NARRABRI CCC MONTHLY UPDATE

MARCH 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. It includes both activities undertaken relating to Environment Protection Licence 20350 and the EPA's functions conducted under the NSW Gas Plan.

Attachments to this month's update:

- CSG Leak Detection Inspections - 9/2/16 – 10/2/16
- Twitter *@NSWEPA*
- Feature articles
  - Leak Detection – Adopted Procedures and Measuring Equipment Used by the EPA
  - CSG and Hydrogen Sulphide Gas (H_2S) – Early Detection by Human Nose vs EPA Equipment
- Map of Narrabri LDAR Inspections – February 2016

EPA ACTION ITEMS SINCE LAST NCCC MEETING

Nil – Meeting was postponed

INVESTIGATIONS

Background

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 Act) and issued Environment Protection Licences.

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, including 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.

Recent

January 2016 – Sediment laden water boundary of Leewood Water Treatment Facility

On 4 January 2016 the EPA received a report alleging that sediment laden water had been discharged from site along the southern boundary of the Leewood Water Treatment Facility. This followed heavy rain in the area. The matter was followed up with Santos and it was evident that while there had been some discharge, there had been limited off-site impacts. Santos undertook immediate works to prevent further discharge of sediment laden rainwater from the site, including installing coir mats and construction of bunding. The EPA inspected the site and determined that no regulatory action was required. The EPA inspected the site again on 4 February following heavy rains the day before. The inspection confirmed that the works undertaken by Santos had been effective.

On 23 January 2016, the EPA received a complaint via the Environment Line advising of a "foamy, caramel coloured" material in a roadside drain near the Santos Pilliga operations. The caller was concerned that the material may be drilling additive or waste water dumped beside the road. In response to the complaint, the EPA inspected the site and collected samples. Analysis of the samples determined it was a natural event, likely due to the decomposition of organic material. No further action was required.

On 15 February, a story started to trend on Facebook of a 35,000 litre spill at the Santos facility. The EPA contacted Santos and was informed that there had been no spill at Leewood or at any other of Santos' Pilliga sites. Further investigation revealed that the spill had occurred sometime earlier in Queensland. No EPA action was required.

http://www.epa.nsw.gov.au/epamedia/EPAMedia16010501.htm

RUNNING LOG - OLD INVESTIGATIONS PEL 238 OUTCOMES

INCIDENT	OUTCOME
Bibblewindi Water Treatment Facility Pond Liner failure (March 2013)	11 Feb 2014 EPA issued Penalty Notice for s120 Pollution of waters A Pollution Reduction Program (PRP) was added to EPL 20350 requiring the development of a Remediation and Monitoring plan and the implementation of these.
Tintsfield Ponds – detection elevated levels salinity and metals (May 2013)	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. http://www.epa.nsw.gov.au/epamedia/EPAMedia15051501.htm
Feb 2014 Storage of Santos drilling mud onsite at Namoi Waste	6 May 2014 EPA issued Namoi Waste Corp with a Penalty Notice for breach of s145 of the POEO Act.
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. http://www.epa.nsw.gov.au/epamedia/EPAMedia15051501.htm
September 2015 Piezometer in Bohena Creek	No regulatory action required.

EPA ACTIVITIES

The following tables present actions undertaken by the EPA

INSPECTIONS – Leak Detection and Repair (LDAR) and Hydrogen Sulphide (H_2S)				
SITE ID	DATE INSPECTED	REASON	ACTION/OUTCOME	STATUS
Tintsfield 2H, 3H, 4H & 6 Narrabri Gas Field	9/2/2016	Undertake Leak detection monitoring	No reportable leaks detected	No H_2S detected
Dewhurst 26, 27, 28 & 29 south Pilot Narrabri Gas Field	10/2/2016	Undertake Leak detection monitoring	No reportable leaks detected	No H_2S detected.

MEDIA

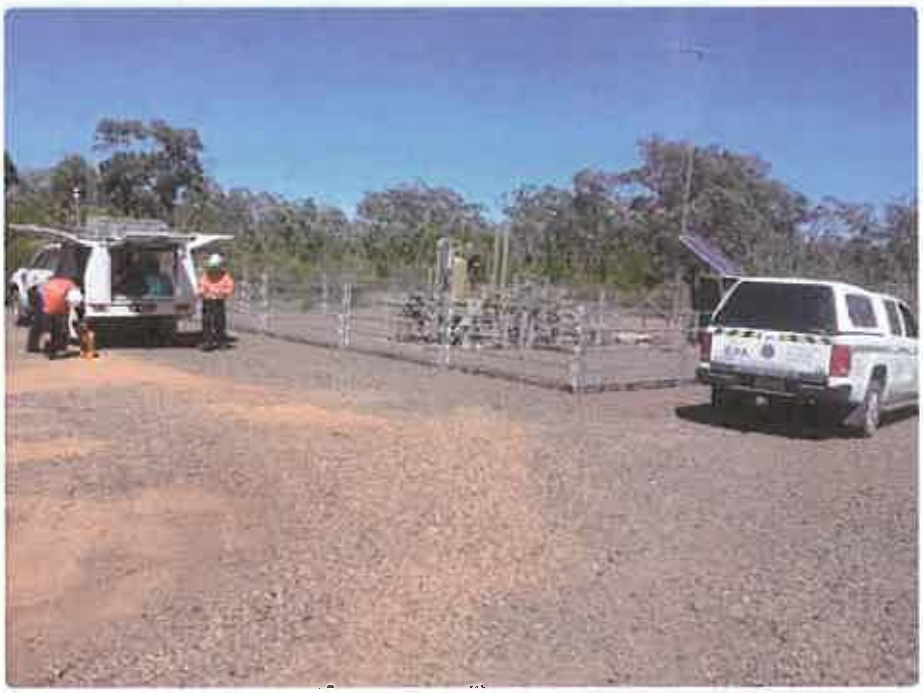
MEDIA

08 Feb 2016 – Twitter @NSW_EPA

- EPA overseeing gas monitoring at Santos Narrabri operations as part of the EPA's Methane Emissions Project
  http://www.epa.nsw.gov.au/epamedia/EPAMedia16010501.htm

NSW EPA @NSW_EPA · Feb 8

EPA overseeing gas monitoring at Santos Narrabri operations as part of the EPA's Methane Emissions Project



MATTERS OF INTEREST

Leak Detection – Adopted Procedures and Measuring Equipment Used by the EPA

The NSW Environment Protection Authority (EPA) undertakes leak detection monitoring as part of its inspection programs when regulating Coal Seam Gas (CSG) activities.

When inspecting Coal Seam Gas sites, the EPA undertakes monitoring for possible gas leaks. The EPA checks for methane, as it accounts for approximately 98% of natural gas, and is colourless, odourless and flammable.

Typically, there are two types of gas detection monitor units that are used by the EPA: The *Eagle 2 Gas Monitor* which detects a wide ranges of gases, including methane and Hydrogen Sulphide at various concentration levels and; the *DP-IR* detection monitor which operates an infrared optical gas detection system to detect methane at lower concentrations without being affected by other gas or fumes.

The EPA regularly undertakes leak detection works in conjunction with the licensees to ensure the site is operating effectively, and that any possible leaks are identified and rectified immediately.

Coal Seam Gas (CSG) and Hydrogen Sulphide Gas (H_2S) – Early Detection by Human Nose vs EPA Equipment

Sulphur is present in organic environments; Hydrogen Sulphide (H_2S) gas is typically a product of microbial action from the breakdown of this organic matter.

H_2S occurs in oxygen-depleted environments for example:- volcanoes, deep ocean, groundwater, composting and gastrointestinal locations.

When released into the environment, H_2S dissipates into the atmosphere and may form sulphur dioxide or sulphuric acid.

The presence of H_2S gas is detected by the human nose before the most sensitive commercial meters registers its existence. The characteristic rotten egg odour of H_2S can be detected by the human nose from 0.005 to 0.008 ppm. These levels do not affect human health.

NSW coal-bed methane reservoirs are known as 'sweet' reservoirs and generally produce methane-rich gases with incidental volumes of H_2S. In this instance, H_2S should be contained within gas gathering infrastructure and not exposed to the atmosphere or present as an odour risk, except in the case of trace entrained emissions in produced water.

Sulphur dioxide SO_2 is the product of combusting (flaring) H_2S, but in the event of incomplete combustion, H_2S may be emitted into the atmosphere.

The Eagle2 gas detectors used by EPA field staff take readings from 0-100 ppm, with a resolution of 0.5ppm. This detector will emit an alarm when the ongoing low level Occupation Safety and Health Authority standard reaches 10 ppm.

The EPA also uses SUMMA canister sampling which allows for the collection of gas samples for laboratory analysis.

Laboratory detection limits of H_2S are at 10ppbV or 0.01ppm - the detection limit of 0.01ppm is still above odour thresholds.

Narrabri LDAR Inspections – February 2016