

**Submission  
No 176**

**INQUIRY INTO PERFORMANCE OF THE NSW  
ENVIRONMENT PROTECTION AUTHORITY**

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Submission to the NSW Upper House  
(General Purpose Standing Committee No. 5)  
inquiry into the performance of the  
NSW Environment Protection Authority

Introduction

In particular this submission relates to the case of the Environment Protection Authority (EPA) investigation into groundwater contamination in the Pilliga by Santos' Coal Seam Gas (CSG) exploration. In terms of the EPA's performance this submission provides evidence that it failed to meet a number of its objectives pursuant to section 6 of the Protection of the Environment Administration Act 1991 (PEAA).

The EPA hold many documents that containing evidence of not only the contamination of aquifers and surface water sources from coal seam gas activities in the Pilliga but also ongoing leaking into the ground of produced water from storage ponds.

Environment Protection Authorities Knowledge Of Groundwater Contamination Prior to Official Notice

There are records of ongoing communication commencing no later than 24 February 2012 between Santos and the EPA before the official notification on the 26 March 2013. Referring to the attached document #1, this letter to \_\_\_\_\_ is copied to EPA on 18 May 2012 from \_\_\_\_\_, Santos. The letter refers to both a report dated 22 February 2012 and subsequent email of the 24 February 2012 indicating Santos had been in communication with the EPA since then about the detection of elevated Total Dissolved Solids found in a piezometer adjacent to Pond 3 at Bibblewindi. Again on the 13 November 2012, a letter to \_\_\_\_\_ (refer document #2) and copied to EPA on 13 November 2012 from Santos refers to vary electrical conductivity, metals and cations around Pond 3. Clearly the EPA were in full knowledge that Pond 3 was leaking and failed to act. Pond 3 continued to leak into underlying groundwater until its contents were transferred to the Leewood facility in July 2014 some two and half years after the EPA were aware of the issue.

Numerous documents were received by the EPA on the 10 April 2013 from Santos under Notice that detail when Santos were in full knowledge of Bibblewindi Pond 3 leaking and contaminating the ground water since February 2012.

Refer to the attached document #3, a URS report dated 29 February 2012 which records high electrical conductivity measurements for number 1 monitoring bore near Pond 3.

Referring to the attached document #4 a Geotest Report dated 14 May 2012 it states,

*"The fact that we are getting a high current with relative low voltage confirms that there is a direct connection between the saline water in the pond and the subgrade beneath the liner."*

Refer to the attached document #5, CH2M Hill Report dated 9 July 2012

Page 16 *"The presence of saline water in monitoring piezometer Bibblewindi-1 adjacent to Pond 3 confirms that Pond 3 is impacting the shallow groundwater horizon.... Due to the high hydraulic head, particularly in Pond 3, this has most likely caused low flows of the saline water to penetrate the saturated basal layer and then migrate vertically and laterally through higher conductive lithological sequences or faults."*

#### EPA Delays Informing the Public Of Groundwater Contamination in the Pilliga

There is a delay of seven months from the initial drafting of the EPA report titled, "Investigation Report – Santos Limited & Eastern Star Gas Pty Ltd" until it is released. This report was first drafted by \_\_\_\_\_ of EPA on the 13 October 2013 (refer attached document #6) but not released until 5 May 2014 (refer document #7). \_\_\_\_\_ expected the investigation to be concluded about the time the Report was first drafted. On the 16 September 2013 \_\_\_\_\_ sent an email to others within the EPA which states,

*"The aim is to get the investigation wrapped up as soon as possible, hopefully within the next week or two."* (refer document #8)

#### Errors contained in the EPA's Final Report on Groundwater Contamination in the Pilliga

There are numerous errors contained within the report titled, "Investigation Report – Santos Limited & Eastern Star Gas Pty Ltd" (refer to document #7).

On page 5, paragraph 3, the Final report states,

*"The only additions of water to Pond 3 since then has been the transfer of water from Ponds 1 and 2, to allow decommissioning of these ponds, and small additions from the shut in wells that is necessary to keep the pressure down in these wells."*

Santos replied to a request by email from the EPA as to what the contents of Pond 3 comprised clearly stating what other additions have been made to Pond 3,

*"Firstly, we keep pressure down in the shut in wells by flaring, ie we need to reduce pressure to maintain safety. With that comes small amounts of produced water that goes into Pond 3. Secondly, we also have transferred the liquids from Ponds 1 and 2 to allow us to rehabilitate them, and also the fluids from the other ponds rehabilitated, ie Bohena and Dewhirst Ponds all went there."* (refer to document #9)

On page 1, under the subheading "Notification" the Final Report states,

*"The EPA was notified on 26 March 2013 that sampling of groundwater around the Bibblewindi WTF had occurred in February 2013."*

The EPA had on at least two previous occasions been informed by Santos of issues as result of groundwater

sampling in the area. The first is on the 18 May 2012 when Santos send a copy of a letter to the DTIRIS to the EPA (refer document #1)

*"Subsequently, in our email of 24 February 2012, we noted that an elevated TDS level had been found in a piezometer adjacent to Pond 3 at Bibblewindi, .."*

The second occasion is on the 13 November 2012 when Santos sent a copy of a letter to the DTIRIS to the EPA, (refer to document #2)

*"Further to the electrical resistivity testing, we have collected additional monitoring data from piezometers at Bibblewindi Pond 3. The results collected in October 2012 indicate highly varying electrical conductivity and concentrations of metals and cations across the site"*

On page 2 of the Final Report it states,

*"The EPA was previously notified that there were concerns about the integrity of the liner in Pond 3. No information was provided at the time to suggest any pollution had occurred"*

This is a misleading since the subject line of the letter of the 13 November from Santos (refer document #2) has in the subject line 'Summary of Analyses' and in the closing paragraph states, *"If you require further information, please contact ----- Manager Environment and Water on (07) 3833 3435."*

On page 5, paragraph 4 the Final Report states,

*"Based on the report titled Hydrgeological definition study – Bibblewindi prepared by CH2MHILL for Santos the seepage velocity in the deeper groundwater zone is 0.03m/year."*

While on page 10, last paragraph,

*"The data is indicating that the deeper aquifer has a velocity of 0.003m/yr. The closest bore to the site is a stock and domestic bore that is located over 4km away."*

The EPA report is inconsistent, on one page quoting 0.03 and another 0.003m /yr. The results of this report should be verified as the EPA rely on it. Simple arithmetic indicates this pollution plume won't reach the nearest bore for over 100,000 years. This reported seepage velocity is not consistent with reality as the nearby monitoring bore number 1, where the contamination was detected, in February 2012 is about 50 metres away and 18 metres deep from the nearest possible hole in the pond liner. The pond liner was intact at the completion of construction in 2006 which suggests the seepage velocity is approaching 10 metres per annum approximately 1,000 times the velocity reported in the CH2MHILL report.

### Conclusion

In terms of the EPA's performance this submission provided evidence that it failed to meet a number of its objectives pursuant to section 6 of the Protection of the Environment Administration Act 1991 (PEAA). In particular the EPA failed to meet some of the the objectives outlined in subsection (1) (b) namely,

*“...adopting the principle of reducing to harmless levels the discharge into the air, water or land substances likely to cause harm to the environment,...”*

and,

*“... promoting community involvement in decisions about environmental matters, ...”*

Further the EPA failed to employ subsection (2) (a),

*“ The precautionary principle - namely, that 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”*

The EPA failed to take any measures to prevent the ongoing environmental damage as a result of toxic water held within Bibblewindi Pond 3 leaking into underlying aquifers from when they were first aware in February 2012 until it was transferred to Santos' Leewood facility in July 2014. Santos should have been required to transport the contents of Bibblewindi Pond 3 to an appropriately licenced facility for disposal so that the contamination would cease.

### Recommendations

1. The large amounts of toxic chemicals used during the CSG activities (note hydraulic fracturing has already occurred in the Pilliga in at least nine wells) and the chemical make up of the produced water present a high risk to all water sources and this requires addressing. Penalties, bonds and “make good” clauses have been proven to be ineffective and inadequate to prevent ongoing and numerous contamination events in the Pilliga and surrounds. Given the high level of detriment to the environment in these events it is recommended that each coal seam gas exploratory and production project be required to hold current Environmental Insurance and that appropriate and sufficient staff be employed by the EPA to ensure compliance.
2. It is noted that no quality requirements are specified in relation to disposal of produced water from coal seam gas, although this is clearly a significant concern to all agricultural users of water. A brief review of the literature has failed to identify any applicable standards in this context. To commence coal seam gas project before a standard is developed would be irresponsible. It is recommended that coal seam gas exploration be halted until appropriate stringent standards to regulate the creation, use and disposal of produced water are developed, and an enforcement regime is operational with appropriately qualified EPA staff.
3. In terms of the EPA's performance this submission provided evidence that it failed to meet a number of its objectives pursuant to section 6 of the Protection of the Environment Administration Act 1991 . It is recommended that the EPA are required to observe and apply all the objectives of section 6 and are adequately funded to do so.