

# Is there effective prevention of significant environmental impacts in CSG projects under NSW law?

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#### Scenario considered

Does the regulatory process for decision making in relation to CSG proposals effectively prevent potentially significant environmental impacts?

#### Assumptions

- Applicable law is the law in force in NSW
- CSG = coal seam gas
- CSG proposals include exploration and production activities

- This paper will focus its discussion, as suggested, on the Petroleum (Onshore) Act 1991 (NSW) (**Petroleum Act**); Environmental Planning and Assessment Act 1979 (NSW) (**EP&A Act**) and environmentally sustainable development (**ESD**): the precautionary principle and adaptive management.

- Due to word limit constraints, but for completeness, there will be a limited discussion of the Protection of the Environment Operations Act 1991 (NSW) (**PEOA**), the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (**EPBC Act**), the Water Management Act 2000 (NSW) (**WMA**) and the Water Act 1912 (NSW), as all these are relevant to the effective capture of significant impacts on the environment.

- No discussion will be made of the new policies proposed and currently under consideration by the NSW Government in relation to strategic agricultural land or the aquifer interference policy.

- This paper focuses on the environmental impact on, and the protection of, water as opposed to flora, fauna, critical habitat, matters of national environmental significance or threatened species. Although, of course these other issues are all also relevant and potentially applicable to the effective capture of environmental impacts from CSG proposals.

Does the regulatory process effectively capture significant environmental impacts?

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#### **Executive summary**

Many argue the current regulatory process does not effectively capture the significant environmental impacts which are said to result from CSG activities. The argument goes that the environmental damage is irreparable and the current regulatory process is a "suck it and see" process. As such, certainly the adaptive management approach does not assist, as once the harm is done, it cannot be undone. Others argue that the precautionary principle should have its application in CSG activities. We are, however, yet to see its application. Further, the transparency and scrutiny in the regulatory regime needs to occur before the most damaging activities take place. In the case of CSG, that is in the exploration phase. This is particularly so if industry and government are intending to allow pilot production in the exploration phase<sup>1</sup>.

The petroleum industry argue the converse. They use a variety of arguments which are as follows. There is already too much regulation of the industry which makes the viability of these projects questionable. The environmental effects are not significant. The bubbling gas in the Condamine river is naturally occurring. It is not a consequence of the Origin Energy CSG pilot wells 1 km away<sup>2</sup>. Arsenic and other heavy metals in the creeks near the Pilliga, is from farmer's fertilizers<sup>3</sup>, it is not Eastern Star Gas' (**ESG**) activities and spills in the Pilliga. Shale gas activity in the USA is completely different from the unconventional gas extraction industry in NSW<sup>4</sup>. And finally, what is happening in Queensland is very different from what is happening in NSW.<sup>5</sup>

The government, both Federal and State, appears keen to gain the scientific evidence one way or another. However, all its scientific studies, whether done in NSW, Queensland or by the Commonwealth, are funded by industry. As a consequence, the independence and integrity of the evidence and the ownership and manipulation of the evidence gleaned, is in question<sup>6</sup>.

The Commonwealth government has stepped into the fray, passing legislation to amend the EPBC Act requiring the set up of an Independent Scientific Expert Committee to review CSG and large coal mining projects which may have a significant impact on water.<sup>7</sup> These amendments, however important, are only applicable to matters of national environmental significance.

Both the Commonwealth<sup>8</sup> and the NSW<sup>9</sup> Governments have held Inquiries into CSG, both recommending significant changes to the current regulatory environment, yet these changes have not yet been

<sup>2</sup> CSG and the Condamine River - ://www.brisbanetimes.com.au/queensland/coal-seam-gas-bubbling-to-surface-on-condamine-river-20120530-1zi7e.html; http://www.couriermail.com.au/business/csg-bubbling-to-surface-along-river/story-fn7kjcme-1226373575496 <sup>3</sup> http://www.smh.com.au/environment/water-issues/arsenic-and-lead-found-in-contaminated-water-leak-at-coal-seam-gas-drill-site-20120209-1rx7s.html

<sup>1</sup> See new code of practice for CSG exploration http://haveyoursay.nsw.gov.au/document/index/23

<sup>&</sup>lt;sup>4</sup> See AGL transcript from NSW inquiry

<sup>5</sup> NSW LC Inquiry into CSG

http://www.parliament.nsw.gov.au/Prod/parlment/committee.nsf/0/318a94f2301a0b2fca2579f1001419e5/\$FILE/Report%2035%20-%20Coal%20seam%20gas.pdf

<sup>&</sup>lt;sup>6</sup> <u>http://www.gisera.org.au/</u> funded by APLING; the Namoi Water Study conducted by a supplier of Fraccing chemicals Schlumberger <u>http://www.namoicatchmentwaterstudy.com.au/site/index.cfm</u> and <u>http://www.slb.com/contact.aspx</u>, an example of the this issue is seen in the Worley Parsons debacle.

<sup>&</sup>lt;sup>7</sup> http://www.environment.gov.au/minister/burke/2012/mr20120127.html

<sup>&</sup>lt;sup>8</sup> http://www.aph.gov.au/Parliamentary\_Business/Committees/Senate\_Committees?url=rrat\_ctte/mdb/interim\_report/index.htm

implemented. The Commonwealth Committee recommended a thorough review of the appropriateness of adaptive management in the context of regulating the CSG industry, given the significant gaps in information regarding cumulative and long term impacts of the industry. The Committee suggests the adaptive management regime is seen as a "catch up" regime. However, in the author's view, adaptive management principles are inadequate and inappropriate where the damage is irreversible, if not contradictory to the precautionary principle where prevention, rather than cure, is the rule.<sup>10</sup>

<sup>9</sup> http://www.parliament.nsw.gov.au/prod/parlment/committee.nsf/0/29AE48525CFAEA7CCA2578E3001ABD1C

<sup>10</sup> Senate Committee Report Para 1.71

http://www.aph.gov.au/Parliamentary\_Business/Committees/Senate\_Committees?url=rrat\_ctte/mdb/interim\_report/c01.htm, Telstra Corporation Limited v Hornsby Shire Council [2006] NSWLEC 133

## 1 Introduction

This paper discusses CSG activities, what they are, how they are undertaken and the potential environmental impacts. It then considers the regulatory regime in NSW as it applies to CSG activities, from the exploration phase through to production, examining the regime and its application by decision makers and then by the courts.

The paper primarily focuses on the Petroleum Act and Parts 5 and 4 of the EP&A Act.

It will discuss the application of environmentally sustainable development (**ESD**), the precautionary principle, and adaptive management to CSG activities in an investigation of whether these currently widely bantered principles are, should, or can, be applicable to CSG activities to effectively capture significant environmental impacts caused by CSG proposals.

#### 2 Environmental impacts of CSG activities

#### 2.1 CSG activities

Coal seam gas activities, generally referred to in the industry as unconventional gas extraction, typically involve the ascertaining of the position of, and then the drilling into, a coal seam, the dewatering of the seam and then the extraction of the gas.

#### 2.2 Coal seam gas

Coal seam gas or coal seam methane or coal bed methane (**CSG**), is methane which sits within the pours of coal. Coal is made up of organic material, crushed and compressed over thousands of years. The gas found in the coal is formed as the coal is formed. It is estimated that with every 1 tonne of coal some 1500m3 of gas is produced<sup>11</sup>. Not all the gas is methane gas. It can also contain CO2, CO and nitrogen. Figure 2 is a photo under a scanning microscope of coal. It is full of minute pores. The methane is absorbed onto the sides of the pores and held there by water.



Figure 2; SEM photograph by Satya Harpani

<sup>&</sup>lt;sup>11</sup> Remmer et al, 1986

<sup>&</sup>lt;sup>12</sup> Found in Pells Consulting report on the Thirlmeer Lakes Memorandum 2 to Report of October 2011

It is through the cleat system, which holds the water in the coal, that gas is extracted. In order to extract the gas, the cleats must be dewatered or depressurised.



Figure 3: The chemo-physics of gas extraction from coal (after King, 1990)

Figure 8 Typical changes in water and gas production over time

The dewatering and the gas extraction has been described in the following graph. As the seam is dewatered, the gas extraction increases. Note that the seam needs to be largely dewatered before the gas is at its stable production stage.



Source: USGS, 2000

#### 2.3 Extraction techniques

The techniques used to extract the CSG use either vertical, horizontal or directional wells. Horizontal or directional well drilling can extract gas from a radius of greater than 2.5km from the well head. This form of drilling is far more expensive than vertical drilling<sup>13</sup>. Horizontal or directional drilling causes substantially less surface disruption but substantially more subsurface disturbance. It allows for several horizontal wells to be sunk from the same well head, each fanning out in a different direction. Figure 5 is an example of the various drilling techniques.



Source: US DOE Office of Fossil Energy, 1999

<sup>&</sup>lt;sup>13</sup> AGLUI Pty Ltd estimates a vertical well in the Camden Gas Project to cost \$700k and upwards to drill whereas a horizontal drill over \$1.2m.

Figure 2a is a photo of a directional drill bit and motor. These drill heads are steerable, have down hole percussive motors and provide directional drilling.<sup>14</sup>



Figure 2a: Directional drill bit and motor

To increase the flow of gas, a further technique of hydraulic fraccing is utilised. This technique involves the use of water, sand and hydraulic fraccing chemicals which are pumped at high pressure down the bore hole into the coal seam, essentially to fracture the coal seam. The sand particles sit between the fractured coal to allow the gas to flow more freely. The fractures can extend for distances of up to 400m depending on the hardness of the coal and surrounding geology and the nature of the "fracc". This process was developed in the USA and is used on the Marcellus shale in the USA. Considerable public concern exists both in the USA and in Australia over the nature of the chemicals used, not only in the drilling fluids but also in the hydrofraccing fluids. Halliburton is the major vendor of hydrofraccing chemicals, it holds a USA patent over the chemical composition. It has been relatively difficult to obtain the exact chemical composition and quantity of hydrofraccing chemicals used in NSW. In NSW, the NSW Legislative Council Inquiry Report March 2012 Recommendation 9 provides

That the NSW Government continue the current ban on fraccing until the National Industrial Chemicals Notification and Assessment Scheme assesses fraccing chemicals for their intended use and toxicity according to international standards, and the NSW Government consider any findings of this assessment."

Fraccing is a practice which occurs both in exploration and in production. In exploration, to assist in the assessment of the commercial viability of the seam, and, in production to produce the gas. AGL Upstream investments Pty Ltd (**AGLUI**), the tenement holder at the Camden Gas Project, and holder of 5 of the 6 petroleum production leases granted in NSW<sup>15</sup>, has fracced 117 of its 137 wells. Although, in July 2011, the NSW government announced a moratorium on all new tenement holders undertaking fraccing, existing tenement holders could continue to frac.

There are concerns about fraccing, not just for the structural damage done to the geology, but also the chemicals used to cause the subsurface explosions. There are many claims that the hyrdofraccing chemicals include what is referred to as BTEX chemicals. BTEX stands for benzene, toluene, ethylbenzene, xylene.

The fracking process itself can release BTEX from the natural-gas reservoirs, which may allow them to penetrate into the groundwater aquifers or volatilise into air. As a consequence people may be exposed to BTEX by drinking contaminated water, breathing contaminated air or from spills on their

<sup>&</sup>lt;sup>14</sup> Pells Consulting report Memorandum Thirlmeer Lakes – Addendum 2 to Report of October 2011

<sup>&</sup>lt;sup>15</sup> The only other PPL, PPL3 is held by Eastern Star Gas now controlled by Santos Limited in a tenement south of Moree, near the Pilliga State Forest.

skin. It is important to note that BTEX chemicals are naturally part of the volatile chemicals found in coal seams.<sup>16</sup>

Even if BTEX do not form part of the hydraulic fraccing fluid, they may be released from the coal seam in the fraccing or drilling process.

## 2.4 CSG environmental impact

The environmental impacts of CSG exploration and production have become increasingly well documented<sup>17</sup>. There are significant differences in the techniques utilised between minerals mining and CSG extraction. Several papers note the invasive damage in CSG proposals is done in the exploration phase, as opposed to the production phase, when the boreholes are drilled and the dewatering process begins<sup>18</sup>. The extensive subsurface disturbance begins in exploration and is far greater than any underground minerals mine, capable of extending over a diameter of more than 5kms. The major concern, which remains unchanged, is the potentially detrimental effect of CSG operations on groundwater systems. These effects are not just on the water itself but on the geology that retains the groundwater. Depending on the softness of the coal, the surrounding geology and hydrogeology, and hydrological interconnectivity, the depressurisation process, which occurs in the CSG drilling and water extraction process, results in the potential for subsidence effects in the overlying geology. This subsidence causes faulting and potential interconnectivity between the overlying aquifers and the coal seam. This allows for the usually brackish coal seam water, together with any introduced drilling fluids and hydrofraccing chemicals, to pollute any overlying aquifer.

The potential impacts of coal seam gas mining on the surrounding groundwater include:

- (a) pollution of groundwater from the heavily salinated CSG water;
- (b) pollution and potential contamination of groundwater from BTEX chemicals found in the coal seam<sup>19;</sup>
- (c) pollution and potential contamination of groundwater from hydrofraccing chemicals;
- (d) pollution and potential contamination of groundwater with methane;
- (e) dewatering of the coal seam aquifers resulting in a lowering of the water table and dewatering of overlying aquifers; and
- (f) structural damage to overlying fresh water aquifers, due to subsidence, whereby they can no longer hold fresh water.

The affect of BTEX chemicals on human health has been documented to include, in the short term, skin irritation, central nervous system problems (tiredness, dizziness, headache, loss of coordination) and effects

<sup>&</sup>lt;sup>16</sup> Lloyd-Smith Dr M., Senjen Dr R., 2011 Briefing paper Hydraulic Fracturing in Coal Seam Gas Mining: Risks to our health, Communities, Environment and Climate April 2011, National Toxins Network, 17

See Bibliography

<sup>&</sup>lt;sup>18</sup> Atkinson 2002 and Williamson J 2011 Report to the NSW LC

Upper House Inquiry into CSG

<sup>19</sup> Lloyd-Smith Dr M., Senjen Dr R., 2011 Briefing paper Hydraulic Fracturing in Coal Seam Gas Mining: Risks to our health, Communities, Environment and Climate April 2011, National Toxins Network,

http://ntn.org.au/wp-content/uploads/2011/04/NTN-Fracking-Briefing-Paper-April-2011.pdf

on the respiratory system (eye and nose irritation). Prolonged exposure to these compounds can also negatively affect the functioning of the kidneys, liver and blood system. Long-term exposure to high levels of benzene in the air can lead to leukemia and cancers of the blood.16.

The other serious impacts of CSG activities include:

- (g) the "massive demands for water in the drilling process"<sup>20</sup>, and if fraccing is used, in the fraccing process;
- (h) the disposal of "produced water" with its high salt content and contamination with fraccing chemicals and drilling fluids;
- (i) the disturbance and contamination of geosystems, atmospheric pollution primarily due to increased releases of methane into the atmosphere; and
- (k) degradation of landscape aesthetics due to the extensive requirement of infrastructure and connected infrastructure such as roads, pipelines, compressor stations, drilling rigs.



Above are photos of a mature CSG field in Wyoming USA, and a typical gas drilling site with a produced water pond, a sump, an access road for drilling rigs and trucks which transport water to and from the site, accommodation and office temporary buildings, drill rig, drill pad, chemical storage for drilling fluids and fraccing if allowed, often this is fenced but often it is not. For example, in the Pilliga State Forest the active drill sites of ESG, now controlled by Santos, were not fenced, and those which were inactive were not properly enclosed.<sup>21</sup>

In relation to the environmental impact, one cannot forget the importance of ground water to Australia which places substantial reliance on groundwater systems<sup>22</sup> for both agricultural irrigation and stock and household

<sup>&</sup>lt;sup>20</sup> Randall 2012

Author trip to Pilliga State Forest in March 2012

 $<sup>^{\</sup>rm 22}$  Pigram J 2006  $\, p.v$ 

water requirements. Given the impact on groundwater systems of CSG activities and the irreversibility of the consequences of those activities, there would appear to be a "significant impact on the environment".

#### 2.5 Significant impact

A good definition of a 'significant impact' has been given in the case of *Booth v Bosworth (2001) 114 FCR 39 at 64,* in relation to the application of the EPBC Act to certain activities. In this case "significant impact" was found to be one that is 'important, notable or of consequence having regard to its context or intensity'. Whether the matter is significant is for the Minister to determine: *Anvil Hill Project Watch Assn Inc v Minister for Environment and Water Resources (2007) 159 LGERA 8.* The question of whether or not an impact is or is not significant is a question of fact: *Minister for Environment and Heritage v Greentree (2004) 138 FCR 198 at [192].* 

Certainly, solely considering the impact on water, the potential for pollution and or contamination of overlying aquifers with CSG activities, is significant. Particularly when using BTEX chemicals in the fraccing fluids, but even if BTEX chemicals are not used in the fraccing chemicals, one must remember that they are naturally occurring chemicals in the seam and any drilling coupled with overlying subsidence has the potential to release them together with the brackish (salty or briny) water and the drilling fluids into those overlying aquifers. Despite this, the industry argues that the potential risk of significant environmental impact is low. This is because, they say, there is an impermeable or impervious layer of clay between the coal seam and any overlying aquifer, preventing the seepage between aquifers<sup>23</sup>.

#### 2.6 Decision making: What is required?

The role of environmental assessment in decision making has been aptly put by Dr Moss Cass, the then Federal Minister for the Environment in 1974, quoted by Bates<sup>24</sup> as

The legislation will, instead, enable me to gather extensive information on specific proposals. It will present the government with comprehensive information about environmental impact as an aid to decision making. And it will enable the public to argue a case publicly, to have the case published, and to force governments to justify their decisions."

However from experience, one will receive folders and folders of paper apparently covering the field of interest full of generalities, sweeping statements, sometimes misleading statements and in relation to CSG proposals, EIS' generally describe the impact on water in grossly general terms<sup>25</sup>. In this respect, reference is made to both REFs and EISs submitted for one of the only 2 CSG gas production fields in NSW, as well as a Southern Highlands Petroleum Exploration Licence (**PEL**) 469 and a Bellata Gurley PEL 470.

<sup>&</sup>lt;sup>23</sup> AGLUI argues this in its most recent EIS for the expansion of the Camden Gas Project. In relation to AGLUI's consideration of the impacts on water in this EIS, Worley Parsons' peer review of those sections provided it was wholly inadequate<sup>23</sup>. 24 2010 at [10.12]

<sup>&</sup>lt;sup>25</sup> See AGLUI EIS for its Northern Expansion. Leichhardt Resources' REFs for PEL470 and PEL 469.

Further, the nature of the impact is necessary to be considered. In the case of *Hoxton Park Residents Action Group v Liverpool City Council* Unreported BC201108821 the NSW Court of Appeal held at [46]

Some such limitation must follow from the concept of "impact": as remoteness from the development increases, impact is likely to decrease, until it no longer has practical significance in terms of approving or refusing to approve the application. Further, the likelihood of a particular impact may diminish with remoteness. "Likely" in this context has the meaning of a "real chance or possibility" rather than more probable than not: Randwick Municipal Council v Crawley (1986) 60 LGRA 277 at 279-281; Drummoyne Municipal Council v Maritime Services Board (1991) 72 LGRA 186 at 193.

Remoteness is the basis of the industry's fundamental argument. The lack of government resources<sup>26</sup> to test the industry's remoteness argument, and the government's reliance on industry to self regulate, means the community and the environment are subject to a "fox being in charge of the hen house"<sup>27</sup>. In this respect, the NSW Pilliga State Forest is an example of the terrible environmental damage that can occur, with multiple spills of arsenic, lead, chromium, petrochemicals and salt from open produced water ponds <sup>28</sup>, killing vegetation and fauna, as shown in the below photo. Here government relied on the title holder's statements and only after significant Community outrage and Community funded independent expert reports has the title holder done anything about it. <sup>29</sup>



The consent authority or the determining authority should have sufficient information to comprehend and evaluate, from its own resources, or with the aid of its experts, the significance of the environmental impact of a proposal in order to consider it properly.<sup>30</sup> Consideration must be given to all mandated factors in a reasonable manner, otherwise the decision may be invalidated<sup>31</sup>. The test for determining the relevant factors was laid down in the case of *Minister for Aboriginal Affairs v Peko Wallsend (1986) 162 CLR 24 at 40* by Mason J and is largely determined by the subject matter, scope and purpose of the Act. If unconfined, the discretion is unconfined. If confined, the discretion is confined. Both, however, must be considered within

<sup>&</sup>lt;sup>26</sup> NSW Department of Planning has 7 staff.

<sup>&</sup>lt;sup>27</sup> NSW Farmer's Association President Fiona Simpson 2012 1 May Rally in front of Parliament House.

<sup>&</sup>lt;sup>28</sup> See <u>http://www.stoppilligacoalseamgas.com.au/?p=1494</u> and

<sup>&</sup>lt;sup>29</sup> http://www.santos.com/library/NSW\_CSG\_factsheet\_environmental\_breaches\_Pilliga\_Forest\_Mar2012.pdf

<sup>30</sup> Street CJ in Parramatta City Council v Hale (1982) 47 LGRA 319 at 336

<sup>&</sup>lt;sup>31</sup> Parramatta City Council v Hale (1982) 47 LGRA 319

the subject matter, scope and purpose of the Act. Further, a "mere assertion that regard has been had will not suffice, if it is demonstrated that regard has not been paid in any real sense"<sup>32</sup> And, averting to a matter and then rejecting it was not taking it into consideration<sup>33</sup>. The consideration must be proper, genuine and realistic.<sup>34</sup>

#### 3 Regulatory process

#### 3.1 Overview

The regulatory process involves the application of several pieces of legislation, both State and Commonwealth, in addition to the underlying application of the common law. In particular, the Petroleum Act, the EP&A Act, the PEOA, the EPBC Act, the WMA Act (or its predecessor the Water Act), and the underlying application of the law of nuisance (both private and public) are all applicable to regulate significant environmental impact from CSG proposals. A CSG proposal goes through a series of major decisions. At each point there is some form of examination of environmental impacts. It is intended that the depth of examination depends on what is assumed to be the severity of the impact. In this respect, it is the author's view, that the regime needs to be pulled forward for CSG proposals, such that the severity of the activity matches the scrutiny of the regime. In other words, that CSG exploration receives as much if not more scrutiny than CSG production, and that scrutiny is mandatory.

That regulatory process is over 2 phases, exploration, then production, and is roughly set out in Annexure 1.

#### 3.2 In exploration

The regulatory process of decision making in relation to CSG proposals and the environmental impact, begins in the Petroleum Act, when the Minister must consider certain aspects of the environment<sup>35</sup> before the grant of a petroleum title<sup>36</sup>. The Petroleum Act is, to a large extent, a simpler version of the Mining Act 1992 (NSW), and would appear to have been drafted with the assumption that CSG activities are equivalent in environmental impact to minerals exploration and mining production. That is, that petroleum exploration is considered to have a lesser environmental impact than petroleum production. This is a mistaken assumption. In fact, the greatest damage is done in the exploration phase when the wells are drilled and dewatered. This is one of the major reasons for the inadequacy of the regulatory regime to capture the impacts of CSG proposals on the environment. Effectively, it means that the scrutiny, transparency and public participation in the decision making process needs to take place before the first hole is drilled, if not before the exploration licence is granted. This is not the case, as is set out in Annexure 1. The scrutiny, transparency and public

<sup>32</sup> Gummow J in Turner v Minister for Immigration and Ethnic Affairs (1981) 35 ALR 388 at 392

<sup>&</sup>lt;sup>55</sup> Moffitt J in Parramatta City Council v Hale (1982) 47 LGRA 319

Belmorgan Property Development Pty Ltd v GPT Re Ltd (2007) 153 LGERA 450

<sup>&</sup>lt;sup>35</sup> See Part 6 of the Petroleum Act ss74 and 75

<sup>&</sup>lt;sup>36</sup>Which includes the exploration licence and the production lease.

participation in the environmental impacts of a CSG proposal occur primarily before production<sup>37</sup>, rather than before exploration.

## 3.3 Conditions of a Petroleum Exploration Licence or Petroleum Production Lease (PPL) in relation to protection of water

Identical to the NSW Mining Act 1992, the Minister, under s74 of the Petroleum Act

is to take into account the need to conserve and protect

- (a) flora, fauna, fish, fisheries and scenic attractions, and
- (b) the features of aboriginal, architectural, archeological, historical or geological interest, in or on land over which the petroleum title is sought.

Note the lack of mention of any consideration to water. Under s75 of the Petroleum Act, the Minister can impose conditions in the petroleum title for the purpose of protecting and conserving those things cited above in s74. Despite the lack of mention of preservation and protection of water, the Minister has been imposing conditions for the protection of water in petroleum titles which include the following

#### AGLUI PEL 2 conditions:

Schedule 2 clause 2 Operations provides that "operations must be carried out so as not to cause or aggravate ... water pollution."

#### AGLUI PPL1 conditions:

Clause 5 of the Schedule provides in paragraph (a) "Operations must be carried out in such a way as not to cause any pollution of the catchment area".

Clause 6(b) of the Schedule concerns **water** and provides (b) "Operations must be carried out in a manner **that avoids the pollution .. of any water body**".

Clause 6(c) provides "The lease holder must not interfere with the flow of water in any ... watercourse".

Clause 13(a) of the Schedule provides that "all production activity must be carried out in conformity with the Schedule of Onshore Petroleum Exploration and Production Safety Requirements (*Requirements*). Clause 518 of those Requirements provides "The title holder must ensure that all reasonable steps are taken during operations on a well to prevent leakage or the pollution of aquifers."<sup>38</sup>

Schedule A condition 2(b)(iv) requires that the PPOP must identify "how operations will be carried out on site in order to prevent and or minimise harm to the environment, including groundwater."

Despite these conditions, the title holder in this case has conducted only a small baseline water study, which does not include the whole project area, and has undertaken no water monitoring in the 11 years since the

<sup>37</sup> Except in an SSD in exploration as set out later in this paper.

<sup>38</sup> Reasonable steps would include the determination of all aquifers in the PPL4 subsurface area. The taking of baseline data from all those aquifers before production began and the frequent and regular monitoring of those aquifers to determine if such contamination or pollution was occurring.

grant of PPL1<sup>39</sup>. As a consequence, no one knows whether or not the 117 fracced wells in the Camden Gas Project have polluted or contaminated the surrounding aquifers so as to trigger a breach. Here we have decision making with prescriptive provisions in relation to capturing significant environmental impact, yet no monitoring of compliance with the provisions or monitoring of the environment, either by the proponent or government.<sup>40</sup> Clearly, it is necessary to insert conditions into the PEL and PPL which, in addition, require the title holder to undertake a baseline water study and subsequently monitor the water and make that data immediately publicly available.

There is no mention in the provisions of the Petroleum Act of the need to ensure ecologically sustainable development or consider the precautionary principle, discussed in more detail in paragraphs 4 and 5 of this paper.

The conditions of the petroleum title, and sections of the Petroleum Act, do indicate a regulatory regime which could capture the environmental impacts of CSG proposals. However, because there is no monitoring and very little enforcement, it can be argued that this part of the regulatory regime is not effective in protecting the environment from significant environmental impact. Admittedly, the Minister for Resources and Energy, under the Petroleum Act, is only required to "take into account" the preservation and protection of certain things in the environment. He is not charged with actually protecting them. His role is to encourage petroleum development in the state. The role of protecting the environment is given to the Minister for the Environment, who administers the EP&A Act.

## 3.4 Part 5 of the Environmental Planning and Assessment Act 1979 (NSW)

Under the terms of an exploration licence issued under the Petroleum Act, prospecting operations are grouped into 3 categories. The first category causes minimal impact and requires no further approval or consent. The second category causes more impact and the third category causes the most damage. For all category 2 activities<sup>41</sup> in sensitive areas and category 3 activities<sup>42</sup>, a Review of Environmental Factors (**REF**) must be prepared by the proponent in accordance with Regulation 228 of the *Environmental Planning and Assessment Regulation 2000* (**EP&A Regs**) and submitted to the Department for a determination under Part 5 of the EP&A Act.

If the surface disturbance notice, which is required to be submitted with the REF, under the conditions of the PEL, indicates to the Department that the disturbance is likely to be "significant", the Department may also

<sup>&</sup>lt;sup>39</sup> Admission to the Author at a Community Consultative meeting in June 2011. AGLUI

advised that the produced water was containerised and on sold to an industrial water group in Windsor who on sold that water to agriculture. When asked if the Windsor group was told of the chemical contents of the drilling fluids or the fraccing fluids which could be contained in the produced water, we were advised that the Windsor group was not and that was their problem. <sup>40</sup> It is the author's understanding that the same provisions are set out in PPL3 held by ESG Pty Ltd. Santos has now admitted the breaches, although

<sup>&</sup>lt;sup>40</sup> It is the author's understanding that the same provisions are set out in PPL3 held by ESG Pty Ltd. Santos has now admitted the breaches, although the admissions lack detail, and has pledged to spend \$20 million to clean up the damage. Thankfully Santos has the funds to do this, some CSG operators would not have such funds. What would happen in those circumstances?

<sup>&</sup>lt;sup>41</sup> Category 2 activities are described as "access tracks or line clearing involving formed construction or significant native vegetation disturbance. Category 3 activities are described as Petroluem exploration boreholes, seismic surveys in PEL 469.

<sup>&</sup>lt;sup>+2</sup> Seismic surveying and borehole drilling

require the submission of an environmental impact statement (EIS)<sup>43</sup>. The EIS must also be submitted in the form and manner required by the Department.<sup>44</sup>

As a consequence, it is discretionary as to whether the Department will allow for the deeper scrutiny, transparency and public participation which is part of the EIS process, in the exploration phase.<sup>45</sup> In the author's view, this discretion should be exercised, as the impact will be significant in exploration. Alternatively, make the EIS process, with public exhibition and participation, mandatory for all category 3 activities. Currently in practice, the author has no knowledge of an EIS being required by the Department in the exploration phase.

#### 3.5 **Review of environmental factors**

The REF, which is the most common environmental assessment in the exploration phase, has developed in response to the duty of a "determining authority"<sup>46</sup> to consider the environmental impact of "matters affecting or likely to affect the environment" under section 111 of the EP&A Act. Section 111 of the EP&A Act requires

#### 111 Duty to consider environmental impact

(1) For the purpose of attaining the objects of this Act relating to the protection and enhancement of the environment, a **determining authority** in its consideration of an activity shall, notwithstanding any other provisions of this Act or the provisions of any other Act or of any instrument made under this or any other Act, examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity.

Section 111 goes on to set out what must be considered by the determining authority and these matters are reiterated in the Department's guidelines for preparation of a REF<sup>47</sup> and include such things as critical habitat, threatened species and protected fauna and flora.

Approval of the REF and the conditions of the approval are generally issued by the Director General of Planning. The examination must be "to the fullest extent possible" and of "all matters affecting or likely to affect" the environment. The purpose of this examination is to attain the objects of the Act and to encourage "ecologically sustainable development" (ESD). The examination required to encourage ESD is set out in more detail in paragraph 4 of this paper.

#### 3.6 in production or as State Significant Development (SSD)

<sup>&</sup>lt;sup>43</sup> Note EP&A Act s112(1)(a) and EP&A Regulation Part 14 EIS under Part 5 requirements

<sup>&</sup>lt;sup>44</sup> See s112 EP&A Act and ESG2 © 2012 which supersedes April 2000

 $<sup>^{45}</sup>$  Apart from when the development can be classified as an SSD.

<sup>&</sup>lt;sup>46</sup> Defined in s110 Ep& A Act which would include the Minister of Resources and Energy or his Department "whose approval is required in order to

enable the activity to be carried out? ie under the MEL and PEL such approval is required for certain activities. <sup>47</sup> ESG2: Environmental largest Ac ESG2: Environmental Impact Assessment Guidelines For exploration, mining and petroleum production activities subject to Part 5 of the

Environmental Planning and assessment Act 1979 including requirements for a review of environmental factors

For petroleum production, development consent is required under Part 4 of the EP&A Act. Petroleum production is SSD, and is defined in Division 4.1 of the EP&A Act. SSD does include intensive drilling operations under a PEL. Intensive drilling operations in exploration are defined as 6 or more wells within 3km of another well on the same tenement. As a SSD, all the scrutiny and transparency and public participation is mandatory<sup>48</sup>. Further, section 79C of the EP&A Act requires the consent authority to take into consideration the "public interest". In *Telstra Corporation Limited v Hornsby Shire Council [2006] NSWLEC 133* at [123] the meaning of "public interest in s79C was considered.

The consideration of the public interest is ample enough, having regard to the subject matter, scope and purpose of the EP&A Act, to embrace ecologically sustainable development. [124] Accordingly, by requiring a consent authority to have regard to the public interest, s79C(1)(e) of the EP&A Act obliges the consent authority to have regard to the principles of ecologically sustainable development in cases where issues relevant to these principles arise.

As a consequence, the principles of ESD and the precautionary principle must be applied in the decision making process for SSD consent.

#### 4 Ecologically sustainable development (ESD)

#### 4.1 ESD generally

Ecologically sustainable development in its most basic formulation is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs"<sup>49</sup>. ESD must be sustainable, "or prudent or rational or wise or appropriate"<sup>50</sup> and applies to both the development and the environment. It also requires the effective integration of economic and environmental factors. "Integration" requires mutual respect for environmental and economic goals. ESD also is founded on the precautionary principle<sup>51</sup>, which has been most aptly formulated in the *Protection of the Environment Administration Act* 1991 (NSW) in s6(2)(a) as

If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:

*(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and* 

(ii) an assessment of the **risk-weighted consequence** of various options.

ESD involves principles of equity, in particular, intergenerational equity, and conservation of biological diversity and ecological integrity<sup>52</sup>. Further, ESD requires the internalisation of environmental costs, such that environmental factors must be valued and costed in, polluters must pay and full life cycle costs must be incorporated.

<sup>&</sup>lt;sup>48</sup> See Annexure 1 for the rough process.

<sup>&</sup>lt;sup>49</sup> World Commission on Environment and Development, Our Common Future, 1987 at p. 44 (also known as the Brundtland Report after the Chairperson of the Commission, Gro Harlem Brundtland) quoted in the Telstra Corporation Limited v Hornsby Shire Council [2006] NSWLEC 133 case at [108]

<sup>&</sup>lt;sup>50</sup> Telstra Corporation Limited v Hornsby Shire Council [2006] NSWLEC 133

<sup>&</sup>lt;sup>51</sup> Telstra Corporation Limited ibid [113],[125pp]

<sup>&</sup>lt;sup>52</sup> Telstra Corporation Limited ibid [118]

Case law has held that Acts which adopt ESD as an object, require ESD to be applied in the decision making process as a relevant consideration.<sup>53</sup> The EP&A Act adopts ESD in its objects<sup>54</sup>. ESD in the EP&A Act is defined as it is in the *Protection of the Environment Administration Act* 1991 (NSW) s6(2)(a).

As a consequence, ESD principles should be taken into account in considering and approving the activities proposed in a REF for exploration and an SSD for petroleum production.

## 4.2 Application of ESD to CSG proposals

Taking the concepts of ESD and applying them to CSG proposals, both exploration and production, we come to:

#### (a) Is CSG development, development that meets the needs of the present?

Is there a demand for energy in NSW which is unfulfilled? The Owen Inquiry Report<sup>55</sup> in 2007 looked at NSW's energy demand, finding it to be on a falling scale, then at 1.8% down from 2.5%, due to increasing efficiencies, increasing awareness, better technology and the increasing use of renewable energy technologies. The current relative demand is unknown. However, the push to renewables will increase, given recent electricity price rises of 18% predicted for the NSW consumer, and the Commonwealth carbon pricing scheme which came on line on 1 July 2012. The Commonwealth Government White Paper on Energy Security in its Media Release in December 2011 provides "overall Australia has positive energy security".<sup>56</sup> Further, the 2007 Owen report cited gas reserves in the Gippsland Basin, off the Victorian coast, as being almost 8 times that of the NSW known reserves, providing supply well into 2030. World reports currently indicate that there is a gas glut, and the price of gas is the lowest it has been in some time.<sup>57</sup> The USA for the first time since the 1970's is exporting gas. It would appear the needs of NSW for the present are fulfilled and can be for some time into the future by the very large quantities of conventional gas<sup>58</sup> found off the Victorian and West Australian coast<sup>59</sup> and Australia is tipped to be the largest liquefied natural gas exporter in the world by 2015.

 <sup>&</sup>lt;sup>53</sup> Murrumbidgee Ground –water Preservation Association v Minister for Natural Resources [2004] NSWLEC 122 at [178]
<sup>54</sup> S5(a)(vii) EP&A Act

<sup>&</sup>lt;sup>55</sup> http://www.treasury.nsw.gov.au/\_\_data/assets/pdf\_file/0011/13340/Owen\_Inquiry\_-\_Main.pdf

<sup>&</sup>lt;sup>56</sup> http://minister.ret.gov.au/MediaCentre/MediaReleases/Pages/DraftEnergyWhitePaperReleased.aspx

<sup>&</sup>lt;sup>57</sup> <u>http://www.theaustralian.com.au/business/opinion/outlook-for-lng-demand-remains-bright-despite-gas-glut-in-the-us/story-e6frg9if-1226383944374; http://akolade.com.au/blog/gas-glut-will-punish-prices-santos; http://www.petroleum-economist.com/Article/3045723/Unconventional-gas/Gas-glut-could-dent-Australian-prices.html</u>

<sup>&</sup>lt;sup>18</sup> Conventional gas is gas found in sedimentary rocks like sandstone and limestone. The mining of the gas does not require fraccing and its

production does not involve the extraction of water, resulting in no reduction of hydrostatic pressure and less risk of overlying geology faulting. <sup>59</sup> Some would argue that these fields have already been allocated in 25 year supply contracts to China and Asia. However recent community demands have resulted in the WA government passing legislation to ensure WA security for gas, something yet to be done in NSW, but which the Commonwealth Government would have the power to ensure should the need arise. From the Authors point of view preservation of Australia's ground water systems is fundamentally more important than allowing unconventional gas production, when Australia as a nation has sufficient supplies to supply itself with conventional gas. Particularly when Australia is currently tipped to be the world's largest exporter of LNG by 2015. (The Australian 6 June 2012)

#### (b) Without compromising the ability of future generations to meet their own needs

Fresh groundwater is the most fundamental requirement for the survival of all things. Given Australia is the driest continent on the planet, and has a significant dependence on its groundwater systems, groundwater is a need which must be considered and protected for future generations. Damaging the integrity of existing fresh groundwater systems cannot be repaired, nor can the groundwater system be replaced. Polluted groundwater can pollute surface water and ecosystems that depend on that surface water. It would appear, where the integrity of the overlying geology is compromised, that CSG proposals are compromising the ability of future generations to meet their own needs for fresh water.

#### (c) ESD must be sustainable, or prudent, or wise, or appropriate

None of these adjectives would appear to be appropriate to CSG proposals given the economic and environmental issues set out above.

#### (d) ESD requires the effective integration of economic and environmental matters

In the circumstances, it is questionable why there should be an effective integration as neither the environmental nor the economic factors appear to justify CSG proposals when there are other alternatives which are more justifiable.

#### (e) ESD is founded on the precautionary principle

Another principle of ESD is the precautionary principle. The precautionary principle requires careful evaluation to avoid serious or irreversible harm. Stein J in the LEC case of *Leatch v Director General National Parks & Wildlife Service BC9302469* in 1993 states

While there have been express references to what is called the `precautionary principle' since the 1970s, international endorsement has occurred only in recent years.

In the author's view, Preston's formulation of ESD in paragraphs [107-124] of *Telstra Corporation Ltd v Hornsby Shire Council [2006] NSWLEC 133* (**Telstra Case**) are sufficient to bind consideration of ESD and the precautionary principle to consideration of Part 5 of the EP&A Act approvals, or approvals for drilling in exploration.<sup>60</sup> Preston CJ has made it abundantly clear that ESD is a consideration for Part 4 of the EP&A Act determinations, or petroleum production activities in the Telstra Case.

#### 5 The precautionary principle

The precautionary principle has been written into NSW legislation as a principle of ecologically sustainable development (**ESD**)<sup>61</sup>. In the Telstra Corporation case<sup>62</sup> Preston CJ makes the effort to set out how to apply the precautionary principle, as "there had not yet been a detailed explanation of the precautionary principle or the procedure for application of it." [127].

<sup>&</sup>lt;sup>60</sup> Section 111 of the EP&A Act clearly states its purpose is to attain the objects of the Act. Interpreted to mean, approvals given under Part 5 of the EP&A Act, must be made with the purpose of encouraging ESD which includes the application of the precautionary principle, if applicable.

<sup>&</sup>lt;sup>61</sup> Section 6(2)(a) of the Protection and the Environment Administration Act 1991 (NSW)

<sup>&</sup>lt;sup>62</sup> Telstra Corporation Limited v Hornsby Shire Council [2006] NSWLEC 133

Preston CJ notes there are two conditions precedent for the application of the precautionary principle:

- (i) a threat of serious or irreversible harm; and
- (ii) scientific uncertainty as to the environmental damage.

Once both of these conditions are satisfied, precautionary measures may be taken to avert the anticipated threat of environmental damage, which should be proportionate. Annexure 2, at the end of this paper, sets out more detail in the elements or nature of each of these conditions for establishing the precautionary principle.

When the conditions precedent have been established, the courts apply the precautionary principle by reversing the burden of proof. That is, it is up to the proponent of the activity to then demonstrate that it can and will manage the risks associated with the project so as to ensure that there will not be serious or irreversible harm.<sup>63</sup> The "decision maker must then assume that the threat of serious or irreversible harm is no longer uncertain but is a reality."<sup>64</sup> The burden of showing that the threat does not exist or is negligible is on the proponent. Preston CJ in the Telstra Case goes on to say the

#### "preference is to prevent environmental damage rather than remediate it ...

the function of the precautionary principle is, therefore to require the decision maker to assume that there is a serious or irreversible threat of environmental damage and to take this into account, notwithstanding that there is a degree of scientific uncertainty about whether the threat really exists"

This is a fairly frank statement of the decision maker's role in relation to the application of the precautionary principle. It is the author's view that the precautionary principle does apply to CSG proposals. The conditions precedent to its application have been met. There is a threat, and, there is scientific uncertainty. The application of the precautionary principle should mean that vulnerable aquifers are protected from CSG proposals. Vulnerable aquifers are aquifers which are close to coal seams, either directly in contact or in close vicinity of or where there is proven interconnectivity between the two aquifers. It is the author's view, that it is appropriate to apply the precautionary principle to CSG proposals, and not to entangle it with the principle of adaptive management. Adaptive management principles are perfectly sound in relation to "serious harm" where adverse effects can be remedied, but are inappropriate in relation to irreversible harm, where adverse effects cannot be remedied. Even one borehole with corresponding depressurisation of the coal seam can cause irreversible harm to overlying aquifers if subsidence occurs.

<sup>&</sup>lt;sup>63</sup> Telstra Corporation Limited v Hornsby Shire Council [2006] NSWLEC 133 at [150]

<sup>&</sup>lt;sup>64</sup> Telstra Corporation Limited v Hornsby Shire Council [2006] NSWLEC 133 at [150]

Yet it would appear that decision makers within government, are applying the precautionary principle within the bounds of what they refer to as adaptive management where vulnerable aquifers are concerned. <sup>65</sup>

#### 6 Adaptive Management

In Telstra Corporation Ltd v Hornsby Shire Council [2006] NSWLEC 133 Preston CJ provides

[163] One means of retaining a margin for error is to implement a step-wise or adaptive management approach, whereby uncertainties are acknowledged and the area affected by the development plan, programme or project is expanded as the extent of uncertainty is reduced: M D Young, "The precautionary principle as a key element of ecologically sustainable development" in R Harding and E Fisher, Perspectives on the Precautionary Principle, Federation Press, 1999, 127 at 140.

[164] An adaptive management approach might involve the following core elements:

- monitoring of impacts of management or decisions based on agreed indicators;
- promoting research, to reduce key uncertainties;
- ensuring periodic evaluation of the outcomes of implementation, drawing of lessons, and review of adjustment, as necessary of the measures or decisions adopted; and
- establishing an efficient and effective compliance system": see "Guidelines for applying the precautionary principle to biodiversity conservation and natural resource management" in Appendix A to R Cooney and B Dickson (eds), Biodiversity and the Precautionary Principle, Risk and Uncertainty in Conservation and Sustainable Use, Earthscan, 2005 p. 304, Guideline 12.

[165] An adaptive management approach was required in Port Stephens Pearls Pty Ltd v Minister for Infrastructure and Planning [2005] NSWLEC 426 (15 August 2005). Talbot J held that application of the precautionary principle required that consent should only be granted if there was a monitoring regime that would detect emerging adverse impacts and enable the appropriate regulatory authority to require them to be addressed if and when they emerged: at [58]. See also Tuna Boat Owners Association of SA Inc v Development Assessment Commission (2000) 110 LGERA 1 at 8[35].

The issue with the application of the adaptive management approach is the irreversibility of the impacts of CSG activities on the integrity of overlying aquifers. The adaptive management approach assumes that these matters can be "addressed" when the "adverse impacts emerge". This, according to the landholders, community groups, geologists and hydrogeologists<sup>66</sup>, is far too late.

#### 7 Application of the Water Management Act (WMA) or the Water Act 1912 (NSW)

#### Aguifer Interference Activity and Aguifer Interference Approval (a)

If the WMA applies<sup>67</sup>, the Minister must not grant an aquifer interference approval unless the Minister is satisfied that adequate arrangements are in force to ensure that no more than minimal harm will be done to the aquifer, or its dependent ecosystems, as a consequence of being interfered with in the course of the

<sup>65</sup> AGL Gloucester project PAC decision with conditions, PAC decision on 20 June 2012 in relation to the Berrima Colliery expansion where there is aquifer destruction and water pollution. 66 Geoscience Australia, Pells Consulting, BGAGAG, SHCAG, Lock the Gate.

 $<sup>^{67}</sup>$  Where a water sharing plan (WSP) is in place. Otherwise the Water Act 1912 (NSW) applies.

activities to which the approval relates<sup>68</sup>. Minimal harm is not defined in the Act or the Water Management regulations.

#### Aquifer access licence (AAL) (b)

If the WMA applies, all CSG proponents in NSW must now have an aquifer access licence after taking more than 3ML/annum/licence of water. Taking water beyond 3ML/year/annum without an AAL is an offence (s60A WMA). Under s63(2) of the WMA, an AAL can be granted by the Minister so long as the Minister is satisfied there are adequate arrangements in force to ensure that 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.<sup>69</sup>

Despite these provisions, it would appear that the NSW Office of Water is asleep at the wheel<sup>70</sup> and is not actively ensuring compliance with the WMA<sup>71</sup>. This may be because its position is compromised by the application of the adaptive management approach and the current regulatory regime which are incompatible with its legislative standards of minimal harm. It may also be awaiting the finalisation of the current draft aquifer interference policy. In its current form, the policy is applicable in very limited circumstances, ie, only for strategic agricultural land and when the project is an SSD.<sup>72</sup>

#### 8 Commonwealth environmental assessment under the EPBC Act

Significant environmental impacts on matters of national environmental significance (MNES) are also assessed under the EPBC Act by the Commonwealth. The EPBC Act provides a further level of environmental assessment and decision making.<sup>73</sup> The EPBC Act in Part 3 lists MNES. There are guidelines as to whether or not an action will have a significant impact on a MNES.

On 22 March 2012, Tony Windsor introduced a Bill to amend the EPBC Act for the establishment of an Independent Expert Scientific Committee on CSG and large coal mining developments to review the impact of these projects on water resources. That Bill, which is now before the Senate74, establishes the Independent Expert Scientific Committee to provide federal, state and territory governments with scientific advice on coal seam gas and large coal mining developments which may have significant impacts on water

<sup>&</sup>lt;sup>68</sup> S97 Water Management Act - (1) A water use approval is not to be granted unless the Minister is satisfied that adequate arrangements are in force to ensure that no more than minimal harm will be done to any water source, or its dependent ecosystems as a consequence of the proposed use of water on the land in respect of which the approval is to be granted.

<sup>(6)</sup> An aquifer interference approval is not to be granted unless the Minister is satisfied that adequate arrangements are in force to ensure that no more than minimal harm will be done to the aaquifer, or its dependent ecosystems ...

<sup>&</sup>lt;sup>69</sup> There are also a number of other matters which are determinant on the grant of an AAL.

<sup>70</sup> And currently undergoing an Ombudsman investigation.

<sup>&</sup>lt;sup>71</sup> For example the NOW recognised AGLUI required an AAL for its production leases in Camden, and despite the CGP being in production for 10 years, no licence had been issued up to May 2011.  $^{72}$  In the author's view the current drafts of the AIP are wholly inadequate to protect aquifers from significant environmental harm, which is done in

the exploration phase.

<sup>&</sup>lt;sup>73</sup> See p2 of the NSW Department of Planning Commonwealth Environmental Protection and Biodiversity Conservation Act 1999 Guide to implementation in NSW, May 2007

http://www.aph.gov.au/Parliamentary\_Business/Bills\_Legislation/Bills\_Search\_Results?st=1&sr=1&q=environment&ito=1&expand=False&drvH=7 &drt=2&pnu=43&pruH=43&f=28%2F09%2F2010&to=21%2F06%2F2012&bs=1&pbh=1&bhor=1&pmb=1&g=1&ps=10

resources. The bill is applicable only to "controlled provisions"<sup>75</sup>, and does not have effect independently of MNES.

#### 10 Role of the courts

In the Land and Environment Court (**LEC**), in relation to CSG matters, there are 2 main types of challenge to decisions: merits appeal, and judicial review. Both are valuable for the education of the decision makers in government on what is required and what are the bounds of the applicable regulatory process.

#### (a) Merits review

Merits reviews involve the re-exercise by the Commissioners, or judges, of the administrative powers of the original decision maker. It is a de novo appeal and new evidence can be brought to bear on the decision. The court in undertaking a merits review is obliged to have regard to the public interest<sup>76</sup>. So far, the LEC has made no decisions in relation to CSG proposals, let alone in relation to the environmental impact of CSG proposals. We are currently awaiting the first, being the *Barrington Gloucester Stroud Preservation Alliance v Minister for Planning and Infrastructure*. It is anticipated however that a number of actions will be commenced in the near future.

#### (b) Judicial review

Judicial review is more narrowly confined than merits review and looks at whether a decision maker complied with the limits imposed by law.<sup>77</sup> Here, the court will examine the actions of the executive to ensure that they comply with, and do not offend, essentially all the enumerated matters listed in s5 of the ADJR Act. If any of these rules is offended, the decision may be invalidated, and, if the proponent requests, the decision maker must undertake the action again.

#### Conclusion

The regulatory process attempts to capture significant environmental impact at various stages of the CSG process, both in exploration and in production. The regime is designed to allow increased intensity of scrutiny of the activity with the increased potential impact on the environment. However, the entire process begins too late as the destructive activity in CSG proposals begins in exploration. The decision makers in the regulatory process do have the powers to prevent or minimise environmental harm caused by CSG proposals, yet do not appear to exercise them in such a way as to allow for the minimisation of harm. For example, conditions both in the petroleum tenements, the legislation and at common law, require there be no pollution, but do not require baseline studies or regular monitoring. The industry in NSW is too nascent to see whether or not the decision makers will actually exercise those powers so as to prevent or minimise harm. The real dilemma for

<sup>&</sup>lt;sup>75</sup> Schedule 1, s131AB(1)(a) of the Bill

<sup>&</sup>lt;sup>76</sup> Preston 2011 p4

<sup>&</sup>lt;sup>77</sup> Creyke R 2<sup>nd</sup> Edition 2008 para 2.1.1

those decision makers is the attempt at integration of economic and environmental factors in relation to CSG proposals and how this integration is applied in relation to the application of the precautionary principle and adaptive management concepts now embedded in the NSW environmental decision making process. As considered by the Federal Senate Committee in its Final Report, adaptive management is not an effective mechanism for the protection of the environment in CSG proposals. The Committee points out that consideration be given to whether "adaptive management ... is consistent with the precautionary principle".<sup>78</sup> On the author's view such an investigation is imperative and should be undertaken sooner rather than later, for obvious reasons.

<sup>78</sup> Ibid Para 1.73

#### Annexure 1 Overview of regulatory process

#### Exploration

- application for an exploration licence under Part 3 of the Petroleum Act – environment to be considered under s74

- granting of an exploration licence under s9 Petroleum Act

- challenge of grant can be made in the Land and Environment Court within 3 months of gazettal of grant under s25 Petroleum Act

- access arrangement agreed with landholder or determined by arbitrator under s69C Petroleum Act
- approval under the EPBC Act, if the activity affects a matter of national environmental significance
- approval for seismic study and REF required under s111 Part 5 EP&A Act
- approval for drilling and REF required under s111 Part 5 EP&A Act
- aquifer access licence under WMA minimal harm requirements
- aquifer interference approval under WMA minimal harm requirements
- if SSD, development consent required under Part 4 of the EP&A Act then:
  - public exhibition of development application and EIS under Part 4 of the EP&A Act
  - any person can object to development application under Part 4 of the EP&A Act
  - development consent under Part 4 of the EP&A Act
  - objectors can apply for merits review in the LEC under EP&A Act Class 1
- pilot production in exploration <sup>79</sup>

- no nuisance allowed

#### Production

- application for a production lease under Part 3 of the Petroleum Act by licence holder

- granting of a production lease under s9 Petroleum Act environment to be considered under s74
- challenge of grant can be made in the LEC within 3 months of gazettal of grant under s25 Petroleum Act

- development consent under Part 4 EP&A Act for petroleum production as a state significant development and as SSD then:

- public exhibition of development application and EIS under Part 4 of the EP&A Act
- any person can object to development application under Part 4 of the EP&A Act
- development consent under Part 4 of the EP&A Act
- objectors can apply for merits review in the LEC under EP&A Act Class 1

- environmental protection licence (EPL) required under the PEOA for production beyond a trigger level

- no pollution allowed beyond EPL - s120 PEOA

- aquifer access licence and aquifer interference approval required under the WMA

- no nuisance allowed

<sup>&</sup>lt;sup>79</sup> Current draft policies speak of pilot production in exploration however the author questions whether there is the power for the minister has the power to allow pilot production in exploration.

Does the regulatory process effectively capture significant environmental impacts?

## Annexure 2 Application of the precautionary principle



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