Nature Conservation Society of South Australia

5 Milner Street Hindmarsh
SA 5007

Phone: (08) 7127 4630

Email: ncssa@ncssa.asn.au
Website: www.ncssa.asn.au

ABN: 40 538 422 811
GSTregistered

Submission to the Independent review of the 'water trigger' legislation

Name of organisation: The Nature Conservation Society of South Australia Inc.

Name of authors: Nicki de Preu & Jeff Foulkes

Positions in organisation: Conservation Ecologist & Conservation Programs Manager

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Please note the following:

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If you have any questions regarding this submission please contact [redacted]

Introduction

The Nature Conservation Society of South Australia (NCSSA) welcomes the opportunity to provide a submission to the Independent review of the 'water trigger' legislation. NCSSA is a community based, not for profit organisation with a diverse membership drawn from all parts of the State. The Society's primary objective is to "foster the conservation of the State's wildlife and natural habitats through effective scientific research and education".

As South Australia's primary nature conservation advocacy organisation, NCSSA has an active interest in the protection and conservation of South Australia's natural resources with particular attention being paid to nationally and state listed threatened plants, animals and ecological communities. The comments in this submission build on issues raised in NCSSA's previous submissions to the Senate Inquiry on the 'Environment Protection and Biodiversity Conservation Amendment Bill 2013 [Provisions]' and public consultation on the draft significant impact guidelines for the impacts of coal seam gas (CSG) and large coal mining (LCM) developments on water resources. We continue to unequivocally support the important need for water resources to be included as a matter of national environmental significance under the *Environment Protection & Biodiversity Conservation Act 1999* (EPBC Act) where there is a potential impact from CSG and LCM development. We strongly recommend that the water trigger should be broadened to apply to all large mining developments that excavate below the water table and to all large unconventional gas projects including water intensive shale gas.

NCSSA offers the following comments against key issues covered by the Review Terms of Reference for consideration by the Independent Review Committee:

1. Examination of the appropriateness of the regulation

First and foremost, we strongly recommend the Independent Review acknowledge that water is a critical limiting factor for much of the Australian environment and economy. A limiting factor of an ecological system like water means that such that a small change or decrease in it from the present value would cause a major negative change in the function of the system. As a result it is imperative that any potential impact of developments on water resources be thoroughly investigated and risks evaluated.

Most of Australia is classified as semi-arid or arid, with 80% of the continent receiving an annual rainfall of less than 600 mm. Appropriate, sustainable management of Australia's water resources (surface and ground water) is essential to maintain community wellbeing and protect biodiversity and ecological systems. One indicator of environmental pressure on Australia's rivers and streams is the proportion of surface water areas where extraction of water is within 70% of sustainable yield. Sustainable yield identifies an upper limit to water extraction assessed over a set time period which, if exceeded, will impair the social, environmental and economic values of a water resource and the social, economic and environmental systems it supports. In 2000, around three-quarters of Australia's river basins had water diversions/extractions within 70% of sustainable yield. Most of the surface water areas that were above 70% of sustainable yield are located in the MDB, an area showing clear signs of environmental stress (NLWRA, 2001).

The "water trigger" legislation was introduced in 2013 in response to ongoing widespread community concern about the long term health and viability of Australia's precious water resources and the sustainable development of the CSG and LCM industries. The Federal Government wisely recognised the fundamental importance of Australia's finite water resources and the urgent need to take action and provide some form of protection for this valuable asset from the impact of CSG and LCM developments to ensure long-term ecologically sustainable use of this resource. Prior to the introduction of the water trigger, the impact of such developments on water resources could only be regulated under the *EPBC Act* if they had a significant impact on existing matters of national environmental significance (MNES), such as nationally endangered plants, animals and ecological communities. In many cases this meant that CSG and LCM developments that were likely to have a significant impact on water resources could not be declared 'controlled actions' under the EPBC Act.

Although some advances have been made since the water trigger was introduced, NCSSA submits that there was, and continues to be, a significant likelihood of a substantial negative environmental impact of CSG and LCM development on water resources in the absence of this regulation. We also submit that there are significant gaps in the scope or intent of the regulation and strongly recommend that the water trigger be broadened to apply to all large mining developments that excavate below the water table and to all large unconventional gas projects including water intensive shale and tight gas projects.

NCCSA submits that the scope of the legislation is appropriately focussed given the growing body of evidence that significant impacts to the environment are associated with flowback and/or produced water, from both unconventional and coal seam gas development both in Australia (Currell, 2014; Khan and Kordek, 2014; Hannam, 2015), and internationally (Warner et al 2013; US EPA, 2015).

2. Effectiveness of the regulation in protecting water resources from the impacts of coal seam gas and large coal mining projects, including the role and scope of work ascribed to the IESC

NCSSA consider the water trigger legislation has established an effective framework for protection of water resources from the impacts of CSG and LCM projects however there are still significant gaps in research and knowledge to ensure the long-term protection and ecologically sustainable use of these valuable assets. The establishment of the Independent Expert Scientific Committee for CSG and LCM Developments (IESC) under the EPBC Act has been an integral component of this framework. We believe the role and scope of the work ascribed to the IESC is appropriate, in particular the provision of independent advice to the

Australian Government and state government regulators informed by best available science about the potential water related impacts associated with CSG and LCM Developments. We strongly support the IESC's role in identifying research priorities to address critical gaps in scientific understanding of the water-related impacts associated with CSG and LCM activities.

We strongly support the continued role of the IESC in provision of advice on these matters and involvement in the implementation of Bioregional Assessments to strengthen the science underpinning future decisions about CSG and LCM mining activities and their impacts on water-dependent assets. We commend the Australian Government for identifying the need for such assessments and being the first country in the world to gather and consolidate such a wide range of detailed information on a whole-of-region scale. We support the finding from the Independent Review of the National Partnership Agreement on CSG and LCM Development (Hunter, 2015) that although the timeframe for delivery of outputs from the Bioregional Assessment Programme is on schedule it has meant that the programme has had limited application to date in guiding the strategic and regional scale management of coal seam gas and large coal mining development. We strongly recommend that all future proposal assessments and approvals adopt a precautionary approach where there is insufficient data concerning the impacts of CSG and LCM developments on species and ecological communities listed under the EPBC Act and wetlands of national/international conservation significance.

At this stage, we are unable to comment on whether the water trigger legislation been effective in protecting water resources potentially and actually affected by relevant developments in South Australia as there has only been one referral to the IESC under the NPA (Streak Energy Final Appraisal Production Testing in PEL 96, Cooper Basin Advice) and this was for a Pre-Development Assessment. There are, however, a number of serious concerns to NCCSA regarding this application and potential impact on the Lake Blanche Springs complex that highlight the importance of continued involvement of the IESC in provision of independent expert scientific advice on project approvals to the Federal Minister and state regulators. For example the advice provided by the IESC on the Strike Energy application concluded a number of errors and inconsistencies in data provided by the proponent including misinterpretation of the analytical model used to determine the geological formation where ground water was to be extracted and insufficient data to determine the source of the Lake Blanche Springs complex and potential draw down effects resulting from the proposal. The advice from the IESC recommended further information be provided the actual source for these springs needs to be determined and the implications for the model results reassessed.

We recommend the independent review acknowledge the limitations of the conceptual models used to describe the types of water dependant ecosystems for the Bioregional Assessments that are based on static models with major gaps in data and current knowledge to inform the models. We recognise the IESC's role in identifying research priorities to inform these gaps, in particular the "Ecosystems and Water" and Cumulative Impacts themes. However, for a proper understanding of the processes operating that drive these systems, the dynamic nature of the systems needs to be considered. For example, a large and important use of groundwater resources within the Arckaringa Basin is mining-related abstraction from the south-east corner of the Basin associated with mining. To date, groundwater monitoring has not suggested any adverse impacts to either the overlying GAB aquifer or the Arckaringa aquifer system on a regional scale (Miles et al. 2015). However, there is currently no long term data to determine impacts to either neighbouring aquifer systems or groundwater related ecosystems within the general vicinity, nor is there any monitoring of groundwater levels within the Stuart Range Formation, which provides the primary confining layer within the area (Miles et al. (2015). Similarly, there are no consistent discharge/flow data available for the Arckaringa subregion for surface flow.

3. Identify any opportunities to improve the effectiveness of the regulation

NCSSA recommend that there are a number of key areas where the legislation could be made more effective including the following areas:

- The water trigger should be broadened to apply to all large mining developments that excavate or intrude below the water table and to all large unconventional gas projects including water intensive shale gas;
- There should be a requirement for the Minister to refuse a development likely to have a significant impact on water resources. In all cases assessed to date the Minister has issued a conditional approval.
- There should be a requirement for the Minister to act consistently with the advice of the IESC rather than only take their advice into account. Conditional approvals, when issued, need to reflect the advice of the IESC.
- There should be a requirement that the Minister does not approve a project until the proponent has adequately addressed any concerns raised by the IESC in their advice on specific referral report.

4. Examine the efficiency of the regulation in protecting water resources from the impacts of coal seam gas and large coal mining projects

NCSSA submits that there have been a number of benefits since the introduction of the water trigger in terms of improved environmental outcomes and community confidence in the regulatory system of applying science to decision-making and management of environmental risk. The fact that there is a now an effective framework in place to guide decision making in relation to CSG and LCM projects that is informed by best practice science and advice from the IESC is a major benefit compared with arrangements prior to 2013 water trigger amendment to the EPBC Act.

Despite these advances, there is still a limited understanding of the potential cumulative impacts of CSG and LCM developments, particularly where multiple projects are undertaken within a specific area. We strongly recommend that an adaptive and precautionary management approach is adopted to allow for progressive improvement in the understanding of impacts in these circumstances. We emphasise the critical importance of effective and adequate monitoring of surface and groundwater systems (including baseline assessments) to provide a benchmark for assessing cumulative impacts on other water users and water-dependent ecosystems. Such data is fundamental for guiding and informing future decisions and policy in relation to CSG and LCM developments. For example, a major research project funded by the former National Water Commission into the management of water in the GAB (NWC, 2013) has shown this resource is in decline due to much greater discharge than recharge and that the rate of recharge is actually 10 times lower than the current management models predict. It is essential that any planning for water intensive industries such as CSG and LCM developments is informed by the latest scientific advice on sustainable extraction limits.

A key issue of concern is the limited capacity to detect the impacts of CSG and LCM developments on ground water resources given the long time-lags that exist in many groundwater systems (Currell *et al.* 2015). This means that an impact at one location may not be evident for decades or longer in some cases. Given that CSG is often extracted in very deep sedimentary basins, where the groundwater flow paths and travel times occur over thousands of years it is still too early to say whether effects such as regional depressurisation of coal seams may be leading to large scale cross-flow of contaminated fluids to areas where negative impacts may be felt – such as shallow water supply aquifers or springs, wetlands and river systems connected to the groundwater.

6. Identify any recommended appropriate future review points of the regulation.

NCSSA does not support the need for specific review of the water trigger outside of the statutory schedule for review of the EPBC Act every 10 years. We question the intent of more regular reviews of the water trigger given that none of the other MNES are subject to individual review outside of the statutory schedule for broader review of the Act. We strongly support the findings of the most recent review, undertaken in 2009 by an expert panel chaired by Dr Allan Hawke. The report from this review resulted in 71 key recommendations for reform to build and improve the efficiency and effectiveness of the Act, many of which have not been acted upon. NCSSA strongly recommend that the statutory review period be

maintained rather than conducting irregular reviews of individual MNES. We also recommend that the recommendations from the Hawke Review are revisited and implemented as a matter of high priority.

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