authority to the Water and Rivers Commission in 1996 to the Department of Environment, Water and Catchment Protection in 2002 to the Department of Water in 2003.

<sup>39</sup> (1990) 1 WAR 546.

all the formalities had been complied with, or whether the Warden had an obligation to consider the competing merits of the two mining proposals. The Court noted that a miscellaneous licence is an exceptional tenement that may be granted over an underlying primary tenement, subject to the protection provided by the *Mining Act 1978* (WA) s 117 that it should not injuriously affect the existing tenement. Consequently, the Court held that the Warden was bound to consider the terms of the competing mining proposals and whether reasonable conditions could be imposed on the miscellaneous licence to prevent injurious affection; if they could not, the Warden should refuse the tenement application.<sup>40</sup> For Brinsden J, the “overriding consideration would be whether the grant of the miscellaneous licence would, or would not, promote the objects of the Act, the encouragement of mining”.<sup>41</sup>

What is surprising about the judgment is the absence of any discussion of the interaction of the *Mining Act* with the RiWI Act. Gerus commented in 1996 that:

“... the decision contemplates that the Warden’s role is to assist in setting conditions for access to water resources. The decision in *Western Reefs* apparently entitles the Warden to look at information (as to allocation and conservation of water) supplied by the [Water] Authority and evaluate it in all the circumstances. ... the Warden may take into account the protection or conservation of a water resource in so far as it would jeopardise other mining operations. In effect the Warden must decide what will be the most efficient use of resources in the particular circumstances.”<sup>42</sup>

Gerus goes on to advocate the formal involvement of the water licensing agency in the Warden’s condition setting process, and notes that objections to tenement applications can also be brought by third parties asserting private and public interests in competing land and water use values.<sup>43</sup>

The Warden’s Court subsequently approached the question of miners’ competing water resource interests in miscellaneous licence applications in a manner similar to that advocated by Gerus, but with limited powers to order the discovery of information that a water licence applicant submitted to the water agency.<sup>44</sup> Warden Calder SM acknowledged that it is the water agency that ultimately determines the water resource allocation, but denied that this should either exclude or dissuade a Warden from conducting a hearing on an application for a miscellaneous licence for water access:

“The ‘open court’ forum for the hearing of such applications provides an opportunity, which is not otherwise available when decisions are made by the Water and Rivers Commission, for many relevant facts and submissions to be aired and tested in public by means of examination of witnesses,

<sup>40</sup> *Ibid*, per Malcolm CJ at 554 and Brinsden J at 560.

<sup>41</sup> *Ibid*, per Brinsden J at 560.

<sup>42</sup> M Gerus, above n 28, 327.

<sup>43</sup> J Hart and A Gardner, “*Re Warden Calder; Ex parte Cable Sands (WA) Pty Ltd: Environmental Objections in the Mining Warden’s Court*” (1999) 18 *AMPLJ* 28 shows how the Warden’s Court has assumed this role in respect of environmental objections.

<sup>44</sup> *Quartz Water Leonora Pty Ltd v WMC Resources Ltd* [2001] WAMW 14.

production of documents, commentary by expert witnesses and an assessment of the true needs of competitors for the same water resource ... the ‘filtering’ process which the open court hearing achieves in respect of matters which must go by way of recommendation from the Warden to the Minister [of minerals] may also potentially be of assistance to the Water and Rivers Commission.”<sup>45</sup>

Although there are still deficiencies in the legislative provisions that establish this integrating role for the Warden’s Court,<sup>46</sup> the most telling point here is that the deficiencies of the water allocation process under the RiWI Act channel contests over water resource allocation into the Mining Warden’s Court.

This is also true for third party objections to mining impacts on water resources. In *BHP Billiton Minerals Pty Ltd v Martu Idja Banyjima People as Registered Native Title Claimants*,<sup>47</sup> the Aboriginal objectors to the 22 applications for new mining leases asserted that the water resource and environmental impacts on their heritage and native title interests occurring on existing tenements were likely to occur with cumulative effects on the new tenements. BHPB argued that the objectors could not found their objections on the cumulative effects across the existing and proposed tenements. Warden Calder SM rejected the BHPB submission, describing as “fundamentally wrong” BHPB’s argument that the objections must be directed at future specific impacts of the tenements sought. BHPB had not identified its future mining plans in the applications, and the Minister was entitled to consider the cumulative impacts that were affecting the whole of the objectors’ native title area, not just the potential effects of the applications.<sup>48</sup> Further, the Minister’s authority under the *Mining Act 1978* (WA) to consider public interest could extend to native title concerns, even though the *Native Title Act 1993* (Cth) provides processes relating to native title. On similar reasoning, the Minister could consider water resources issues.

That reasoning is supported by the recent decision in *Premier Coal Ltd v Brockwell*.<sup>49</sup> Brockwell objected to the Premier Coal mining lease application for sub-surface rights, seeking to be heard on the nature of the conditions that the Minister may apply to the grant of the tenement because of concerns about adverse impacts from mining, including on local residents’ amenity, health, rainwater collection and groundwater supplies. The role of the Warden in this case was complicated by the potential operation of the environmental impact assessment provisions of the *Environmental Protection Act 1986* (WA) and because the underground mining operations were proposed to be integrated with the operation of an open pit mine on adjacent land subject to a state agreement,<sup>50</sup> and thus beyond the Warden’s jurisdiction. Premier had agreed to refer the combined mining proposal to the Environmental Protection Authority for environmental

<sup>45</sup> Ibid [40].

<sup>46</sup> M Gerus, above n 31, 494.

<sup>47</sup> [2010] WAMW 1.

<sup>48</sup> Ibid [12]-[20] and [21]-[29].

<sup>49</sup> [2013] WAMW 15.

<sup>50</sup> *Collie Coal (Western Collieries) Agreement Act 1979* (WA).

impact assessment, despite being uncertain whether it would be a “significant proposal” requiring assessment.<sup>51</sup> The Warden held that a full-scale investigation of the objections need not be undertaken, but heard evidence on them. He noted that the proposed mining would draw down the groundwater by 100 metres – well below the 60 metres that local residents said would affect their supplies – and that recharge might take as long as 100 years.<sup>52</sup> The Warden concluded that the proposed mining was a “significant proposal” that should be referred to the Environmental Protection Authority. Further, he recommended that the responsible Minister, following completion of the environmental impact assessment process and consultation with the Ministers for Environment and State Development, formulate specific mining lease conditions for “monitoring and managing groundwater levels and establishing appropriate maximum levels and rates of groundwater abstraction ...” to ensure the residents’ supplies and the environmental values were maintained.<sup>53</sup>

With respect, the Warden’s recommendation does not explain why these water management conditions should be imposed on the mining lease rather than on a water licence under the RiWI Act. The Warden has no authority to set water licence conditions, and some may doubt the Warden’s authority to recommend water licence conditions, albeit in the context of anticipating a process of consultation to be conducted under the environmental impact assessment provisions of the *Environmental Protection Act 1986* (WA). Is there an oversight in the Warden not recommending consultation with the Minister for Water to facilitate water licensing? The limited legal value of the Warden’s determination is that, once the mining proposal is prepared pursuant to authority under the mining lease, it should be referred for environmental impact assessment.

### **Current licences for mining operations**

Ultimately, the taking and use of water resources in mining operations in Western Australia are regulated under the RiWI Act. This historical account concludes, therefore, with a brief summary of the character of the current RiWI Act water licences that apply to such operations, including how the RiWI Act currently addresses cumulative impacts.

1. A licence applicant and holder must satisfy a landholder eligibility requirement, and mining tenements meet that requirement.<sup>54</sup>
2. Licences are typically granted for 10 years, often shorter, with a qualified right of renewal.<sup>55</sup>
3. Licences are granted for free and are usually issued to the first in time applicant.<sup>56</sup>

<sup>51</sup> [2013] WAMW 15 [22].

<sup>52</sup> *Ibid* [20] and [48]-[63].

<sup>53</sup> *Ibid* [63] and [75].

<sup>54</sup> RiWI Act Schedule 1, cls 3, 9 and 13.

<sup>55</sup> RiWI Act Schedule 1, cls 12 and 22. Western Australian Department of Water, *Statewide Policy No 9, Water Licensing – Staged Developments*, 2003, section 3.5.

<sup>56</sup> RiWI Act Schedule 1, cls 4-8 and Western Australian Department of Water, “Discussion Paper: Review of First-in First-Served Policy”, September 2011. See also Department of

4. Licences regulate the taking and use of water on specified land up to an annual maximum, subject to scarcity directions to reduce or suspend water extraction, though such directions are extremely rare.<sup>57</sup>
5. There is cumulative licensing of water resources up to allocation limits set by non-statutory water allocation plans to protect environmental values.<sup>58</sup> However, the lack of a statutory mandate for an effective strategic allocation planning system does reduce the effectiveness of the RiWI Act to address cumulative impacts and overallocation, especially in prominent mining regions like the Pilbara.<sup>59</sup>
6. There is limited metering and poor enforcement of licence limits.<sup>60</sup>

As explained below, Western Australia has not legislated to implement the NWI model.

### Queensland and New South Wales

This section summarises key elements of the historical and current regulation of the taking and use of water in mining operations under the laws of Queensland and New South Wales, which are more similar than the older legislative model of Western Australia.

#### Background

Both States have comprehensively Crown-vested natural water resources – including surface and groundwater and overland flow.<sup>61</sup> Only in New South Wales does the legislation provide that rights may be allocated under the water resources legislation or “any other Act”. Nevertheless, as explained below, the Queensland petroleum legislation authorises various instances where petroleum activities can take or interfere with underground water, and such instances are declared to be authorised for the purposes of the *Water Act 2000* (Qld) (Water Act).

Water, “Securing Western Australia’s Water Future: Position Paper – Reforming Water Resource Management”, September 2013, 22.

<sup>57</sup> RiWI Act Schedule 1, cl 15; ss 26GC-26GD; and Department of Water, “Securing Western Australia’s Water Future: Position Paper – Reforming Water Resource Management”, September 2013, 13.

<sup>58</sup> RiWI Act Part III, Division 3D provides for statutory non-binding plans that have the force of relevant considerations in licensing: Schedule 1, cl 7. No such statutory allocation plans have been made: Department of Water, “Securing Western Australia’s Water Future: Position Paper – Reforming Water Resource Management”, September 2013, 16.

<sup>59</sup> N Sommer, “Mine De-watering in the Pilbara: A Legal Framework for Managing the Cumulative Impacts on Environmental Values and Indigenous Interests” (2012) 31 *ARELJ* 65, especially at 72ff.

<sup>60</sup> RiWI Act Schedule 1, cls 46-47. S Robertson, “A Regulatory Framework for Monitoring and Enforcement of Water Access Rights in Western Australia” (2013) 37(2) *UWA Law Review* (forthcoming).

<sup>61</sup> *Water Act 2000* (Qld) s 19; *Water Management Act 2000* (NSW) s 392.

The Crown vesting of water resources in New South Wales was, in two early cases, held to repeal riparian rights.<sup>62</sup> In the 1900 decision of *Hanson v The Grassy Gully Gold Mining Co*,<sup>63</sup> the defendant mining company, operating under a gold mining lease, penned back water of a creek onto the upstream land of plaintiff Hanson, depriving him of the riparian right of customary flow of the water past his land and causing the water to flow into his mine. The Court held that the *Water Rights Act 1896* vested to the Crown the rights to the use and flow of rivers, and deprived Hanson of any common law right of action as a riparian, leaving only the Crown with a statutory right to address the problem. Stephen J emphasised the purpose of the water legislation as intending to end litigation over uncertain common law water rights.<sup>64</sup> Some subsequent decisions around the country, including in Queensland, have disagreed with the effect of that decision, saying that the legislation should be held to have replaced only the common law riparian right to take and use with the express statutory provision of those rights, leaving in place other common law water rights and the common law remedies.<sup>65</sup> Even so, the High Court in *ICM Agriculture Pty Ltd v The Commonwealth*,<sup>66</sup> without any real reasoning, endorsed *Hanson* and declared that the Crown vesting of rights to groundwater abolished any common law rights to groundwater.<sup>67</sup> It is, nevertheless, generally believed that the common law rights to water quality have not been abolished by Crown vesting provisions.

### **Early mining legislation**

Both Queensland and New South Wales have a history of early mining legislation authorising the taking and use of water for mining purposes<sup>68</sup> but both departed from that model decades ago. The historical provisions for Queensland and New South Wales water licences described by Crommelin and Hunter in 1989 share some of the features of the current Western Australian water licence, namely, landholder eligibility requirements to hold a water licence, terms of 10 years, and a lack of effective planning to set cumulative allocation limits. There is a stark contrast now.

The *Mining Act 1968* (Qld) contained no express authority for mining tenement holders to extract or interfere with water; they were required to obtain a water licence under the *Water Act 1926* (Qld).<sup>69</sup> Nevertheless, the Warden's Court,

<sup>62</sup> *Hanson v The Grassy Gully Gold Mining Co* (1900) 21 LR (NSW) 271 and *Dougherty v Ah Lee* (1902) 19 WN(NSW) 8.

<sup>63</sup> *Ibid.*

<sup>64</sup> *Ibid* 275.

<sup>65</sup> Gardner et al, above n 14, [9.23]-[9.27].

<sup>66</sup> [2009] HCA 51; 240 CLR 140.

<sup>67</sup> *ICM Agriculture Pty Ltd v The Commonwealth* (2009) 240 CLR 140, per French CJ, Gummow and Crennan JJ [54], [71]-[72]; per Hayne, Kiefel and Bell JJ [116], [124] and [146]; and Heydon J [196]. This view has unfortunate consequences for the Western Australian law of groundwater outside RiWI Act groundwater management areas, because there are no statutory provisions governing such resources.

<sup>68</sup> For example, *Mining Act 1906* (NSW) ss 15, 65, 103, 105, 133 and 145 and *Mining Act 1898* (Qld) ss 15 and 30; and see A Dauwalder, "Muddying the Waters: Mine Dewatering in Queensland From 1898 to the Present" (2011) 30 *ARELJ* 273, 277.

<sup>69</sup> A Dauwalder, *ibid.* See also Crommelin and Hunter, above n 28, 215-219.

Minister and Governor-in-Council could all consider the impact on water resources in determining whether to grant a mining tenement application.<sup>70</sup> The same position seems to have prevailed in the *Mineral Resources Act 1989* (Qld) and *Water Resources Act 1989* (Qld). The current source of authority for a mining tenement holder to extract or divert water is the *Water Act* s 206 (for a long-term licence) and s 237 (for a short-term permit to take water for mineral exploration). Water licences are now issued until 2111 unless granted under special plan provisions: s 213A. The grant and operation of a water licence must be consistent with a water resource plan or resource operations plan applicable to the water resource: s 205. Applications for licences for mine dewatering have been exempted from the operation of the moratorium notices and provisions of a new water resource plan in the Fitzroy Basin.<sup>71</sup> Such applications, however, are still to be determined in accordance with a water resource plan, which may designate unallocated water in a plan area as a strategic reserve that may be granted within the scheduled limits for a “State purpose” – that is, to a “project of State significance” under the *State Development and Public Works Organisation Act 1971* (Qld).<sup>72</sup> Alternatively, it may be that a plan makes no provision, or no further provision, for water extraction from a target resource. If so, a mining tenement holder may seek to purchase an existing water right under water trading provisions. I respectfully disagree with Dauwalder that the difficulty a miner may have in obtaining the grant of a water licence under a water resource plan suggests that legislative amendment is required to “rectify this issue”.<sup>73</sup>

### **Modern mining legislation**

The *Mining Act 1973* (NSW) conferred no authority under a tenement to take or divert water for mining purposes, though it did authorise the Mining Warden to determine disputes over access to water and it authorised the consideration of impacts on water resources in determining a tenement application.<sup>74</sup> Rather, it was the *Water Act 1912* (NSW), later supported by the *Water Administration Act 1986* (NSW), that authorised the taking and use of water for mining purposes.<sup>75</sup>

<sup>70</sup> Crommelin and Hunter, above n 28.

<sup>71</sup> For example, see the Water Resource (Fitzroy Basin) Plan 2011 (updated to September 2013) cls 32-33, which exempt mine dewatering and some other purposes from moratoria on water licence applications. The 2010 Moratorium Notice that applied during the preparation of the water resource plan also exempted from its provisions applications for licences for mine dewatering: Water Act Moratorium Notice, Fitzroy Basin, published 14 December 2010. The draft Resource Operations Plan for the Fitzroy Basin applies so far only to surface water, so would not apply to mine dewatering of groundwater unless the Resource Operations Plan were amended to so apply. See Queensland Government, Department of Natural Resources and Mines, Fitzroy Basin Catchment, <http://www.dnrm.qld.gov.au/water/catchments-planning/catchments/fitzroy-basin>.

<sup>72</sup> Water Resource (Fitzroy Basin) Plan 2011 cls 38-41 and Schedule 8. Such allocations are made only for the life of the project, after which the water returns to the strategic reserve.

<sup>73</sup> A Dauwalder, above n 68, 284.

<sup>74</sup> *Mining Act 1973* (NSW) ss 93 and 133. See also Crommelin and Hunter, above n 28, 208-211.

<sup>75</sup> At least by 1989: Crommelin and Hunter, above n 28, 208-211. It is not clear when the water access rights were removed from the mining legislation.



Also, the *Environmental Planning and Assessment Act 1979* (NSW) (EP and A Act) has provided a layer of land use development approval and strategic environmental decision making to the regulatory approval process. While the EP and A Act has always required a consent authority determining an application to take into account the effects of the proposed development on the environment,<sup>76</sup> it is not clear when water resources impacts became an important part of the decision-making matrix. The contemporary provisions for approval of mining and mining access to water resources are found under the *Mining Act 1992* (NSW), the EP and A Act and the *Water Management Act 2000* (NSW) (Water Management Act). A mining proponent must obtain a water access licence. However, that requirement is overlaid by complex provisions for obtaining development approval, which can involve a detailed consideration of water resource management.<sup>77</sup> The development approval provisions have been undergoing significant reform, including the 2005 enactment of the contentious Part 3A for ministerial approval of major proposals,<sup>78</sup> and its 2011 repeal<sup>79</sup> and replacement with the State Significant Development (SSD) provisions of the same Act.<sup>80</sup> Mining proposals that received Part 3A approval were exempted from obtaining certain approvals under the Water Management Act, but not access licences,<sup>81</sup> and mining proposals that are authorised by a development consent still receive exemption from those approval requirements.<sup>82</sup> The current (2013) mining project water access authorisation requirements under the Water Management Act are discussed below in the context of implementation of the NWI model. It suffices here to say that a mining project must, subject to exemptions, have a water access licence with a perpetual share entitlement (ss 56, 60A, 60I and 69) issued consistently with a water management plan (s 61), a water use approval (s 89), a water management works approval (s 90), and an activity approval for an interference with a watercourse or underground water resource, the latter being an aquifer interference approval (s 91). Various exemptions apply; the most significant is that mining exploration is exempted from holding an access licence if it takes less than 3 ML/year.<sup>83</sup>

<sup>76</sup> EP and A Act s 79C.

<sup>77</sup> For example, *Hunter Environment Lobby Inc v Minister for Planning* [2011] NSWLEC 221 [109]ff relating to the assessment and conditioning of mining impacts on groundwater.

<sup>78</sup> The operation of Part 3A is described in C Ireland and S Williamson, “Access to Water for Mining Projects: What Has Changed in the Last Year?” [2005] *AMPLA Yearbook* 442, 444ff.

<sup>79</sup> *Environmental Planning and Assessment Amendment (Part 3A Repeal) Act 2011* (NSW).

<sup>80</sup> EP and A Act ss 89C-89L.

<sup>81</sup> R Webb, “Water Management and the Coal Mining Industry in New South Wales” (2008) 25 *EPLJ* 272, 278.

<sup>82</sup> EP and A Act s 89J(1)(g).

<sup>83</sup> *Water Management (General) Regulation 2011* (NSW) reg 18, and Schedule 5, Exemptions, item 16, which leads to an exemption from the water use approval: reg 31. Also, by reg 33 a mining operation is exempted from a water use approval if it is subject to an aquifer interference approval. Reg 39 exempts operations on waterfront land from controlled activity approval if the activity is authorised under a mining tenure.

In contrast to Western Australia, both Queensland and New South Wales historically had water resource legislation provisions for conducting inquiries into the potential allocations for contentious licence applications.<sup>84</sup> Those provisions do not appear in the current legislation. Perhaps the explanation for that is the endeavour to make statutory water resource plans that better guide the determination of water licence applications. However, Queensland and New South Wales each have alternative forms of public inquiry that may apply to mining tenement applications and water resource objections.

### **Role of specialist courts**

The Queensland Land Court hears applications and objections for mining leases under the *Mineral Resources Act 1989* (Qld) and for the related environmental authorities under the *Environmental Protection Act 1994* (Qld). The Court hears objections and makes recommendations to the decision makers for each authorisation. In the exercise of that function, it receives objections on water resources grounds, but it has a limited jurisdiction to respond to them as illustrated in *Xstrata Coal Queensland Pty Ltd and Others v Friends of the Earth and Others*,<sup>85</sup> which related to the Wandoan coal mine.<sup>86</sup> Nine neighbouring landowners objected to the proposed mine because of their concerns about its impact on their general amenity and productive use of their land, including effects on their groundwater sources. A local water group and water board also objected, in their case over concerns about impacts on the quality and quantity of the groundwater resources they used. The Land Court held that, because authority to take or divert water could only be granted under the Water Act, it had no authority to make recommendations in relation to the taking or diversion of water. President McDonald expressed her frustration over the “undesirable dichotomy in the Land Court’s jurisdiction and powers” and the fact that the Water Act determinations on the extraction and diversions of water would not be made until after the mining and environmental authorisations for the project had been approved: [607]-[608]. Even so, she did make recommendations in relation to protection of water quality and also indicated the recommendations for more monitoring of groundwater that she would have made if she had jurisdiction, even though she was also constrained by the limitation under the *State Development and Public Works Organization Act 1971* (Qld) not to make recommendations that would contradict the recommendations in the report of the Coordinator General.

In New South Wales, since 2009, the Land and Environment Court has had jurisdiction to hear disputes that arise in the application for mining tenements.<sup>87</sup> It also has jurisdiction to hear merits and judicial review proceedings that arise in

<sup>84</sup> Crommelin and Hunter, above n 28, 212 and 217.

<sup>85</sup> [2012] QLC 013.

<sup>86</sup> The key points here are taken from the case note by L Letts, “Land Court Gives Xstrata’s Mega Mine the Nod” (2012) 31 *ARELJ* 163.

<sup>87</sup> *Mining Act 1992* (NSW) Part 15, *Land and Environment Court Act 1979* (NSW) s 21C. For example, *Lightning Ridge Miners Association Ltd v Slack-Smith* [2013] NSWLEC 1063. The NSW Mining Wardens Court was abolished in 2008 by the *Courts and Crimes Legislation Further Amendment Act 2008* (NSW), Schedule 19.

relation to the grant of development consent under the EP and A Act.<sup>88</sup> Most mining projects will be assessed under the SSD provisions,<sup>89</sup> which may involve environmental impact assessment. The consent authority is directed to consider impacts on significant water resources and the imposition of consent conditions to ensure that impacts are avoided or minimised to the greatest extent practicable.<sup>90</sup> Such conditions may relate to water access entitlements.<sup>91</sup> The Minister for Planning is to determine SSD proposals but these powers, including the consideration of a review by the Planning and Assessment Commission (with or without a public hearing), have been delegated to the Planning and Assessment Commission.<sup>92</sup> A full understanding of this jurisdiction requires a more detailed study.

### Summary

Queensland and New South Wales legislation share some similar historical features with the Western Australian legislation, but these two States have enacted significant reforms. They have stronger, but differing, tribunal regimes for the consideration of water resource impacts of mining and CSG proposals. The New South Wales Land and Environment Court jurisdiction has more clearly expressed integration of the mining and water resources decision making. However, the Queensland Land Court cannot, on hearing applications for a mining lease and accompanying environmental authority, make recommendations for conditions on extraction and diversion of water because that is regulated by the Water Act, and the water resource licence conditions are determined after the mining tenure and environmental authority are determined.

## Historical Overview of Petroleum Legislation

Until the recent concerns with the expansion of coal mining and CSG production, the interaction of petroleum legislation with water resources legislation generated less community concern than the interaction of mining and water resources. The key historical provisions of each State are summarised below in relation to the interaction of the water and petroleum legislation.

<sup>88</sup> *Mining Act 1992* (NSW) s 65 and *Land and Environment Court Act 1979* (NSW) s 17.

<sup>89</sup> EP and A Act s 89C: declarations of mining proposals as SSD are made under the State Environmental Planning Policy (State and Regional Development) 2011, cl 8 and Schedule 1 paragraphs 5-6.

<sup>90</sup> State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 (NSW) cl 14.

<sup>91</sup> C Ireland and S Williamson, "Access to Water for Mining Projects: What has Changed in the Last Year?" [2005] *AMPLA Yearbook* 442, 444ff. For example, *NSW Glass and Ceramic Silica Sand Users Association Ltd v Port Stephens Council* [2000] NSWLEC 149 (sand mining and water management); and *Hunter Environment Lobby v Minister for Planning* [2011] NSWLEC 221 [109]-[173].

<sup>92</sup> EP and A Act ss 89D-89E and s 80(7) for consideration of the Planning and Assessment Commission review. The Instrument of Delegation was made on 14 September 2011, *New South Wales Government Gazette*, No. 95, 28 September 2011, 5682.

In Western Australia, the impacts of the petroleum industry on water resources have not been as contentious as the mining industry, yet. The first legislation regulating the petroleum industry in Western Australia was the *Petroleum Act 1936* (WA). Several of its provisions showed a concern that water resources that were discovered in the course of petroleum operations were to be reported and kept “shut off” or separate from any petroleum or gas resources.<sup>93</sup> There were also provisions authorising the tenement holder to construct works to supply water to operations on the tenement area. In addition, the Governor could make regulations for prescribing treatment of water underground or at the surface.<sup>94</sup> The next generation of petroleum legislation, the *Petroleum Act 1967* (WA), contained more expansive provisions on similar issues. Thus, the prescription of work practices included the duty of a tenement holder to “control the flow and prevent the waste or escape in the permit or licence area of petroleum or water”, to prevent the escape in the permit or licence area of any mixture of water or drilling fluid with petroleum or any other matter, to keep petroleum and water sources separate, and to give notice of the discovery of water.<sup>95</sup> Similarly to the *Petroleum Act 1936* (WA), the Governor had authority to make regulations to control the flow and prevent the escape of petroleum or water, and to keep separate each petroleum pool and water source.<sup>96</sup> The petroleum legislation has evolved considerably since 1967 and is now called the *Petroleum and Geothermal Energy Resources Act 1967* (WA). One aspect of that evolution is that from 2007<sup>97</sup> it contains s 7(3), stating that “the taking or use of any water for the purposes of any operations carried out under the authority of” a petroleum tenement is subject to the RiWI Act 1914. However, “‘water’ does not include water that constitutes geothermal energy resources”.<sup>98</sup>

In Queensland, it appears that the contentious impacts of the petroleum industry on water resources have arisen in the past twenty years because of the development of the CSG industry. Community concerns about those impacts have brought significant reforms. Yet, even in 2013, the primary authority of a petroleum tenure holder to interfere with groundwater in the course of petroleum production activities still derives from the *Petroleum Act 1923* (Qld) (Petroleum Act) and the more recent *Petroleum and Gas (Production and Safety) Act 2004* (Qld) (P and G Act).

In 1994, authority for petroleum tenure holders to take and use or divert surface and groundwater resources derived from the petroleum legislation. The 1994 reprint of the Petroleum Act authorised a petroleum tenure holder to take and use surface water resources for any purpose necessary or incidental to the tenure holder’s exploration and production operations and to construct and maintain works for those purposes.<sup>99</sup> It also authorised the Minister to authorise a tenure holder to take and use “underground” water for their petroleum tenure operations, to supply any surplus water obtained to neighbouring landholders, and to direct neighbouring

<sup>93</sup> *Petroleum Act 1936* (WA) s 51.

<sup>94</sup> *Ibid* ss 20 and 116(n).

<sup>95</sup> *Petroleum Act 1967* (WA) ss 91(2) and 113.

<sup>96</sup> *Ibid* s 153(2)(c).

<sup>97</sup> *Petroleum Amendment Act 2007* (WA) s 7.

<sup>98</sup> *Petroleum and Geothermal Energy Resources Act 1967* (WA) s 113(2).

<sup>99</sup> *Petroleum Act 1923* (Qld) reprint June 1994, ss 23, 31, 37.

landholders to supply any excess groundwater they had to the petroleum tenure holder.<sup>100</sup> These provisions were expressed to operate notwithstanding the *Water Resources Act 1989* (Qld). There were also obligations on petroleum tenure holders to keep water out of petroleum infrastructure and deposits.<sup>101</sup>

The enactment of the Water Act changed little, though there was provision in s 237 for the application for a water permit to authorise the short-term taking of water for petroleum exploration. Without tracking through all the statutory amendments since 2000, the current position (by amendment in 2013) is that a petroleum tenure holder, under either the Petroleum Act or the P and G Act, may also apply for a Water Act licence for taking and using water, or to interfere with the flow of water, on or under any land to which it has legal access, even if the land is not subject to their petroleum tenure: s 206.<sup>102</sup> The Petroleum Act continues to authorise the Minister to permit the holder of an authority to prospect or a petroleum lessee to take and use underground water for any tenure purposes (but now subject to consultation with the Water Act regulator) and to supply any surplus water to neighbouring landholders (now subject to the prior approval of the Water Act regulator).<sup>103</sup> The permission to take underground water is also subject to the tenure holder's "underground water obligations".

More notably, s 185 of the P and G Act defines the "underground water rights" for a petroleum tenure holder to include an explicit authority to take or interfere with underground water in the area of the tenure if that taking or interference occurs during, or results from, an authorised activity for the tenure.<sup>104</sup> This water is described as "associated water", and it may be used for carrying out that authorised activity. Alternatively, the tenure holder may simply take or interfere with underground water for use in its tenure activities. These P and G Act "underground water rights" are subject to tenure holders complying with their "underground water obligations", but there is no limit to the volume of water that may be taken in exercise of the underground water rights.

The P and G Act s 185 underground water rights are deemed to authorise that taking or interference with or the use of water under the Water Act, but the operation of the Water Act is not otherwise affected in relation to activities under the P and G Act.<sup>105</sup> So, the Water Act would still apply to anything a petroleum tenure holder does in relation to surface water within the area of their tenure or in respect of accessing surface and groundwater resources beyond the area of their tenure. Further, it is the Water Act that defines the petroleum tenure holder's "underground water obligations", being the obligations under Chapter 3 of the Water Act to protect the interests of other water licensees who may be affected by the impact of the petroleum activities.

<sup>100</sup> Ibid s 50A.

<sup>101</sup> For example, *Petroleum Act 1923* (Qld) reprint June 1994, s 50.

<sup>102</sup> See also the Water Act definitions of "petroleum tenure" and "petroleum tenure holder".

<sup>103</sup> *Petroleum Act 1923* (Qld) reprint 2013, s 86.

<sup>104</sup> C Bozonji, "Management of Coal Seam Gas Associated Water" [2010] *AMPLA Yearbook* 555.

<sup>105</sup> *Petroleum and Gas (Production and Safety) Act 2004* (Qld) ss 188 and 189.

There are two final points to note. First, the Petroleum Act and the P and G Act (s 187ff) also authorise monitoring of groundwater for petroleum production purposes. Secondly, such is the volume of water involved, s 185(5) authorises the tenure holder to use “associated water for any purpose”, which would include supply to third persons not associated with the petroleum production.

In New South Wales, CSG exploration and mining (production) is regulated by the *Petroleum (Onshore) Act 1991* (NSW) (Petroleum (Onshore) Act).<sup>106</sup> The Petroleum (Onshore) Act as enacted in 1991 did not authorise the taking and use of water for petroleum operations, and it clearly does not now. As mentioned above in relation to New South Wales mining legislation, the repeal of Part 3A of the EP and A Act and replacement with the SSD provisions continues the exemption from the Water Management Act approval requirements, though not from an aquifer interference approval under s 91.<sup>107</sup> A CSG producer operating under petroleum tenure in a way that takes or diverts water will need to obtain a water access licence with a perpetual share entitlement (ss 56, 60A, 60I and 69) issued consistently with a water management plan (s 61), a water use approval (s 89), a water management works approval (s 90), and an activity approval for an interference with a watercourse or underground water resource, the latter being an aquifer interference approval (s 91). The exemptions that apply for mining tenures also apply to petroleum tenures. It has not been possible to research the historical operation of the *Water Act 1912* (NSW) in relation to the authorisation of the taking or diversion of water resources for petroleum operations. As with applications for mining leases, applications for petroleum production authorisation also require development consent under the EP and A Act<sup>108</sup> or, if not, may still be subject to environmental impact assessment under Part 5 of the EP and A Act.<sup>109</sup>

## NWI MODEL AND IMPLEMENTATION IN STATUTORY AND POLICY PROPOSITIONS

With the historical and current legislative frameworks in place, this section explains the NWI model and its implementation in the legislation regulating water access for mining and petroleum operations.

<sup>106</sup> Under certain circumstances the *Mining Act 1992* (NSW) will also apply: see T Poisel, “Coal Seam Gas Exploration and Production in New South Wales: The Case for Better Strategic Planning and More Stringent Regulation” (2012) 29 *EPLJ* 129, 133 and reference there cited.

<sup>107</sup> T Poisel, *ibid.*, 135. EP and A Act s 89J. Petroleum proposals are SSD made under the State Environmental Planning Policy (State and Regional Development) 2011, cl 8 and Schedule 1 paragraph 6, but the s 89J exemption does not apply to an aquifer interference approval.

<sup>108</sup> *Petroleum (Onshore) Act 1991* (NSW) s 67. For example, as happened in *Barrington – Gloucester – Stroud Preservation Alliance Inc v Minister for Planning and Infrastructure* [2012] NSWLEC 197.

<sup>109</sup> For example, this was the issue in *Fullerton Cove Residents Action Group Incorporated v Dart Energy Ltd (No 2)* [2013] NSWLEC 38.

## The NWI Reforms

A good appreciation of the significance of the NWI reforms can be gained by comparing the current legal character of a Western Australian water licence (see above), which is not founded on a statutory water planning system, with the key NWI policy propositions for the tradable water access entitlements founded on statutory water management plans.<sup>110</sup>

The key features of the tradable water access entitlements are that:

- they confer perpetual exclusive entitlements as shares of available water defined as a “consumptive pool”, and determined as annual allocations to a water account;<sup>111</sup>
- on transition to the new entitlement regime, overallocated and overused areas were to be adjusted to a sustainable level of take by making a statutory water plan, and the old licences and entitlements were to be reduced on conversion to comply with new plan limits;<sup>112</sup>
- they are an entitlement separate from land title and “unbundled” from approvals for water works (to divert or take water) and from approvals for water use;<sup>113</sup>
- they are tradable proprietary entitlements that can be traded separately as water access entitlement or annual allocations, and can be subdivided or amalgamated, and mortgaged;<sup>114</sup> and
- all extractions of water are to be metered and reported, and clearly accounted for.<sup>115</sup>

The water access entitlements regime is to be based on a comprehensive system of water planning, which is to be legally binding and provide for:

- formal allocations of water to the environment and for indigenous people’s native title rights and their social, spiritual and customary objectives;<sup>116</sup>
- determination of the consumptive pool(s), both for the term of a plan and for seasonal allocations to share entitlements;<sup>117</sup>
- release of unallocated water under a plan would have to be sustainable and, if practicable, through market-based mechanisms;<sup>118</sup>

<sup>110</sup> See generally, A Gardner et al, above n 14, chapter 18, “Defining Entitlements” and chapter 16, “The Content of a Plan”.

<sup>111</sup> NWI cls 28, 29 and 31(ii).

<sup>112</sup> NWI cls 41-45.

<sup>113</sup> NWI cl 30 and Schedule D.

<sup>114</sup> NWI cl 31. There are numerous additional policy propositions around developing water markets and trading: NWI Clauses 58ff.

<sup>115</sup> NWI cls 80-89.

<sup>116</sup> NWI cls 35 and 37 for environmental water allocations and cls 52-54 for indigenous access.

<sup>117</sup> NWI cls 28, 29, 37, 39 and Schedule E.

<sup>118</sup> NWI cls 70-72.

- monitoring, auditing and reporting of plan performance;<sup>119</sup> and
- regular review to re-set the plan regime, including water access entitlements.<sup>120</sup>

These core principles have been implemented in the NSW Water Management Act, are available to be implemented under the Queensland Water Act and are proposed for partial implementation through statutory reforms being prepared in Western Australia. The following features of these laws are most germane to this discussion.

- *Landholder eligibility requirement for holding a water access entitlement*: in New South Wales there is none, in Queensland there is such a requirement under the principal provisions for mining and CSG water resource access, and in Western Australia there is still a general landholder eligibility requirement for water resource access, which is proposed for partial reform.<sup>121</sup> It is an open question how significant this is for mining and CSG access to water resources, though it is likely that water access entitlements that are tradable without landholder eligibility requirements would make it easier for the mining and CSG operators to purchase entitlements or annual allocations on a flexible basis.
- *The terms of the relevant licences*: in New South Wales they are perpetual, in Queensland they are valid until 2111, and they are proposed to be for 40 years in Western Australia unless a statutory plan on the NWI model is made, which is seen as unlikely in isolated mining regions.
- *Statutory plans*: in New South Wales and Queensland, the grant of a licence must be in accordance with a statutory plan, though the relevant Queensland water resource plans may not provide for a consumptive pool and variable annual allocations.<sup>122</sup> This proposition is qualified in New South Wales because the duty of the Minister in granting a new licence is to be satisfied only that “adequate arrangements are in force to ensure that no more than minimal harm will be done to any water source as a consequence ...” of issuing the licence – the s 63(2) duty.<sup>123</sup> The RiWI Act does not require that a grant be made consistently with a statutory plan and the reform proposals are ambivalent on this point, except where statutory plans on the NWI model are made.
- Each State currently provides for permanent and temporary trading of water access rights, though the most sophisticated trading regime is provided in New

<sup>119</sup> NWI cls 80-89.

<sup>120</sup> NWI cl 39 and Schedule E, paragraphs 3 and 4.

<sup>121</sup> *Water Management Act 2000* (NSW) ss 56 and 61; *Water Act 2000* (Qld) s 206; RiWI Act (WA) and see, generally, Gardner et al, above n 14, chapter 18. Without a careful study of Queensland water operations plans, it is not clear to what extent mining and CSG access to water resources is regulated by the issue of “allocations” (the Queensland water access entitlement instrument). The Western Australian Government’s reform proposal, see above n 3, includes the capacity to make statutory plans implementing consumptive pool and water access entitlement concepts, where appropriate.

<sup>122</sup> *Water Management Act 2000* (NSW) ss 61(1) and 63; *Water Act 2000* (Qld) s 205. In Queensland, the implementation of consumptive pool and water access entitlement concepts depends on the plan made: see Gardner et al, above n 14, [16.69] and [18.5].

<sup>123</sup> *Water Management Act 2000* (NSW) s 63(2)(b).



South Wales and the least sophisticated in Western Australia. Clearly, a more flexible trading regime should, and generally does, accompany a more rigorous consumptive pool regime.

How do the mining and CSG industries respond to the NWI model of water access regulation? In general terms, a variable share entitlement regime limited by ecological parameters and sustainable water resource yields, which changes the volume of water that can be extracted for use or dewatered each year, is a problem for an industry that wants volumetric certainty. For example, projects that require large amounts of water for mining operations in arid areas with very little and very variable recharge will struggle with the constraints of such a regime. The situation is even more complicated for dewatering operations, where the very purpose of the operation is to draw down the groundwater aquifer at unlimited unsustainable rates to access the ore. Calculating this complexity is challenging because the hydrogeology of any project area will vary and much expense may be involved in exploring the groundwater resource and developing a model of how it behaves. There is little wonder that the mining and petroleum sectors sought the inclusion of NWI clause 34.

An early view of the mining lawyers' perspective on the NWI model is illustrated by the analysis of Ireland and Williamson in their 2005 review of the new New South Wales Water Management Act regime and its interaction with Part 3A of the EP and A Act.<sup>124</sup> Under the rubric of "security of entitlement to water", the authors explain that a mining development will need a water access licence, even if it is exempted under Part 3A from obtaining other standard approvals for water use, works or water resource interference.<sup>125</sup> They go on to explain that the variable share character of the access entitlement and the lack of any special or specific purpose access licence for mining, can leave a new mining project in an area fully allocated under a water management plan with the task of seeking a zero entitlement licence and purchasing an entitlement through the water market. The authors further analyse<sup>126</sup> the "uncertainty" for mining and other access entitlements introduced by the legislation. Of particular concern are the ministerial discretions governing determination of a grant of a new licence, the imposition of conditions on access licences (including after the grant of a licence) and the capacity for unilateral revocation of discretionary conditions, the making of "available water determinations" of less than the nominal share entitlement volume, and the capacity to amend the share entitlement in accordance with the Act or the relevant management plan.

With respect, the authors do not highlight the greater security of a perpetual share entitlement protected by the provisions of a water management plan that requires amendment under statutory authority and statutory process. They do, however, note the variable security of different types of access entitlements, suggesting that mining operations should endeavour to obtain high security access licences.

<sup>124</sup> C Ireland and S Williamson, "Access to Water for Mining Projects: What Has Changed in the Last Year?" [2005] *AMPLA Yearbook* 442.

<sup>125</sup> *Ibid* 444.

<sup>126</sup> *Ibid* 446-448.

## Current Implementation of the NWI Model

In 2010, the NWC's mining and CSG position statements called for the mining and CSG industries to be brought more into the NWI model of water resource management, and for a better explanation of the special circumstances that should apply if that was not feasible. Notwithstanding the political difficulties encountered in recent years, there has been an ongoing general consolidation of the regulation of mining and CSG impacts on water resources under water resources legislation administered by water agencies. This trend is evident from the historical analysis above. The mining industry now broadly accepts the application of the NWI consumptive pool model, but still maintains that there are circumstances where the essential model is not applicable.<sup>127</sup>

This section gives a brief analysis of the key statutory and policy propositions from New South Wales, Queensland and Western Australia that show the trend in the legislative and policy adoption of the NWI model of share entitlements and consumptive pool planning in relation to the mining and CSG industries. The extent of the trend varies across the three States, with instances where the NWI model is clearly rejected, reflecting different geographical, hydrogeological and economic factors. Those variations are also being better explained as addressing special circumstances, as the NWC recommended. This analysis is based on some of the key principles defined in the NWC's mining and CSG position statements.<sup>128</sup> While the NWC identified about ten principles for each industry sector, the focus here is on an interpolation of two key principles that most closely express the application of the consumptive pool concepts and reflect the guiding proposition that, wherever possible, mining and CSG activities should be incorporated into NWI-consistent water planning and management regimes from their inception. Those two principles are:

1. the interception of water by mining and CSG extraction should be licensed to ensure it is integrated into water sharing processes from their inception;
2. the cumulative impacts of mining and CSG operations should be accounted for in water budgets and managed under the regulatory arrangements of NWI-consistent statutory water plans.

### New South Wales

The New South Wales statutory and policy propositions are that the mining and CSG extractions and diversions of water resources are licensed and the cumulative impacts are accounted for under statutory water plans. The main expression of this position is the Aquifer Interference Policy 2012 (AIP), which is a "key plank"

<sup>127</sup> Minerals Council of Australia, "Water Policy, Water Planning and Reform Priorities", February 2012, [http://www.minerals.org.au/focus/sustainable\\_development/industry\\_policy/water\\_policy](http://www.minerals.org.au/focus/sustainable_development/industry_policy/water_policy).

<sup>128</sup> Some of this analysis draws on L Letts, "Coal Seam Gas Production – Friend or Foe of Queensland's Water Resources?" (2012) 29(2) *EPLJ* 101.

of the New South Wales Government’s Strategic Regional Land Use Policy.<sup>129</sup> Under the AIP and s 60I of the Water Management Act, water access licences are required for a “person who takes water in the course of carrying out a mining activity” to ensure compliance with extraction limits in water sharing plans, whether or not the water is taken for the purpose of consumptive use or incidentally by the aquifer interference activity. “Mining activity” is broadly defined to include exploration and production of minerals or petroleum: s 60I(4). If there is insufficient unassigned water in a water plan area, the mining operator needs to purchase water entitlements from an existing licensed user and obtain the Minister’s consent to the trade under the Act. If the aquifer interference activity induces flow from another adjacent groundwater source or flow from a connected surface water source, then those flows are also a taking of water that needs to be accounted for through the licensing regime. Such accounting needs to occur beyond the life of the project.

However, there are a number of elements in the policy and associated legislation that qualify the operation of the NWI model under the Water Management Act. First, there are a limited range of exemptions (discussed above), such as the exemptions from obtaining a water access licence for exploration, testing and monitoring.<sup>130</sup> These are practical exemptions for relatively minor and routine extractions of water, and do not compromise the basic operation of the NWI model; a mining or CSG operation may only take or divert water held in a water account.

The second qualification on the NWI model is potentially more significant – the s 63(2) duty permits the Minister to grant a licence if satisfied that there are “adequate arrangements in force to ensure no more than minimal harm will be done to any water source as a consequence of water being taken from the water source under the licence”.

The operation of this discretion may be subject to assessment under the development assessment provisions of the EP and A Act and advice provided by the New South Wales Office of Water in accordance with the criteria provided in the AIP, section 3, which may be particularly significant to taking or interfering with groundwater in deep aquifers. It is not possible to review here all the policy propositions that guide the Minister’s discretion. It suffices to say that, if proponents cannot account for all the water they will take or divert, they need to show that they can meet minimal impact considerations. The policy deems, for example, that an impact of less than 10% cumulative variation in a water table and

<sup>129</sup> New South Wales Government, Department of Primary Industries, Office of Water, “Aquifer Interference Policy”, <http://www.water.nsw.gov.au/Water-management/Law-and-policy/Key-policies/Aquifer-interference/Aquifer-interference>. While the operation of the Strategic Regional Land Use Policy clearly impacts on the determination of industry access to diverting and extracting water resources, it is not analysed here.

<sup>130</sup> Water Management Act ss 60F and 91M, which provide for exemptions as defences to prosecutions. The exemptions are found in the *Water Management (General) Regulation 2011* (NSW) regs 18, 31, 33 and 39, and include exemptions from requirements for water use and aquifer interference approvals. See above n 83.

up to a maximum two metres decline in a water table at a water supply work is “acceptable”. A proponent will also have to show a capacity for remedial actions for greater than predicted impacts.

This approach could potentially compromise the operation of the NWI model, especially in the longer term, and it is difficult to see the justification for it. A brief comparison with the equivalent law in Colorado, USA will highlight the potential rigour that could be applied to accounting for mining and CSG impacts on other licensees’ interests in water resources, not to mention environmental water allocations.

In *Vance v Wolfe*,<sup>131</sup> the Colorado Supreme Court affirmed the State’s Water Court in holding that the operator of a coal bed methane project must account to other senior water rights holders for the extraction of water in those operations. The decision was founded on the unchallenged legal assumption that the groundwater being extracted was “tributary” to the surface water resources being used by the plaintiff ranchers, unless the defendant miner could show otherwise. In order to disprove the assumption under the applicable groundwater legislation, the miner would have had to show that groundwater was “non-tributary”: that is, that the *withdrawal of the groundwater “... will not, within one hundred years, deplete the flow of a natural stream ... at an annual rate greater than one-tenth of one percent of the annual rate of withdrawal”*.<sup>132</sup> (emphasis added) As the Supreme Court explained, the extraction, storage and reinjection of water during coal bed methane operations made the water inaccessible to other water rights holders.<sup>133</sup>

## Queensland

It is difficult to assess the extent to which the operation of the Water Act s 206 provisions will result in implementation of the NWI model. The grant of a water licence is to be in accordance with a water resource plan or a resource operation plan: s 205. There is a basic distinction between these two types of plans: a water resource plan generally does not define a consumptive pool arrangement and a resource operation plan does.<sup>134</sup> A resource operation plan can provide for the conversion of licences to share “allocations” in the consumptive pool. Thus, in

<sup>131</sup> (2009) 205 P.3d 1165 (Colo 2009).

<sup>132</sup> Note 4 in the judgment of the Court, referring to s 37-90-103(10.5), Colorado Revised Statutes (2008). The focus of the Supreme Court’s decision was that the dewatering for coal bed methane (= coal seam gas) operations amounted to a beneficial use of the water and that required the effect of the extraction to be adjudicated by the Water Court as a water right and not regulated simply by the State or Division Engineers under the legislation regulating coal bed methane operations. As the case would have required 40,000 CBM wells to be adjudicated by the Water Court, the State Engineer sought and obtained legislative amendments to give him the authority to make the non-tributary determinations for CBM operations. This legislation and some of those determinations were upheld in *Pawnee Well Users and ors v Wolfe (State Engineer) and BP America Production Company*, Colorado District Court, Water Division no. 1, 8 September 2011. See also K Holsinger and P Lemke, “Water, Oil, and Gas: A Legal and Technical Framework” (2012) 16(1) *Water Law Review* 1, especially at 31ff.

<sup>133</sup> (2009) 205 P.3d 1165 (Colo 2009) at 1171.

<sup>134</sup> Gardner et al, above n 14, [16.9]-[16.10].

relation to the licensing of mining operations' extraction and diversion of water, much will depend on the type of plan in place. A similar point may be made about the application of s 206 licensing to the petroleum industry's operations that involve the extraction or diversion of surface water.

It is clear that the Water Act does not apply to the petroleum and CSG operations in the exercise of "underground water rights" to produce associated water. As mentioned above, there is no limit on the extraction or diversion of associated water in the production of CSG. However, the exercise of those rights is subject to the "underground water obligations", being the obligations under Chapter 3 of the Water Act.

Those obligations operate in three basic stages:

1. The operator must prepare an "Underground Water Impact Report" (UWIR) to identify the areas at risk, including identifying bores at risk of "immediate" or "long-term" impacts, depending on whether the impacts will meet statutory drawdown criteria within three years or more. If the risks pertain to a cumulative impact area affected by more than one operator, the responsible government agency (formerly the Queensland Water Commission and now the Office of Groundwater Impact Assessment, an independent office in the Department of Natural Resources and Mines) will establish a cumulative impact management area and prepare the UWIR, allocating responsibility for the wells at risk to relevant tenure holders in the cumulative impact area. UWIRs also establish the monitoring strategy for the exercise of the monitoring powers under the petroleum legislation and a spring management strategy identifying risks of drawdown and remedial measures for springs. UWIRs are subject to approval by the Department of Environment and Heritage Protection.
2. Once approved, the operators are obligated to do baseline assessments of the wells at risk and to endeavour to enter into agreements with impacted licensees to address the impacts by "make good" obligations.
3. Chapter 3 also imposes underlying obligations on tenure holders to "make good" the impacts of their CSG production on affected water licensees, including post-tenure.<sup>135</sup> The ultimate purpose of this obligation is to restore a water supply to the impacted licensee rather than to restore the water resource.

The Chapter 3 regime creates no links with the planning regime in Chapter 2, and it is clearly not implementing the NWI model.

### **Western Australia**

The RiWI Act clearly does not implement the NWI model, as the current legal character of the water licences is to allocate annual maximum volumes rather than share entitlements. The RiWI Act and related legislation, such as the *Environmental Protection Act 1986* (WA), have been criticised for not providing adequately for

<sup>135</sup> *Water Act 2000* (Qld) s 439.

management of the cumulative effects of mine dewatering in the Pilbara.<sup>136</sup> There are non-statutory water management plans being applied across much of the State setting allocation limits to be taken into account in licensing, though in some areas no attempt is made to set allocation limits, such as in the Pilbara iron ore mining region.<sup>137</sup> Instead, the Pilbara Groundwater Allocation Plan (October 2013) proposes to identify specific areas affected by cumulative impacts of iron ore mine dewatering and to investigate data sharing options among proponents, to facilitate the improved assessment of cumulative impacts so the Department can provide regional assessments or advice to proponents.<sup>138</sup> In the meantime, the environmental impact assessment procedures under Part IV of the *Environmental Protection Act 1986* (WA), including provisions for strategic environmental assessment, are being used as the principal framework for addressing cumulative impacts.

There is also the difficulty that some state agreements (for example, *Collie Coal (Western Collieries) Agreement Act 1979* (WA)) exempt existing mining projects from RiWI Act licensing and authorise groundwater extraction well beyond sustainable yield limits.<sup>139</sup> A proposal to expand the Collie Coal operations beyond the State Agreement area could involve a cumulative drawdown of the groundwater table by as much as one hundred metres.<sup>140</sup> How would such a proposal be regulated under a water licence?

The recently released water resources law reform position paper<sup>141</sup> proposes the selective implementation of the NWI model for water resources where it is believed applicable. However, it is equally proposed to essentially retain the current licensing regime and issue 40-year licences, which are seen as more commensurate with the average life of a water use project, including mining projects.<sup>142</sup> The reform proposals are well short of a general adoption of the NWI model, especially for mining projects.

## EPBC Act “Water Trigger”

The EPBC Act has a new-found significance for regulating access to water resources for the mining and CSG industries. It is well understood that proponents of “controlled actions”, that is, actions that have or are likely to have a

<sup>136</sup> N Sommer, “Mine De-watering in the Pilbara: A Legal Framework for Managing the Cumulative Impacts on Environmental Values and Indigenous Interests” (2012) 31 *ARELJ* 65.

<sup>137</sup> Government of Western Australia, Department of Water, *Pilbara Groundwater Allocation Plan*, October 2013.

<sup>138</sup> *Ibid* 34.

<sup>139</sup> The extraction of mine de-water in the Premier sub-area is 2000% above the estimated sustainable yield: Government of Western Australia, Department of Water, *Upper Collie Water Allocation Plan*, 2009, Part 1.10, 23.

<sup>140</sup> *Premier Coal Ltd v Brockwell* [2013] WAMW 15 [50].

<sup>141</sup> Government of Western Australia, Department of Water, “Securing Western Australia’s Water Future; Position Paper – Reforming Water Resources Management”, September 2013, 14ff.

<sup>142</sup> *Ibid* 12.

significant impact on matters of national environmental significance, will need an environmental approval. Until 2013, it was possible that a mining or CSG project could, incidentally, have such an impact and require an approval.<sup>143</sup> In 2012, the Commonwealth legislated to establish the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development, to advise the Commonwealth Minister on the Commonwealth's assessment of such controlled actions and to advise the appropriate State Minister on request.<sup>144</sup> In June 2013, the Commonwealth Parliament enacted further amendments introducing the "water trigger" to require commonwealth environmental approval for CSG development or large coal mining development that has or is likely to have a significant impact on a water resource.<sup>145</sup> In late September 2013, the new Commonwealth Minister for the Environment determined that there were 47 controlled actions within the scope of the new water trigger, two in Western Australia and the balance in Queensland and New South Wales.<sup>146</sup>

A number of issues will affect the operation of the water trigger. One key issue is what is an environmentally significant impact on water resources? In general terms, substantial changes to the hydrology and water quality of a water resource will be significant. The cumulative context of impacts will be relevant because the s 528 definitions of "CSG development" and "large coal mining development" refer to the action having a significant impact "when considered with other developments, whether past, present or reasonably foreseeable developments".

For present purposes, though, the most pertinent issue is what water resource management model will be applied in ascertaining and regulating those impacts? In particular, what role will the NWI model have in the Commonwealth Minister's determinations? The "Draft significant impact guidelines" for this trigger were published in July 2013, and no further information appears to be available on the relevant website.<sup>147</sup> The Draft significant impact guidelines comment that the likelihood of significant impact will be reduced if a proponent obtains water

<sup>143</sup> EPBC Act Chapter 4, Parts 6 and 7.

<sup>144</sup> EPBC Act Chapter 6, Part 19, Division 2B. The background to the establishment of this committee is discussed by D Roe, "Federal Environmental Approvals for Coal Seam Gas and Coal Mining: Injecting Independent Science" [2012] *AMPLA Yearbook* 697. Only those States party to the National Partnership Agreement on Coal Seam Gas and Large Scale Coal Mining Development would participate.

<sup>145</sup> The *Environment Protection and Biodiversity Conservation Amendment Act 2013* (Cth) inserted ss 24D and 24E, basing the trigger on the Commonwealth's legislative powers with respect to interstate and overseas trade and commerce, constitutional corporations, and the territories power. Section 528 was amended to insert definitions of "coal seam gas development" and "large coal mining development". The political discussion surrounding the amending Act is reviewed by M Bice and T Gilmour, "Controversial EPBC Act Water Resource Trigger Passed by Parliament, as Recommended by Senate Committee" (August 2013) 28(6) *Australian Environment Review* 616.

<sup>146</sup> "Hunt Applies Water Trigger", *The Land*, 27 September 2013, <http://www.theland.com.au/news/agriculture/general/news/hunt-applies-water-trigger/2672991.aspx> (as at 18 November 2013). The published list of actions to be assessed is found at <http://www.environment.gov.au/minister/hunt/pubs/mr20130926a.pdf>.

<sup>147</sup> Australian Government, Department of the Environment, "Consultation on the Draft significant impact guidelines: Coal seam gas and large coal mining developments –

access entitlements under “a state water resource plan prepared in accordance with the requirements of the National Water Initiative”, but that the impact may still be significant. They provide no further guidance on how the NWI model may be applied to the Commonwealth Minister’s determinations.

## PRECAUTIONARY AND ADAPTIVE MANAGEMENT

The precautionary principle and adaptive management are widely advocated for managing the uncertain impacts on groundwater resources from CSG and mining development, including management by the National Water Commission.<sup>148</sup> The purpose of this section is to suggest that there needs to be a thorough analysis of how well these principles have been applied to date in the management of mining and CSG access to water resources.

The precautionary principle is applicable to water resources decision making under the water resources and environmental protection legislation of New South Wales, Queensland and Western Australia and the Commonwealth.<sup>149</sup> Nevertheless, one cannot say confidently that the precautionary principle is applied with legal rigour in the merits or judicial review cases where it is mentioned in respect of mining and CSG access to groundwater resources.

For example, in five recent cases concerning coal mining and CSG proposals where the precautionary principle has been considered,<sup>150</sup> the consideration has, with one exception, been quite cursory with little attempt to apply the logic of the principle, defined at length by Preston J of the NSW Land and Environment Court in *Telstra Corporation Limited v Hornsby Shire Council*.<sup>151</sup> Although this judgment is that of a single judge in a merits appeal, it has been cited in numerous

impacts on water resources”, <http://www.environment.gov.au/consultation/consultation-draft-significant-impact-guidelines-coal-seam-gas-and-large-coal-mining> (as at 18 November 2013).

<sup>148</sup> Australian Government, National Water Commission, “Mining Position Statement, May 2010” and “Position Statement – Coal Seam Gas and Water, December 2012”, <http://www.nwc.gov.au/nwi/position-statements>.

<sup>149</sup> *Water Management Act 2000* (NSW) ss 3 and 4 definition of “principles of ecologically sustainable development”, EP and A Act s 5 and definition of “ecologically sustainable development” in s 4, which incorporates the precautionary principle; *Water Act 2000* (Qld) s 11(b) and *Environmental Protection Act 1994* (Qld) “standard criteria” defined in Schedule 4; RiWI Act s 4 as interpreted in *More v Water and Rivers Commission* [2006] WASAT 112, and *Environmental Protection Act 1986* (WA) s 4A. See also discussion in Gardner et al, above n 14, [4.41]-[4.47]. The precautionary principle is applicable under the EPBC Act ss 3A and 391.

<sup>150</sup> *Ulan Coal Mines Ltd v Minister for Planning* [2008] NSWLEC 185; 160 LGERA 20 [99]; *Hunter Environment Lobby Inc v Minister for Planning* [2011] NSWLEC 221, various references; *Barrington – Gloucester – Stroud Preservation Alliance Inc v Minister for Planning and Infrastructure* [2012] NSWLEC 197 [145]-[215]; *SHCAG Pty Ltd v Minister for Planning and Infrastructure and Boral Cement Ltd* [2013] NSWLEC 1032 [88]-[90]; *Xstrata Coal Queensland Pty Ltd and Others v Friends of the Earth and Others* [2012] QLC 013 [253]-[261].

<sup>151</sup> [2006] NSWLEC 133; 67 NSWLR 256; 146 LGERA 10. The elements of Preston CJ’s



subsequent cases, including cases of judicial review, because it sets out so thoroughly the approach to applying this somewhat troublesome principle. Even so, its effect has also been read down for judicial review proceedings by Pepper J in *Barrington – Gloucester – Stroud Preservation Alliance Inc v Minister for Planning and Infrastructure (Barrington)*,<sup>152</sup> holding that the satisfaction of the two preconditions to trigger operation of the principle, the level of scientific uncertainty and the proportionate response to be made, were matters of merit and not amenable to judicial review. The consequence is that there has not been a good analysis of the operation of the principle, especially of the consequence of shifting the onus of proof to the proponent. Too easily, merit and judicial review application of the precautionary principle has simply accepted that some form of adaptive management (monitor, evaluate and adjust a project) will be a proportionate response to some level of uncertainty about the threat of environmental damage. What is more troubling is that there has been inadequate analysis of what adaptive management really requires and how it links with the argument that conditions on an approval should have a level of certainty required of the statutory decision-making power.

A very recent study at the University of Western Australia Law School begins to remedy this gap in the understanding of what is required for true adaptive management.<sup>153</sup> The study builds an eight step theoretical model of true adaptive management from scientific, social and legal literature on the American experience of adaptive management, which includes significant litigation. It then identifies four legal obstacles to the successful implementation of adaptive management, including legal uncertainty in the form of deferral of decision making and a lack of transparency. Case studies of the explicit application of adaptive groundwater management in an Australian iron ore mine and a CSG project show that adaptive management is not being done well. A key recommendation of the study is that there needs to be better legal definition of the content of adaptive management, including integrating key elements of the adaptive management framework into the statutory environmental impact assessment process to prevent deferral of important decision making. This means that initial project approval should be built on a definition of the management problem, including baseline conditions and modelling to simulate the ecosystem being managed, and should set clear management objectives from the beginning.

With respect, true adaptive management was not applied in *Barrington*. Perhaps the situation in that case was different because Part 3A of the EP and A Act provided for staged decision making that could provide a concept approval and a project approval.<sup>154</sup> However, in that case, the concept plan and stage 1

explanation of the precautionary approach are summarised by Gardner et al, above n 14, [4.47].

<sup>152</sup> [2012] NSWLEC 197 [179] and [188].

<sup>153</sup> Jessica Lee, “Theory to Practice: Adaptive Management of the Groundwater Impacts of Australian Mining Projects”, Bachelor of Laws Honours Thesis, October 2013, University of Western Australia Law School. Jessica’s research has been supported by funding from the National Centre for Groundwater Research and Training.

<sup>154</sup> [2012] NSWLEC 197 [74]-[79].

project approval were given at the same time. Only a preliminary hydrogeological study had been conducted and a preliminary conceptual model prepared before approval was given for both. The Planning and Assessment Commission, as delegated decision-maker, acknowledged more groundwater modelling would have given a greater degree of assurance that the risks outlined were negligible, but decided that it was possible to develop the gas field by adaptive management.<sup>155</sup> The decision approved using stage 1 of the project, which was the first stage of the gas field development, to gather baseline data, revise the conceptual model and develop a “numerical hydrogeological model” with a predictive capacity.<sup>156</sup> There were no clear objectives for the management of groundwater, just a condition that required the post-approval preparation of a monitoring program that would set hold points if the daily volume of dewatering exceeded the predicted two megalitres per day.<sup>157</sup> In this respect, the Court’s comparison<sup>158</sup> with the condition in *Ulan Coal Mines Ltd v Minister for Planning*<sup>159</sup> misses the point that the condition challenged there set a limiting outcome for the adaptive management process, namely, that the proponent was to ensure that it had sufficient water for all stages of the project and was, “if necessary, to adjust the scale of mining operations to match its water supply”. Any adjustment was to be within that outcome. That was not true for the conditions upheld in *Barrington*.

There may be an argument that the broad high level authority of the Part 3A concept plan approval could have set the conditions to conduct base-line monitoring, develop the numerical (predictive) model and set overall outcomes or objectives. However, it is difficult to see the justification in giving the stage 1 project approval with conditions that the Part 3A concept plan approval tasks should be done to the satisfaction of the Director-General. After all, the purpose of environmental assessment is to predict likely impacts for the purposes of consulting the public and setting conditions on the proposal, if it is approved. This point was better understood in the merits review decision of *SHCAG Pty Ltd v Minister for Planning and Infrastructure and Boral Cement Limited*.<sup>160</sup> There, at [81]-[86], the Court overturned the Part 3A approval for a coal mine extension because the conditions designed to implement adaptive management could not be founded on the under-prepared groundwater model, that could not predict cumulative impacts and displayed a lack of agreement about monitoring indicators.

## CONCLUSION

The regulation of mining and CSG access to water resources, including for mine dewatering and the production of associated water, is coming increasingly

<sup>155</sup> *Ibid* [51].

<sup>156</sup> *Ibid* [67] and [106]-[124].

<sup>157</sup> *Ibid* [67].

<sup>158</sup> *Ibid* [121].

<sup>159</sup> [2008] NSWLEC 185.

<sup>160</sup> [2013] NSWLEC 1032 [81]-[86].

under the water resources legislation administered by water agencies. However, there are significant variations in the water resource management principles applied in different jurisdictions.

The NWC advocates bringing these industry sectors within the NWI model, but only New South Wales is close to achieving that generally. In Queensland, the CSG produced water is regulated by a special regime of underground water rights defined in the petroleum legislation and underground water obligations defined in the Water Act, Chapter 3. It sets no limit on the production of CSG associated water, and that is inconsistent with the NWI model. In Western Australia, the NWI special clause 34 still operates through the State's older generation water resource legislation that contains no statutory mechanism for dealing with the cumulative effects of mine dewatering. Legislative reforms to provide for the implementation of the NWI model through the making of statutory plans are proposed, but it may be doubted that this model will be applied to mining activities where there is significant drawdown from mine dewatering.

There is little doubt that the differing hydrogeological and geographical circumstances impact on the adoption of the legal principles. Even so, the following model for mining and CSG access to water resources is proposed:

1. The NWI model should be preferred for regulating mining and CSG access to water resources, with a better definition of true adaptive management and a clearer role for the operation of statutory water management plans in the integrative decision-making processes that lead to mining and CSG approvals.
2. If this is not feasible in particular regional circumstances, there should still be:
  - (a) cumulative regional limits on mining and CSG access to water to protect other users and the environment;
  - (b) obligations to make good harm done to other water users and to high conservation value ecological assets, and these obligations should continue beyond the mining or petroleum tenure; and
  - (c) a better definition of true adaptive management in these circumstances and the oversight of an independent agency to administer the cumulative limits.
3. The uncertainty around very long term liability for water resource impacts beyond the life of mining and petroleum tenures needs to be resolved to secure the integrity of approaches (a) or (b).

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