

Narrabri CCC Monthly Update

JULY 2016

The following is a monthly update for the Narrabri CCC regarding activities undertaken by the NSW Environment Protection Authority (EPA) relating to PEL 238 (Narrabri Gas Project).

It includes both activities undertaken relating to Environment Protection Licence (EPL) 20350 and the EPA functions conducted under the NSW Gas Plan.

Attachments to this month's update:

- Running Log – Old Investigations of PEL 238 Outcomes
- Inspections undertaken by EPA – June 2016
- Feature Article – “*How a Reverse Osmosis Plant Works*” □ EPA Site Inspection Map – June 2016

EPA ACTION ITEMS SINCE LAST NCCC

Nil

INVESTIGATIONS

Background

On 19 February 2013 the EPA became responsible for investigating environmental incidents that occurred during coal seam gas activities under the provisions of the *Protection of the Environment Operations Act 1997* (POEO) and issued Environment Protection Licences (EPL).

On 1 July 2015 the EPA commenced its new role as the lead regulator for compliance with, and enforcement of, conditions of approval for gas activities in NSW. This includes regulating consent conditions and activity approvals issued by other agencies (excluding work health and safety). In carrying out this role the EPA will work with the relevant experts and NSW Government agencies.

Gas activities must comply with a broad range of regulatory controls, including Acts, regulations, codes of practice, titles, approvals and other controls. The prioritisation of investigations is determined using a risk assessment for investigations that considers the level of environmental impact and the likelihood of environmental harm occurring.

Current Incidents

Nil since June 2016 Narrabri CCC meeting

Running Log – Old Investigations PEL 238 Outcomes

Incident	Outcome
<p>March 2013 <u>Bibbiewindi Water Treatment Facility</u> Pond liner failure</p>	<p>11 Feb 2014 The EPA issued a Penalty Notice for s120 Pollution of waters. A Pollution Reduction Program (PRP) was added to EPL 20350 (Environment Protection Licence) requiring the development of a Remediation and Monitoring Plan and the implementation of these.</p>
<p>March 2013 <u>Tintsville Ponds</u> Detection of elevated levels salinity and metals</p>	<p>Insufficient evidence to determine if the changes detected in groundwater were the result of leaks from the Tintsville ponds or were from natural factors. A PRP was added to EPL 20350. Media release: No environmental harm but improvements needed</p>
<p>February 2014 <u>Namoi Waste</u> Storage of Santos drilling mud onsite</p>	<p>6 May 2014 The EPA issued Namoi Waste Corp with a Penalty Notice for breach of s145 of the POEO Act. Note - The Penalty Notice issued was not related to the original complaint regarding waste from coal seam gas, rather other waste material identified during the course of the investigation. Media release: EPA issues Naracorp and Namoi Waste Corp with penalty notices for unlawful waste transport and storage</p>
<p>January 2015 <u>Santos Dewhurst Southern</u> Water flow line</p>	<p>No breach of EPL 20350 identified. Santos varied operational practices for high point vents following negotiations with the EPA. Media release: No environmental harm but improvements needed</p>
<p>September 2015 <u>Bohena Creek</u> Piezometer located in creek</p>	<p>No regulatory action required.</p>
<p>January 2016 <u>Leewood Water Treatment Facility</u> Alleged discharge of sediment laden water</p>	<p>The rainwater discharge followed heavy rain. Santos undertook immediate works to prevent further discharge from the site installing coir mats and construction of bunding. The EPA inspected site and determined no environmental harm and that no regulatory action was required.</p>
<p>January 2016 <u>Santos</u> <u>Piliga</u> Report a 'foamy caramel coloured' material on the roadside near operation site</p>	<p>The EPA inspected the site and collected samples. Analysis determined it was a natural event, likely due to the decomposition of organic material. No further action was required.</p>
<p>February 2016 <u>Santos Piliga</u> Report of 35,000 litre spill at unmanned Santos facility</p>	<p>Investigations proved minor water run off with no environmental or health risks. Media release: Water Run-off From Leewood Water Treatment Facility in Narrabri Cleaned Up</p>

<p>March 2016 <u>Leewood Pond</u> Alleged leaking</p>	<p>EPA officer inspected storage ponds and met with Santos staff. No evidence that produced water was leaking. No further action was required.</p>
<p>March 2016 <u>Bohena Creek Road</u> Report that a vent had been left open, unattended and emitting methane gas</p>	<p>Santos has approval to vent gas from high and low point vents along the water gathering lines for safety and operational purposes. This must be performed manually by a field operator. Santos is currently amending its manual venting procedure to ensure a field operator is present at all times.</p>
<p>March 2016 <u>Santos Piliga</u> Report received that there was a 'foamy residue' left along Beehive Road. A reporter returned to the site some days later with a Geiger counter and recorded a reading allegedly linked to the high and low point vents</p>	<p>EPA Officer spoke to reporter who advised that the location they took the Geiger counter reading was a few kilometres away from the area of concern and there was no evidence to support the initial claim. No further action required.</p>
<p>March 2016 <u>Leewood Water Treatment Facility</u> Report alleging a truck was seen spraying produced water between the internal fence and the property boundary fence for dust mitigation</p>	<p>EPA Officer viewed available data confirming raw water from an on-site bore was used for dust suppression at the time of the allegation. The EPA supports dust suppression which is a requirement of the Santos EPL. No further action required as at 15 March 2016</p>
<p>April 2016 <u>Bohena Creek Road</u> Methanol Drum on road</p>	<p>Santos staff located a 44 gallon drum labelled 'Methanol' dumped on Bohena Creek Road near the Leewood Water Treatment Facility. Police and HAZMAT attended and secured the item. The drum was not on the Santos site, nor related to their activities as per media Tweet by the EPA.</p>

EPA ACTIVITIES

Inspections undertaken by the EPA – June 2016

Inspections					
Site ID	Date Inspected	Reasons	Action/Outcome	Status	Statutory Document
Biblewindi legacy salinity site	2/6/2016	General Inspection	Site rehabilitation progress is being monitored	Rehabilitating	PAL0002 & Section 77 Notice from DRE
Bohena 2 legacy salinity site	2/6/2016	General inspection	Site rehabilitation progress is being monitored	Rehabilitating	PAL0002 & Section 77 Notice from DRE
Biblewindi legacy salinity site	22/6/2016	General Inspection	Site rehabilitation progress is being monitored	Rehabilitating	PAL0002 & Section 77 Notice from DRE
Bohena 2 legacy salinity site	22/6/2016	General inspection	Site rehabilitation progress is being monitored	Rehabilitating	PAL0002 & Section 77 Notice from DRE

How a Reverse Osmosis Plant Works

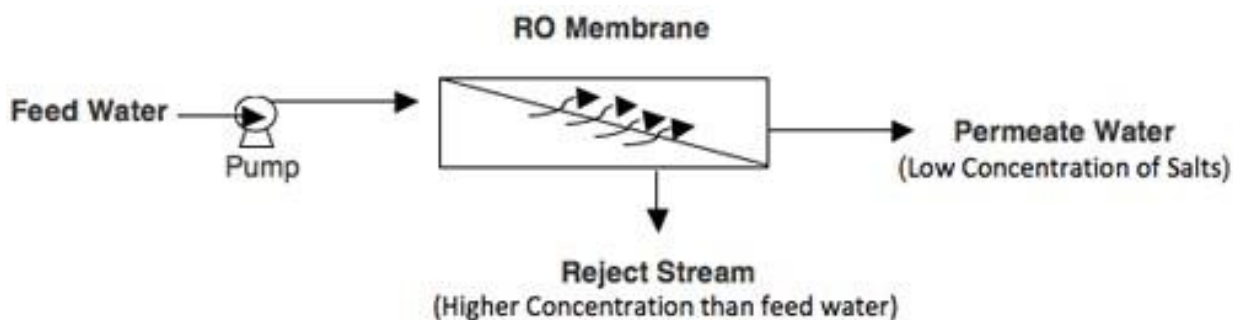
A reverse osmosis (RO) plant can significantly reduce the dissolved salt, particle, colloid, organic, and pathogen content of produced water. Once the water is treated and impurities are removed, the water can then be beneficially re-used.

RO works by forcing salty water through a semi-permeable membrane, about as thick as a sheet of cellophane. The membrane acts like a filter, letting water through but blocking the flow of most other substances.

However, RO differs from normal filtration as the salts build up behind the membrane rather than becoming trapped within it.

As shown below, the fresh water stream ('permeate') passes through the membrane, whilst the brine is trapped behind it ('reject stream'). The brine is regularly removed from the membrane and treated further before being lawfully disposed of.

Workflow of an RO plant



An RO system consists of 3 major stages: pre-treatment; pressurisation; and, membrane separation. A further stage ('post-treatment') may also be required depending on the intended beneficial reuse.

Pre-treatment: Water is pre-treated to improve the RO efficiency by: removing suspended solids; adjusting the pH; and, adding a threshold inhibitor to control scaling and clogging.

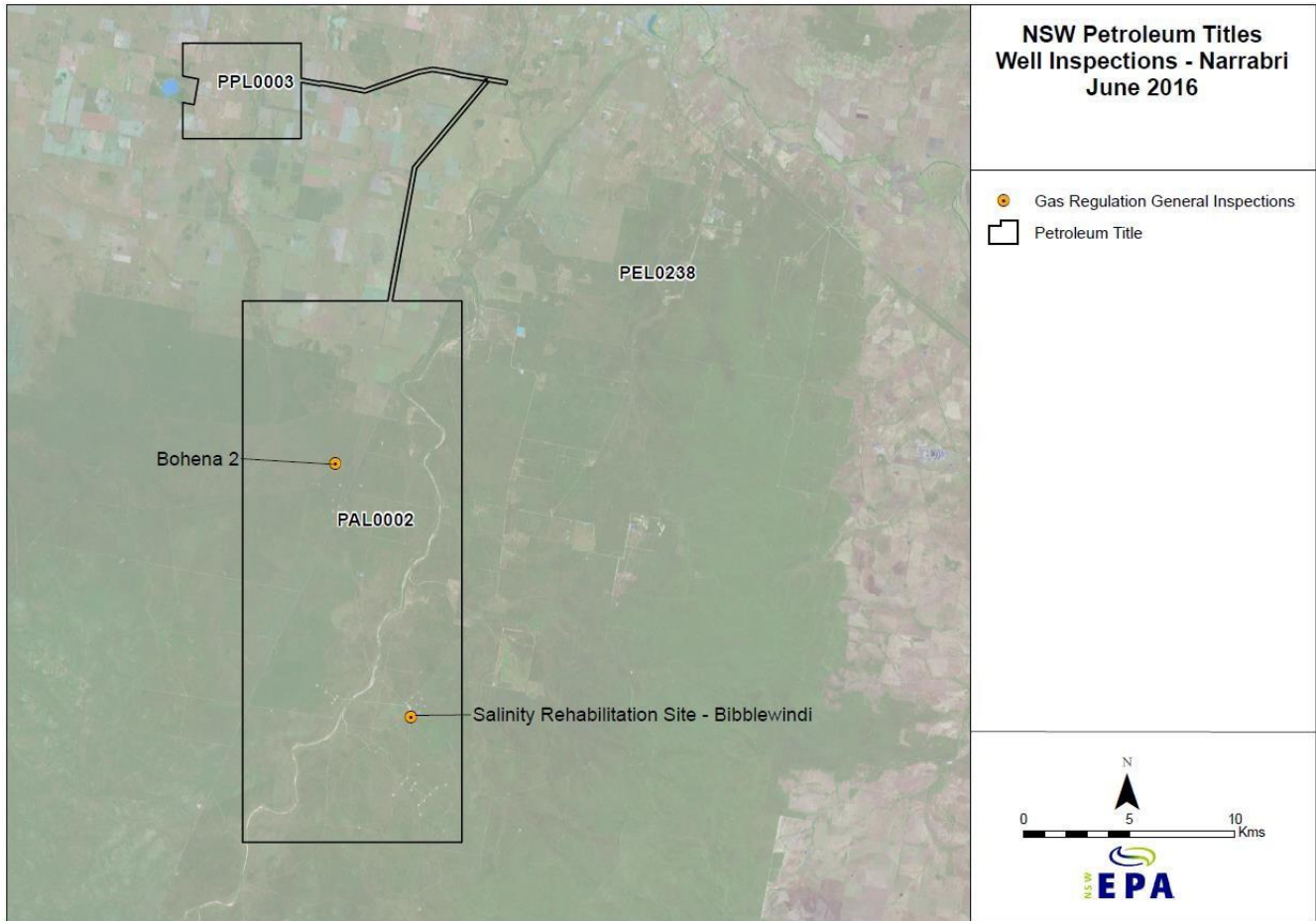
Pressurisation: The RO system is pressurised using a pump. The exact pressure depends on the salinity of the water and the type of membrane.

Separation: Salts and contaminants are removed from the produced water, as the fresh water stream passes through the membrane while the brine accumulates behind the membrane.

Post-treatment: An RO plant produces a purified water stream that often needs to be treated before it can be beneficially reused. For example, if the water is to be used for irrigation purposes, the pH, sodium adsorption ratio, ion concentrations, and other factors must be appropriate for use at the specified location.

The EPA adds treated water discharge quality monitoring requirements to Environment Protection Licenses to demonstrate the RO system is operating in a proper and efficient manner.

EPA site inspections undertaken at Narrabri during June 2016



Every effort has been made to ensure that the information in this document is accurate at the time of publication. However, as appropriate, readers should obtain independent advice before making any decision based on this information.

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