

AUGUST 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, PAL 2 and PPL 3 (Narrabri Gas Project).

It includes 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 – July 2016
- Feature Article – “Bacterial control during the reverse osmosis water treatment process”
- EPA Site Inspection Map – July 2016

EPA ACTION ITEMS SINCE LAST NCCC

Contact details for the Narrabri office forwarded – Completed.

Links for Namoi air quality monitoring data forwarded – Completed.

Presentation on how the EPA operates to be delivered to CCC at the September 2016 meeting.

Provision of information regarding well integrity and legacy wells – Interagency collation of information has begun. Presentation on this matter will be delivered at the CCC as soon as possible.

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

Bohena 2 (PAL0002) – Site inspection 6/7/2016

The EPA received a complaint alleging Santos was using produced water from Leewood for the watering program at Bohena 2 salinity site. A Namoi Waste truck was seen leaving Leewood and

heading to Bohena 2 salinity site. EPA Officers attended the site to investigate and water samples were taken for analysis. Results of the analysis have not yet been received.

March 2016 Bohena Creek Road - Report that a vent had been left open, unattended and emitting methane gas

Status of this incident has been updated:

Santos has approval to vent gas from high and low point vents along the water gathering lines for safety and operational purposes – this is performed manually by a field operator.

Santos has amended the manual venting operating procedure. The procedure clearly notes that a high point vent is not to be operated without an operator present.

Running Log – Old Investigations PEL 238 Outcomes

Incident	Outcome
<p>March 2013 <u>Biblewindi 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 Naracor and Namoi Wastecorp 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 had occurred and that no regulatory action was required.</p>

<p>January 2016 <u>Santos 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 is performed manually by a field operator. Santos has amended the manual venting operating procedure. The procedure clearly notes that a high point vent is not operated without an operator present.</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

Site ID	Date Inspected	Reasons	Action/Outcome	Site Status	Statutory Document
Bohena 2 salinity site	6/7/2016	Alleged produced water use	Under investigation	Rehabilitating	PEL0238
Biblewindi salinity site	6/7/2016	General Site Inspection	Site rehabilitation is being monitored	Rehabilitating	PAL0002 & Section 77 Notice from DRE

Site ID	Date Inspected	Reasons	Action/Outcome	Site Status	Statutory Document
Leewood	6/7/2016	General Site Inspection for Narrabri EPA staff	N/A	Operational	PAL0002
Narrabri Operations Centre (NOC)	20/7/2016	Induction for new staff	Induction complete	Active	N/A
Dewhurst 28	20/7/2016	General site inspection for new EPA staff	N/A	Active	PEL0238
Dewhurst 27	20/7/2016	General site inspection for new EPA staff	N/A	Active	PEL0238
Biblewindi 16	20/07/2016	General site inspection for new EPA staff	N/A	Active	PAL0002
Biblewindi Compressor Station	20/07/2016	General site inspection for new EPA staff	N/A	Not operational	PAL0002
Biblewindi 25	20/07/2016	General site inspection for new EPA staff	N/A	Active	PAL0002
Biblewindi 24	20/07/2016	General site inspection for new EPA staff	N/A	Active	PAL0002
Biblewindi 23	20/07/2016	General site inspection for new EPA staff	N/A	Active	PAL0002
Leewood	20/07/2016	General site inspection for new EPA staff	N/A	Operational	PAL0002
Tintfield Flare	20/07/2016	General site inspection for new EPA staff	N/A	Operational	PPL0003
Wilga Park Power Station	20/07/2016	General site inspection for new EPA staff	N/A	Operational	PEL0238
Bohena 2 salinity site	20/07/2016	General site inspection for new EPA staff	Site rehabilitation is being monitored	Rehabilitating	PAL0002 & Section 77 Notice from DRE
Biblewindi salinity site	20/07/2016	General site inspection for new EPA staff	Site rehabilitation is being monitored	Rehabilitating	PAL0002 & Section 77 Notice from DRE
Biblewindi Water Management Facility	28 July 2016	General Inspection	No non-compliance identified	Water staging point only	EPL20350
Wilga Park 1	28 July 2016	LDAR	No reportable leaks detected	Suspended	EPL20350
Bohena 3	28 July 2016	LDAR	No reportable leaks detected	Suspended	EPL20350

Site ID	Date Inspected	Reasons	Action/Outcome	Site Status	Statutory Document
Bohena 7	28 July 2016	LDAR	No reportable leaks detected	Shut in	EPL20350
Bohena 9	28 July 2016	LDAR	No reportable leaks detected	Shut in	EPL20350
Bohena South 1	28 July 2016	LDAR	No reportable leaks detected	Suspended	EPL20350
Dewhurst 22	27 July 2016	LDAR	No reportable leaks detected	Shut in	EPL20350
Dewhurst 24	27 July 2016	LDAR	No reportable leaks detected	Shut in	EPL20350

FEATURE ARTICLE

Bacterial control during the reverse osmosis water treatment process.

This short article aims to respond to questions raised from last month's article on reverse osmosis (RO) plant operation.

Produced water collected from gas wells is often treated using a RO plant to prepare it for another use such as agricultural irrigation. The RO is a distinct process achieved by exerting pressure on the water to reverse the natural process of osmosis to concentrate and ultimately remove the undesirable elements in the water. In conjunction with RO, the water is given a range of other treatments to make the process more effective.

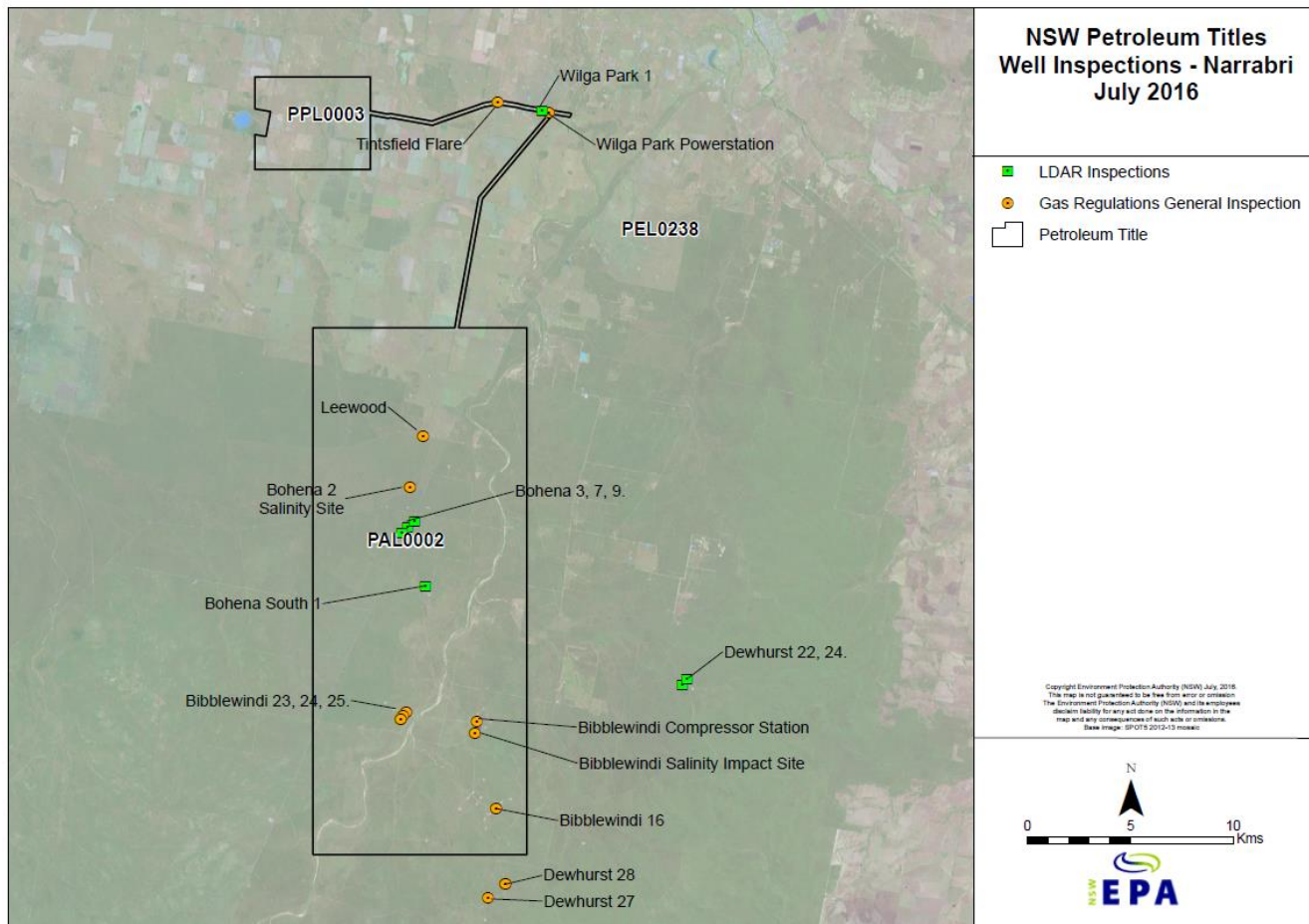
Before water enters the RO process, it is given a pre-treatment to remove large particles and adjust the chemical components to improve the efficiency of the RO plant. Pre-treatment may involve removing suspended solids using a filtration system, adjusting the pH and adding a product to inhibit formation of crystals and clogging in the system.

The water will also be treated for bacteria and other pathogens using chemical disinfectants. Disinfectants may be added to the water before it enters the RO system as well as during the RO and brine treatment stages. The type and amount of chemicals used varies between RO plants. The exact method for managing bacteria varies with each RO plant and is based on initial water quality and treated water objectives. The process, however, generally consists of chemical disinfection using common chemicals such as those used in drinking water supply and swimming pool maintenance. In addition to chemical control, RO plants may use filtration and UV light disinfection stages in the water treatment process.

RO plant performance depends on maintaining equipment and quality control throughout the treatment process as bacteria and other organisms can decrease plant performance. The EPA requires licensees to appropriately manage RO systems to ensure the proper and efficient operation of all plant equipment. In addition, the EPA includes treated water quality and monitoring requirements on Environment Protection Licenses. Such licenses are site specific and dictate what needs to be monitored, what levels or concentrations are allowable, where samples must be taken and how frequently sampling must occur.

SITE INSPECTION MAP

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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