Narrabri CCC Monthly Update

NOVEMBER AND DECEMBER 2016

The following is a monthly update for the Narrabri Community Consultative Committee (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 the regulation of 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 and the outcomes investigations
- Inspections undertaken by EPA in November and December 2016
- Feature Article – An overview of groundwater monitoring across NSW that is undertaken by Government & Industry
- EPA Site Inspection Map for November & December 2016

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EPA ACTION ITEMS SINCE LAST NCCC

None.

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 issuing 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.

Recently Completed Investigations

Bohena Creek

Environment Line received an allegation that Bohena Creek was impacted by the Bibblewindi Water Treatment Plant and gas wells.

EPA officers carried out an investigation. There was no evidence that environmental harm had occurred. The complainant has been informed of the outcome of the investigation and inspection.

Leewood Ponds

EPA officers inspected Leewood Northern Sediment Dam following an Environment Line call alleging an overflow incident from Leewood Ponds Water Treatment Facility had occurred.

The allegation was investigated and samples taken. Laboratory results confirming there was no BTEX present and the materials were classed as organic including; dried sun bleached algae and a naturally occurring protozoa. While the origin of the algae or protozoa may not be determined, its presence does not represent environmental harm.

Running Log – Old Investigations PEL 238 Outcomes

Incident	Outcome
November 2016 Bohena Creek Report alleging that Bohena Creek was impacted by the Bibblewindi Water Treatment Plant and gas wells.	EPA officers visited the area of Bohena Creek that the reporter referenced. There was no evidence that environmental harm has occurred.
September 2016 Leewood (PAL002) Report alleging Leewood produced water dams were overflowing.	EPA officers visited the site and all ponds were observed to be operating with adequate freeboard. There was no evidence of any overflow or spill from the ponds.
September 2016 Bohena 2 Report alleging Santos were using produced water from Leewood for watering program at Bohena 2 salinity site.	Environment Line received a complaint alleging Santos were using produced water from Leewood for the watering program at Bohena 2 salinity site following a Namoi Waste truck seen leaving Leewood and heading to Bohena 2 salinity site. EPA Officers attended the site, investigated and took water samples. Lab results indicate that the source of water is not consistent with produced water. The EPA sent a response letter to complainant advising this.
April 2016 Bohena Creek Road Methanol Drum on road	Santos staff found 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 its activities as per media Tweet by the EPA.
March 2016 Leewood Pond Alleged leaking	EPA officer inspected storage ponds and met with Santos staff. No evidence that produced water was leaking. No further action was required.

March 2016 Bohena Creek Road Report that a vent had been left open, unattended and emitting methane gas	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.
March 2016 Santos Pilliga Report received that there was a "foamy residue" left along Beehive Road. The complainant returned to the site some days later with a Geiger counter and recorded a reading allegedly linked to the high and low point vents	An EPA Officer spoke to the complainant 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.
March 2016 Leewood Water Treatment Facility Report alleging a truck was spraying produced water between the internal fence and the property boundary fence for dust mitigation	An 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
February 2016 Santos Pilliga Report of 35,000 litre spill at unmanned Santos facility	Investigations proved minor storm water run-off with no environmental or health risks. Media release: Water Run-off From Leewood Water Treatment Facility in Narrabri Cleaned Up
January 2016 Leewood Water Treatment Facility Alleged discharge of sediment laden water	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.
January 2016 Santos Pilliga Report a 'foamy caramel coloured' material on the roadside near operation site	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.
September 2015 Bohena Creek Piezometer located in creek	No regulatory action required.
January 2015 Santos Dewhurst Southern Water flow line	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

February 2014 Namoi Waste Storage of Santos drilling mud onsite	**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 compliant 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
March 2013 Bibblewindi Water Treatment Facility Pond liner failure	**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 this plan.
March 2013 Tintsfield Ponds Detection of elevated levels salinity and metals	Insufficient evidence to determine if the changes detected in groundwater were the result of leaks from the Tintsfield ponds or were from natural factors. A PRP was added to EPL 20350. Media release: No environmental harm but improvements needed

Inspections undertaken by the EPA – November 2016

Inspections					
Site ID	**Date Inspected**	**Reasons**	**Action/Outcome**	**Site Status**	**Statutory Document**
Bohena Creek	2 November 2016	Environment Line allegation that Bohena Creek was impacted by the Bibblewindi Water Treatment Plant and gas wells.	EPA officers carried out an investigation. There was no evidence that environmental harm had occurred.	n/a	PEL 238 / EPL 20350
Tintsfield Ponds	8, 10 and 22 November 2016	General site inspection	Santos to submit report in accordance with EPL 20350 condition E1.	EPL 20350	Tintsfield Ponds
Dewhurst 30	10 November 2016	General site inspection	NIL	EPL 20350	Dewhurst 30
Dewhurst 31	10 November 2016	General site inspection	Santos to install additional coir log.	EPL 20350	Dewhurst 31
Bohena 9	10 November 2016	Leak detection monitoring	No reportable leaks identified	EPL 20350	Bohena 9
Dewhurst 16H	10 November 2016	Leak detection monitoring	No reportable leaks identified	EPL 20350	Dewhurst 16H
Dewhurst 17H	10 November 2016	Leak detection monitoring	No reportable leaks identified	EPL 20350	Dewhurst 17H
Dewhurst 18H	10 November 2016	Leak detection monitoring	No reportable leaks identified	EPL 20350	Dewhurst 18H
Dewhurst 8A – Deep Aquifer Monitoring Well	10 November 2016	Leak detection monitoring	No reportable leaks identified	EPL 20350	Dewhurst 8A – Deep Aquifer Monitoring Well

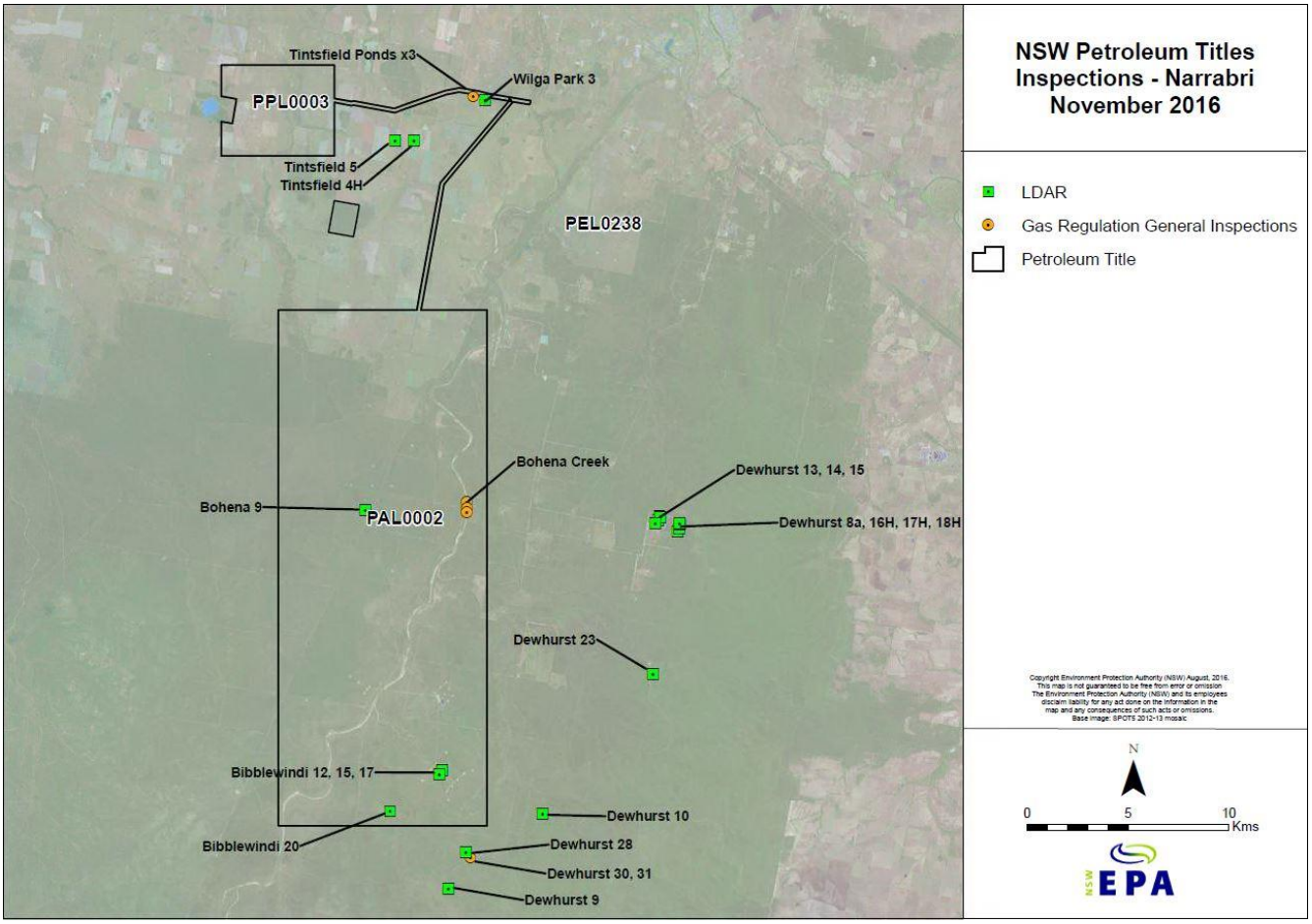
Dewhurst 14	10 November 2016	Leak detection monitoring	No reportable leaks identified	EPL 20350	Dewhurst 14
Dewhurst 15	10 November 2016	Leak detection monitoring	No reportable leaks identified	EPL 20350	Dewhurst 15
Dewhurst 13	10 November 2016	Leak detection monitoring	No reportable leaks identified	EPL 20350	Dewhurst 13
Dewhurst 23	10 November 2016	Leak detection monitoring	No reportable leaks identified	EPL 20350	Dewhurst 23
Dewhurst 10	10 November 2016	Leak detection monitoring	No reportable leaks identified	EPL 20350	Dewhurst 10
Dewhurst 9	10 November 2016	Leak detection monitoring	No reportable leaks identified	EPL 20350	Dewhurst 9
Dewhurst 28	10 November 2016	Leak detection monitoring	No reportable leaks identified	EPL 20350	Dewhurst 28
Bibblewindi 17	10 November 2016	Leak detection monitoring	No reportable leaks identified	EPL 20350	Bibblewindi 17
Bibblewindi 15	10 November 2016	Leak detection monitoring	No reportable leaks identified	EPL 20350	Bibblewindi 15
Bibblewindi 12	10 November 2016	Leak detection monitoring	No reportable leaks identified	EPL 20350	Bibblewindi 12
Bibblewindi 20	10 November 2016	Leak detection monitoring	No reportable leaks identified	EPL 20350	Bibblewindi 20

Inspections undertaken by the EPA – December 2016

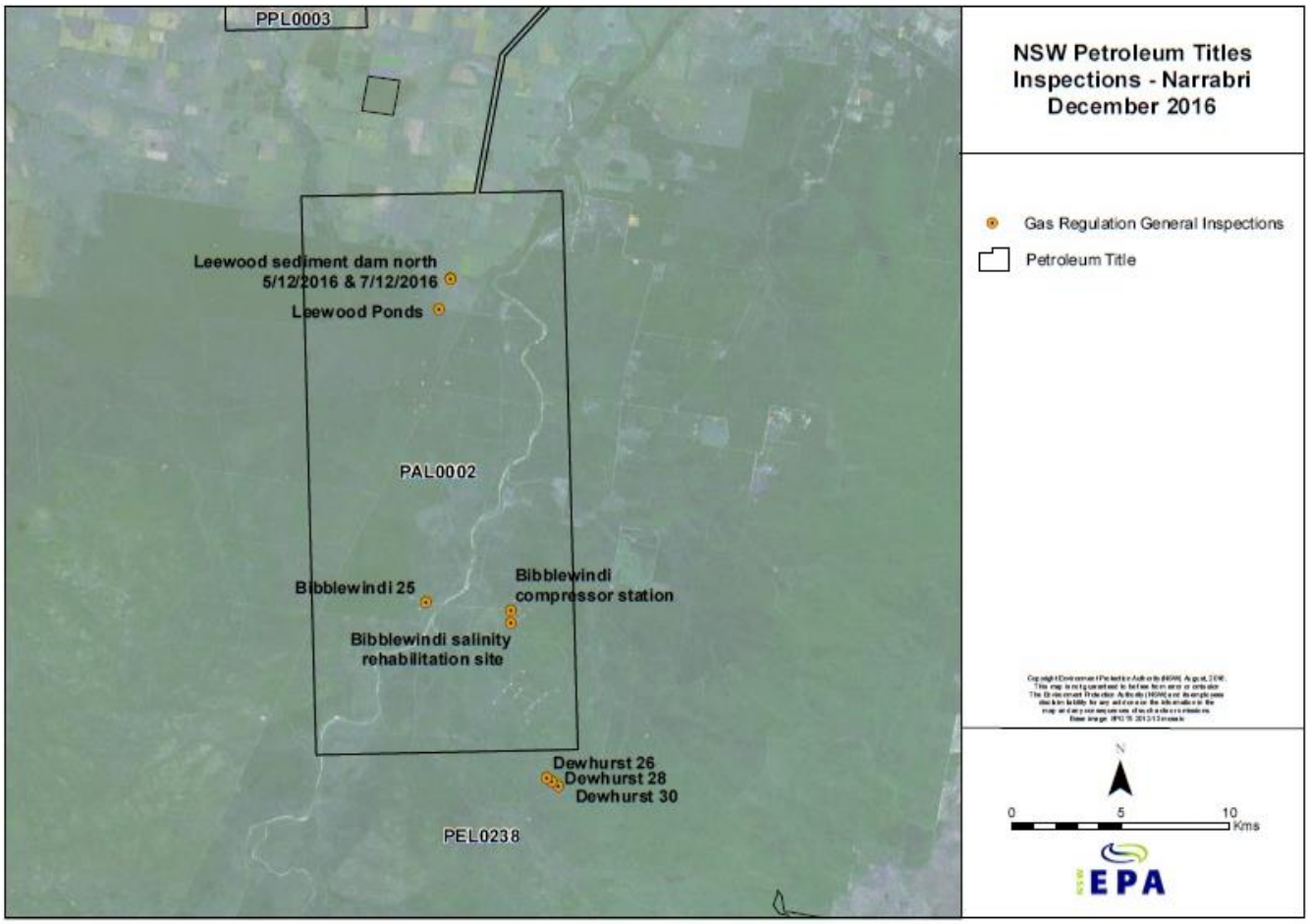
Inspections					
Site ID	**Date Inspected**	**Reasons**	**Action/Outcome**	**Site Status**	**Statutory Document**
Leewood Northern Sediment Dam	5 December 2016	Environment Line	Compliant – no environmental harm	Active	PAL 2
Leewood Northern Sediment Dam	7 December 2016	Environment Line	Compliant – no environmental harm	Active	PAL 2
Bibblewindi Legacy Salinity Site	8 December 2016	General site inspection	Compliant	Rehabilitating	PAL 2
Bibblewindi 25	8 December 2016	General site inspection	Compliant.	Active	PAL 2
Bibblewindi Compressor Station	8 December 2016	General site inspection	Compliant	Not operational	PAL 2
Leewood Ponds	8 December 2016	General site inspection	Compliant	Active	PAL 2
Dewhurst 26	8 December 2016	General site inspection	Compliant	Active	PEL 238
Dewhurst 28	8 December 2016	General site inspection	Compliant	Active	PEL 238
Dewhurst 30	8 December 2016	General site inspection	Compliant	Not drilled	PEL 238

SITE INSPECTION MAP

EPA site inspections undertaken at Narrabri during November 2016



EPA site inspections undertaken at Narrabri during December 2016

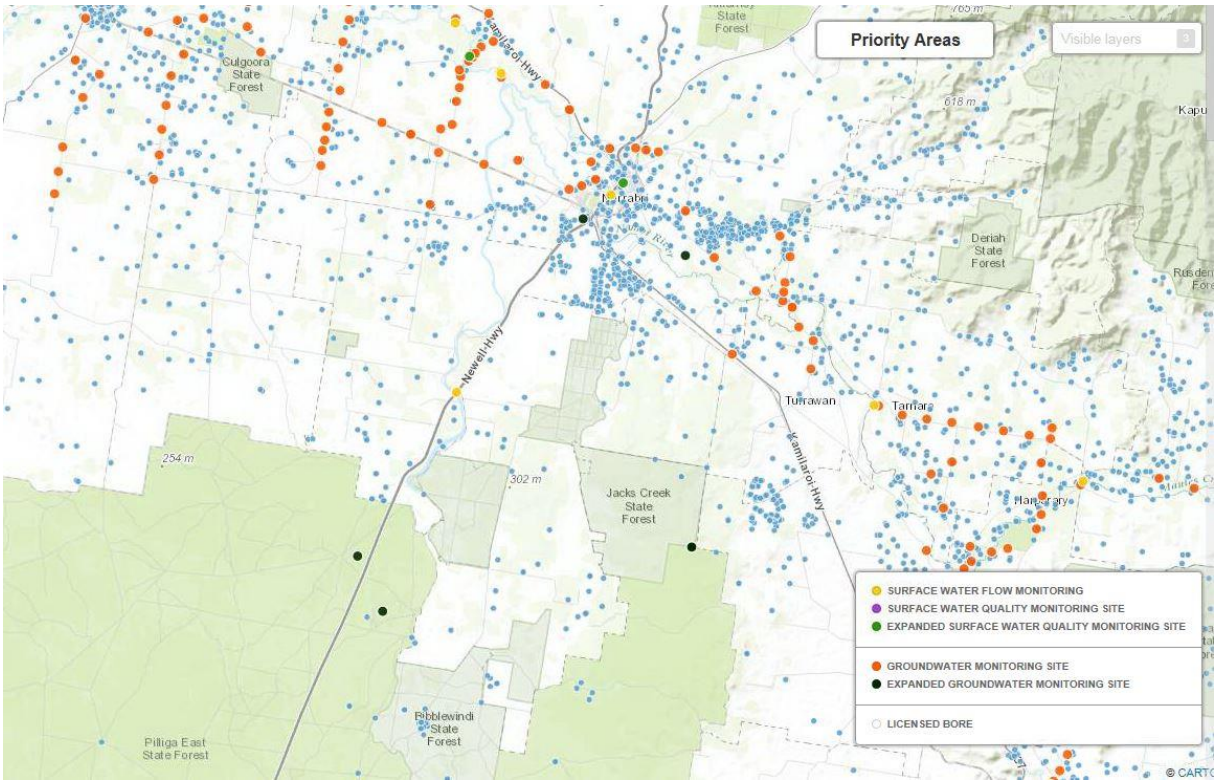


FEATURE ARTICLE

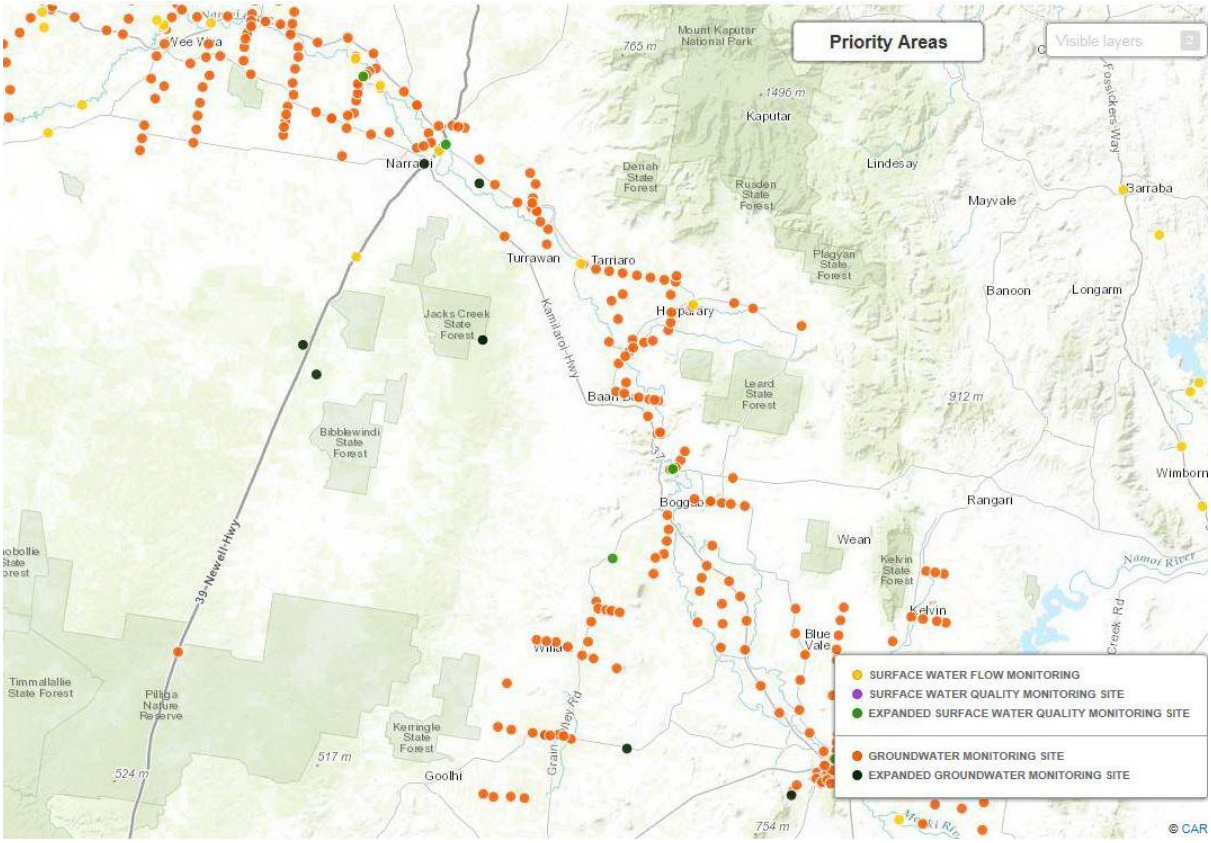
Groundwater Monitoring across NSW Undertaken by Government and Industry

The vast majority of water monitoring across NSW is designed to assess the quantity of water resources, both surface water and shallow groundwater in aquifers within a few hundred metres of the ground surface. Shallow groundwater aquifers are a major source of water for operations including irrigation for agriculture, town drinking supply, stock and domestic supply, manufacturing, mining and forestry in NSW. Monitoring of groundwater quality is typically done to assess the suitability of water resources for these general water usage categories, as well as to detect change or fluctuation in quality.

Historically, Department of Primary Industries Office of Water (DPI Water) and its predecessors were responsible for operating and maintaining the state-owned groundwater monitoring network. During 2016, a number of functions related to water services in NSW were transferred from DPI Water to WaterNSW. A FAQ information page on the changes can be found on the NSW Office of Water: Frequently asked questions page. An overview of the DPI monitoring framework can be found on the Our Water: Monitoring page.



Registered groundwater bores, monitoring bores and surface water monitoring points in the Narrabri area.



State-owned surface water and groundwater monitoring points in the Narrabri area.
Note the bores installed as part of the “Expanded Groundwater Monitoring Network”.

Water monitoring at gas sites

Groundwater monitoring networks at gas sites often comprise a combination of State-, private-, and industry-owned monitoring wells.

In 2014 DPI Water increased the spatial coverage of State-owned deep groundwater monitoring bore network in the vicinity of some of NSW's proposed CSG developments to improve understanding of the hydrogeological environment in and above prospective coal seams. Historically, monitoring data at such depths was scarce due to the limited development of these deep water resources, either due to their poor quality or the availability of good quality water in easier-to-access shallow aquifers or rivers.

Information from both shallow and deep monitoring bores is used to effectively manage the state's water resources.[1] Data collected from these bores allows the State Government to monitor regional trends in water levels and water quality independent of the CSG proponents monitoring data, and to assess gas industry impacts against the Aquifer Interference Policy. The Aquifer Interference Policy details how DPI Water assesses potential impacts on water resources from CSG production.

The extent of groundwater monitoring undertaken by companies varies depending on the stage (exploration, appraisal, or production) and nature of operations, as well as the vintage of infrastructure on the licensed area. The frequency of government-mandated groundwater monitoring is determined on a case-by-case basis and undertaken in accordance with EPL requirements or other Government directives. In addition to this mandatory monitoring, the gas industry will often collect additional monitoring data to support its operations.

Water monitoring at gas sites usually fits into one or more of the following 3 categories: baseline; surveillance; and investigation.

Baseline monitoring is usually done over a large area over several years, to assess the 'natural' undisturbed water levels and water quality. Both industry and government collect monitoring data that can be used to determine baseline conditions. This is often required well before exploration commences, and continue throughout the activity. The overriding objective for baseline monitoring is to establish a reference groundwater condition, or benchmark, so any future potential impacts can be measured against the original reference condition.[2]

Surveillance monitoring is targeted around licensed areas and allows a licensee to demonstrate they are complying with their EPL or other conditions. Water levels and general water chemistry from surveillance bores are compared to results from baseline bores to identify how activities are impacting on groundwater.

Surveillance monitoring applies to a wide range of EPA licensed operations such as mining, sewage treatment plants and waste depots. An EPL can include monitoring of water quality parameters specific to the nature of the industry which then contributes to government's understanding of groundwater quality.

Companies undertaking exploration, appraisal or production operations are required to submit an Annual Return to the EPA that summarises results of the EPL-mandated monitoring conducted during the reporting period.

Investigation monitoring is conducted when a pollution event is suspected or known. Monitoring may become more frequent, additional bores may be installed at different depths, and the list of chemicals analysed may increase compared to baseline and surveillance monitoring. More advanced analyses, such as isotope identification, may be used to 'fingerprint' the different water sources. These fingerprints can be used to further determine the source and extent, if any, of pollution.

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[1] http://www.water.nsw.gov.au/__data/assets/pdf_file/0011/548264/avail_ground_groundwater_monitoring_bore_drilling_gloucester-narrabri.pdf.

[2] http://www.dmp.wa.gov.au/Documents/Environment/Groundwater_Monitoring_Guideline.pdf.

Namoi River Basin monitoring bore sites.

Water sampling is routinely undertaken throughout the multiple stages of the groundwater monitoring process. The EPA requires that sampling be conducted in accordance with the Australian Standards (AS/NZS 5667). A number of measurements can be taken in the field at the time the sample is collected, as shown in the table below. Additionally, a wide range of other elements can be measured once the sample is sent to a laboratory, e.g. dissolved metals. The combination of measurements a licensees is required to report varies by industry, is designed to be site specific and is prescribed in the EPL.

Field analysis parameters
Water level (m AHD) – water levels / pressures should be measured within aquifers, surface water systems and groundwater-dependent ecosystems at the same time as water samples are collected. It may be appropriate, or easier in some cases, to install continuous recording data loggers.
Temperature (°C)
Conductivity – compensated to 25°C, or if uncompensated – report the value measured and the temperature; report complete units (e.g. mS/cm, not mS)
pH
Redox potential (Eh)
Dissolved oxygen (mg/L and %DO)
Bicarbonate (HCO_3^-)

The EPA operational and technical staff review all reports submitted by licensees. Each report is reviewed to ensure compliance with the relevant conditions. Should any issues be identified, the EPA has a range of regulatory tools available to ensure sufficient information is available to support any decisions or advice by the agency.

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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