

Water sampling requirements and parameters

EPL20350

Narrabri Gas Field – PEL238, PPL3, PAL2 Santos

Narrabri Community Consultative Committee – Tuesday 13th January 2015

Protection of the Environment Operations Act 1997 – from Section 66 – conditions requiring monitoring

Monitoring the conditions of a licence may require:

a) monitoring by the holder of the licence of the activity or work authorised, required or controlled by the licence, including with respect to:

- (i) the operation or maintenance of premises or plant, and**
- (ii) discharges from premises, and**
- (iii) relevant ambient conditions prevailing on or outside premises, and**
- (iv) anything required by the conditions of the licence, and**

(b) the provision and maintenance of appropriate measuring and recording devices for the purposes of that monitoring, and

(c) the analysis, reporting and retention of monitoring data.

Environment Protection Licences (EPLs)

- Publically available <http://www.epa.nsw.gov.au/prpoeoapp/>
- In addition to water monitoring also sets limits and conditions for:
 - Air
 - Noise
 - Land
- Provisions and mechanisms for:
 - Pollution reduction programs

Section 55 Protection of the Environment Operations Act 1997

Environment Protection Licence

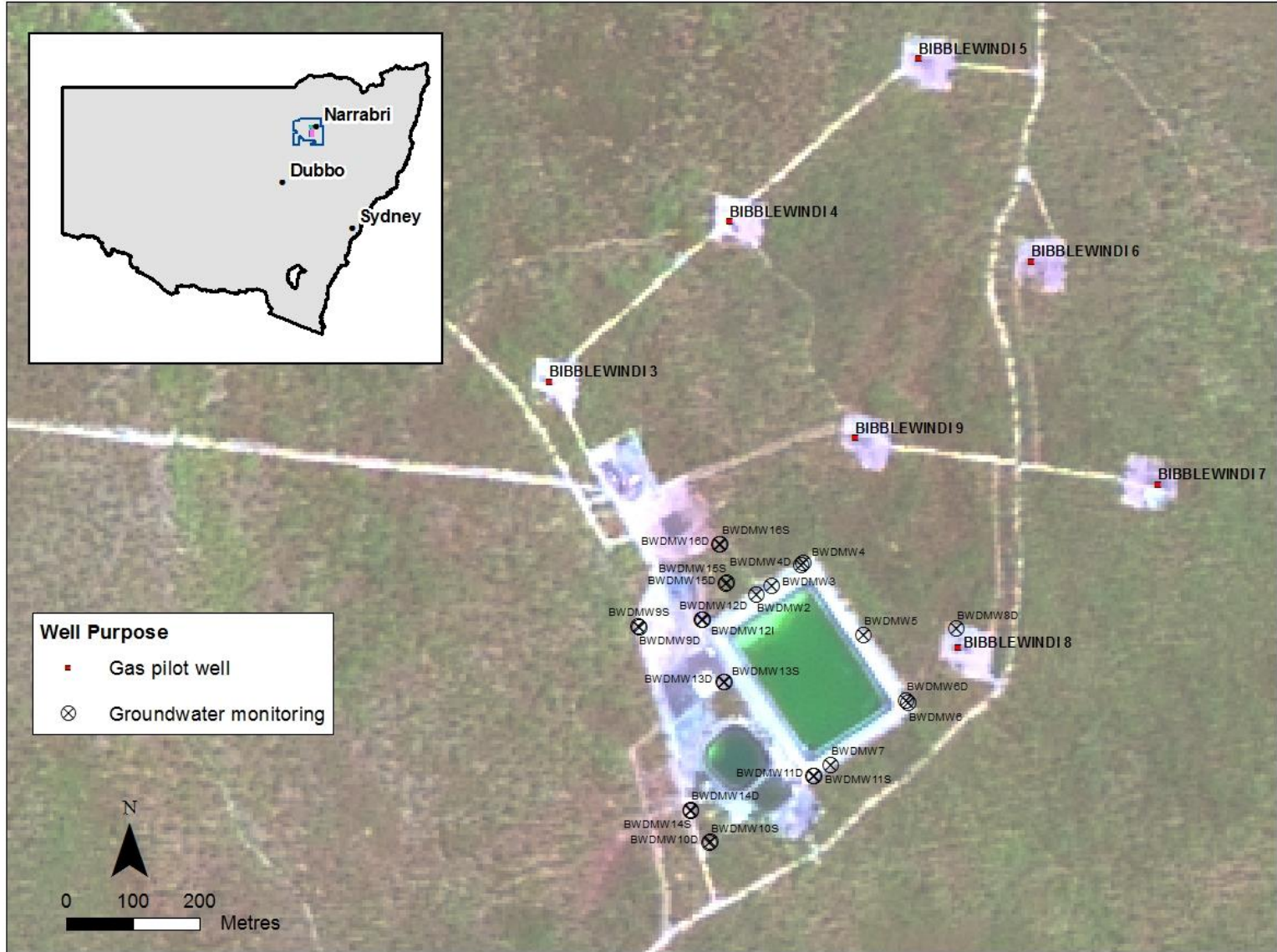
Licence - 20350

Licence Details	
Number:	20350
Anniversary Date:	01-May
Licensee	
SANTOS NSW (EASTERN) PTY LTD	
GPO BOX 1010	
BRISBANE QLD 4000	
Premises	
NARRABRI GAS FIELD	
X LINE ROAD	
NARRABRI NSW 2390	
Scheduled Activity	
Coal seam gas exploration, assessment and production	
Fee Based Activity	Scale
Coal seam gas assessment/production	0-8 PJ produced
Coal seam gas exploration	Any capacity

Aim to prevent, mitigate and abate pollution from a specific activity

- **Well sites**
- **Trunk lines**
- **Associated water storages**
- **Water treatment facilities**
- **Utilisation areas**
- **Temporary work areas**
- **Gas gathering infrastructure and storage**
- **Immediate areas (10m) of any infrastructure in connection to operation of the gas field**
- **Pollution of waters and land**

Santos Narrabri Operations



EPL 20358 applies to PEL238, PPL3 & PAL2

- **Discharge to air**
 - **5 flare locations**
- **Surface water**
 - **6 individual storage ponds at 3 sites**
 - **Leewood**
 - **Tintsville**
 - **Bimblewindi**
- **Groundwater**
 - **55 quality and level sites**
 - **6 groundwater pressure (level) only**
- **No licenced discharges to waters**
- **Pollution incidents allow for further investigations and monitoring**



Parameters – EPL monitoring

- Aluminium
- Ammonia
- Arsenic
- Barium
- Beryllium
- Bicarbonate
- Boron
- Bromide
- Cadmium
- Calcium
- Carbonate
- Chloride
- Chromium
- Cobalt
- Copper
- Dissolved Oxygen
- Electrical conductivity
- Fluoride
- Iron
- Lead
- Magnesium
- Manganese
- Mercury
- Methane
- Molybdenum
- Nickel
- Nitrate
- Nitrite
- pH
- Phosphorous (total)
- Potassium
- Reactive Phosphorus
- Redox potential
- Selenium
- Sodium
- Standing Water Level
- Strontium (dissolved)
- Sulfate
- Total Dissolved Solids
- Total Organic Carbon
- Uranium
- Vanadium
- Zinc

- Some or all of these parameters are present in ambient/baseline conditions
- Groundwater typically dissolve soluble minerals within a saturated formation and develop a regional chemical signature

Water Monitoring Frequencies

<u>Parameters</u>	<u>Frequency</u>	<u>Comments</u>
<u>Standing Water Level</u>	<u>Daily</u>	<u>mAHD</u>
<u>Water Quality (field)</u>	<u>Quarterly</u>	<u>EC, pH, DO, Redox</u>
<u>Water Quality (lab)</u>	<u>6 monthly</u>	<u>Anions Cations</u> <u>Heavy metals</u>

- **Regular monitoring frequencies are set within the EPL, for each parameter, at each site.**
- **Incident and special event monitoring can be undertaken anytime by the EPA**

- EPL sets the monitoring requirements
- Company and/or consultants/contractors undertake the monitoring – set for all industries
- Samples must be analysed by a NATA accredited lab
- Results must be provided in the Annual Return
- EPA has ability to take action if necessary

Section 55 Protection of the Environment Operations Act 1997

Environment Protection Licence

Licence - 20350



must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

M2.2 Water and/ or Land Monitoring Requirements

POINT 7,8,9,10,11,12,13,14,15,16,17,18,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,50,51,52,53,55,56,57,58,59,60,61,62,63,64,65,66,67,68

Pollutant	Units of measure	Frequency	Sampling Method
Aluminium	milligrams per litre	Every 6 months	Grab sample
Ammonia	milligrams per litre	Every 6 months	Grab sample
Arsenic	milligrams per litre	Every 6 months	Grab sample
Barium	milligrams per litre	Every 6 months	Grab sample
Beryllium	milligrams per litre	Every 6 months	Grab sample
Bicarbonate	milligrams per litre	Every 6 months	Grab sample
Boron	milligrams per litre	Every 6 months	Grab sample
Bromide	milligrams per litre	Every 6 months	Grab sample
Cadmium	milligrams per litre	Every 6 months	Grab sample
Calcium	milligrams per litre	Every 6 months	Grab sample
Carbonate	milligrams per litre	Every 6 months	Grab sample
Chloride	milligrams per litre	Every 6 months	Grab sample
Chromium	milligrams per litre	Every 6 months	Grab sample
Cobalt	milligrams per litre	Every 6 months	Grab sample
Copper	milligrams per litre	Every 6 months	Grab sample
Dissolved Oxygen	milligrams per litre	Quarterly	In situ
Electrical conductivity	microsiemens per centimetre	Quarterly	In situ
Fluoride	milligrams per litre	Every 6 months	Grab sample
Iron	milligrams per litre	Every 6 months	Grab sample
Lead	milligrams per litre	Every 6 months	Grab sample
Magnesium	milligrams per litre	Every 6 months	Grab sample
Manganese	milligrams per litre	Every 6 months	Grab sample
Mercury	milligrams per litre	Every 6 months	Grab sample
Methane	milligrams per litre	Every 6 months	Grab sample
Molybdenum	milligrams per litre	Every 6 months	Grab sample
Nickel	milligrams per litre	Every 6 months	Grab sample
Nitrate	milligrams per litre	Every 6 months	Grab sample
Nitrite	milligrams per litre	Every 6 months	Grab sample
pH	pH	Quarterly	In situ
Potassium	milligrams per litre	Every 6 months	Grab sample
Reactive Phosphorus	milligrams per litre	Every 6 months	Grab sample
Redox potential	milligrams per litre	Quarterly	In situ
Selenium	milligrams per litre	Every 6 months	Grab sample
Sodium	milligrams per litre	Every 6 months	Grab sample

What if an issue is identified?

- **EPL's, Pollution Reduction Programs**
- **Clean Up Notices, Prevention Notices,**
- **Inspections, Audits, Investigations -
Chapter 7 Investigative Powers**
- **EPA Compliance Policy**
- **Prosecution Guidelines**

Groundwater Quality Data made available to the Public

**Provisions within the Protection of Environment
Operations Act 1997 – administered by the NSW EPA**

Narrabri Community Consultative Committee – Tuesday 13th January 2015

(Section 66, clause 6) Publication of results of monitoring (from POEO 1997)

The holder of a licence subject to a condition referred to in subsection (1) (a) must, within 14 days of obtaining monitoring data as referred to in that subsection:

- **(a) if the holder maintains a website that relates to the business or activity the subject of the licence-make any of the monitoring data that relates to pollution, and the licensee's name, publicly and prominently available on that website in accordance with any requirements issued in writing by the EPA, or**
- **(b) if the holder does not maintain such a website-provide a copy of any of the monitoring data that relates to pollution, to any person who requests a copy of the data, at no charge and in accordance with any requirements issued in writing by the EPA.**

All monitoring information must be:

- **Provided free of charge**
- **Provided in a timely manner (14 days)**
- **Available to all members of the public**
- **Available through multiple media (internet or print)**



- Santos Water Portal –
www.santoswaterportal.com.au
- Environment Protection Licences –
<http://www.epa.nsw.gov.au/prpoeoapp/>
- Environment Line – 131 555