

APPENDIX A – ENVIRONMENTAL PROTECTION LICENCE 12003

Environment Protection Licence



Licence - 12003

Licence Details	
Number:	12003
Anniversary Date:	22-December

Licensee
AGL UPSTREAM INVESTMENTS PTY LIMITED
PO BOX 67
MENANGLE NSW 2568

Premises
ROSALIND PARK GAS PLANT
MEDHURST ROAD
GILEAD NSW 2560

Scheduled Activity
Petroleum exploration, assessment and production

Fee Based Activity	Scale
Petroleum exploration, assessment and production	> 0.50-6 PJ annual production capacity

Region
Metropolitan - Illawarra
Level 3, NSW Govt Offices, 84 Crown Street
WOLLONGONG NSW 2500
Phone: (02) 4224 4100
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PO Box 513 WOLLONGONG EAST
NSW 2520

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Information about this licence

Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act);
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

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The EPA publication "A Guide to Licensing" contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

This licence is issued to:

AGL UPSTREAM INVESTMENTS PTY LIMITED

PO BOX 67

MENANGLE NSW 2568

subject to the conditions which follow.

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1 Administrative Conditions

A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity	Fee Based Activity	Scale
Petroleum exploration, assessment and production	Petroleum exploration, assessment and production	> 0.50 - 6 PJ annual production capacity

A1.2 This licence does not authorise the above scheduled activities where approval for these activities is also required under the *Environmental Planning and Assessment Act* or the *Petroleum (Onshore) Act*, and approval has not been granted.

A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
ROSALIND PARK GAS PLANT
MEDHURST ROAD
GILEAD
NSW 2560
PART LOT 35 DP 230946

A2.2 The premises also includes the gas gathering reticulation system owned and operated by the licensee that is associated with the gas treatment plant(s) identified in condition A2.1.

A2.3 The gas gathering reticulation system identified in condition A2.2 includes all gas wells, trunk lines, and any associated effluent storages, temporary work areas and infrastructure associated with the gathering systems, gas wells and trunk lines.

A2.4 The licensee must maintain a current register of the gas gathering reticulation system documenting each gas well location, well head configuration and all trunk lines associated with the gas treatment plant identified in condition A2.1.

A2.5 For the purposes of this licence, the premises also includes immediate areas in a 10 metre radius of all infrastructure in connection to the operation of the gas wells. During well establishment, the premises have a nominal area of 100m x 70m and is surrounded by fencing. At various times during well head maintenance, the premises at the gas well head comprises an area of approximate dimensions 50m x 40m.

A2.6 Any maps referred to in this section and included as part of this licence indicate the activity that is

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authorised by this licence to be undertaken at each well site.

A3 Information supplied to the EPA

A3.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:

- a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
- b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

2 Discharges to Air and Water and Applications to Land

P1 Location of monitoring/discharge points and areas

P1.1 The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.

<i>Air</i>			
EPA identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
1	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	Compressor Engine 1 labelled 'Engine Exhaust Stack 1' on drawing titled 'Camden Gas Project Site Plan Location of Emission Points' drawing number 4229DG06 submitted to the EPA with letter dated 29 October 2004.
2	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	Compressor Engine 2 labelled "Engine Exhaust Stack 2" on drawing titled 'Camden Gas Project Site Plan Location of Emission Points' drawing number 4229DG06 submitted to the EPA with letter dated 29 October 2004.
3	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	Compressor Engine 3 marked 'Engine Exhaust Stack 3' on drawing titled 'Camden Gas Project Site Plan Location of Emission Points' drawing number 4229DG06 submitted to the EPA with letter dated 29 October 2004.
4	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	TEG Fire Tube marked 'Reboiler Flue 4' on drawing titled 'Camden Gas Project Site Plan Location of Emission Points' drawing number 4229DG06 submitted to the EPA with letter dated 29 October 2004.

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5	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	Reboiler Still Column titled 'Reflux Column Vent 5' on drawing titled 'Camden Gas Project Site Plan Location of Emission Points' drawing number 4229DG06 submitted to the EPA with letter dated 29 October 2004.
6	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	Carbon scrubber vent discharge stack labelled 'Odouriser Carbon Vent 6' on drawing titled 'Camden Gas Project Site Plan Location of Emission Points' drawing number 4229DG06 submitted to the EPA with letter dated 29 October 2004.
7	Discharge to air	Discharge to air	Main Flare marked 'Flare Pilot 7' on drawing titled 'Camden Gas Project Site Plan Location of Emission Points' on drawing number 4229DG06 submitted to the EPA with letter dated 29 October 2004.

P1.2 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

P1.3 The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.

Water and land

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
8	Groundwater Quality Monitoring Point		Groundwater monitoring point labelled "SF07" on map entitled "Camden Gas Project Groundwater Monitoring Network" dated 18/06/2012 (DOC16/106041). Prior to February 2016 this was groundwater monitoring point labelled "EM40".
9	Groundwater Quality Monitoring Point		Groundwater monitoring point labelled "SF08" as shown on the map entitled "Camden Gas Project Groundwater Monitoring Network" dated 18/06/2012 (Trim DOC16/106041)
10	Groundwater Quality Monitoring Point		Groundwater monitoring point labelled "RB10" as shown on the map entitled "Camden Gas Project Groundwater Monitoring Network" dated 18/06/2012 (Trim DOC16/106041).

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11	Groundwater Quality Monitoring Point	Groundwater monitoring point labelled "SL02" on map entitled "Camden Gas Project Groundwater Monitoring Network" dated 18/06/2012 (DOC16/106041). Prior to February 2016 this was groundwater monitoring point labelled "MT05".
12	Groundwater Quality Monitoring Point	Groundwater monitoring point labelled "MP22" on map entitled "Camden Gas Project Groundwater Monitoring Network" dated 18/06/2012 (DOC16/106041). Prior to February 2016 this was groundwater monitoring point labelled "MP12".
13	Groundwater Quality Monitoring Point	Groundwater monitoring point labelled "MP07" on map entitled "Camden Gas Project Groundwater Monitoring Network" dated 18/06/2012 (DOC16/106041). Prior to February 2016 this was groundwater monitoring point labelled "MP30".
14	Groundwater Quality Monitoring Point	Groundwater monitoring point labelled "MP02" on map entitled "Camden Gas Project Groundwater Monitoring Network" dated 18/06/2012 (DOC16/106041). Prior to February 2016 this was groundwater monitoring point labelled "RP12".
15	Groundwater Quality Monitoring Point	Groundwater monitoring point labelled "MP09" on map entitled "Camden Gas Project Groundwater Monitoring Network" dated 18/06/2012 (DOC16/106041). Prior to February 2016 this was groundwater monitoring point labelled "SL03".
16	Water Quality Monitoring Point	Rosalind Park Gas Plant Flare Pit.

Note: Groundwater Monitoring Program

Licensed Discharge Points 8, 11, 12, 13, 14, and 15 were commonly dry during the required groundwater monitoring periods. Based on a review of water yield and the geographical spread of production wells across the licensed premises, six (6) of the eight (8) groundwater monitoring locations were changed in February 2016. The licensed discharge point numbers have been retained however the production well monitoring location has been changed. The description now identifies both the new and old production well monitoring location.

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3 Limit Conditions

L1 Pollution of waters

L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

L2 Load limits

L2.1 The actual load of an assessable pollutant discharged from the premises during the reporting period must not exceed the load limit specified for the assessable pollutant in the table below.

Note: An assessable pollutant is a pollutant which affects the licence fee payable for the licence.

L2.2 The actual load of an assessable pollutant must be calculated in accordance with the relevant load calculation protocol.

Assessable Pollutant	Load limit (kg)
Benzene (Air)	47.00
Benzo(a)pyrene (equivalent) (Air)	0.27
BOD (Enclosed Water)	
Fine Particulates (Air)	460.00
Hydrogen Sulfide (Air)	1.60
Nitrogen Oxides - Summer (Air)	
Nitrogen Oxides (Air)	103000.00
Oil and Grease (Enclosed Water)	
Salt (Enclosed Water)	
Sulfur Oxides (Air)	3000.00
Total PAHs (Enclosed Water)	
Total Phenolics (Enclosed Water)	
Total suspended solids (Enclosed Water)	
Volatile organic compounds - Summer (Air)	
Volatile organic compounds (Air)	33000.00

Note: There are no discharges to waters for purposes of the Condition L2.2.

L3 Concentration limits

L3.1 For each monitoring/discharge point or utilisation area specified in the table's below (by a point number),

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the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.

L3.2 To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table\.

L3.3 Air Concentration Limits

POINT 1,2,3

Pollutant	Units of measure	100 percentile concentration limit	Reference conditions	Oxygen correction	Averaging period
Nitrogen Oxides	milligrams per cubic metre	461	Dry, 273K, 101.3kPa	7 percent oxygen	As per test method
Sulfuric acid mist and sulfur trioxide (as SO ₃)	milligrams per cubic metre	5.0	Dry, 273K, 101.3kPa		As per test method
Sulphur dioxide	milligrams per cubic metre	7	Dry, 273K, 101.3kPa		As per test method

POINT 4

Pollutant	Units of measure	100 percentile concentration limit	Reference conditions	Oxygen correction	Averaging period
Sulphur dioxide	milligrams per cubic metre	35	Dry, 273K, 101.3kPa		As per test method
Nitrogen Oxides	milligrams per cubic metre	110	Dry, 273K, 101.3kPa	7 percent oxygen	As per test method
Sulfuric acid mist and sulfur trioxide (as SO ₃)	milligrams per cubic metre	3.5	Dry, 273K, 101.3kPa		As per test method

POINT 5

Pollutant	Units of measure	100 percentile concentration limit	Reference conditions	Oxygen correction	Averaging period
Nitrogen Oxides	milligrams per cubic metre	13	Dry, 273K, 101.3kPa	7 percent oxygen	As per test method
Sulfuric acid mist and sulfur trioxide (as SO ₃)	milligrams per cubic metre	35	Dry, 273K, 101.3kPa		As per test method
Sulphur dioxide	milligrams per cubic metre	1042	Dry, 273K, 101.3kPa		As per test method

L3.4

Note: Should the licensee seek to revise the concentration limits as specified in Condition L3.1 for nitrogen

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oxides, the licensee must demonstrate that:

- The revised emission limit is representative of the proper and efficient maintenance and operation of the equipment;
- The equipment is designed to minimise emissions as far as is practicable and consistent with best practice considering the type of equipment and application;
- The revised emission limit is supported by Manufacturers Design Specification; and
- The revised emission limit does not cause adverse impacts on local air quality. This assessment must be undertaken in accordance with the document: Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW.

L4 Waste

L4.1 The licensee must not cause, permit or allow any waste to be received at the premises, except the wastes expressly referred to in the column titled "Waste" and meeting the definition, if any, in the column titled "Description" in the table below.

Any waste received at the premises must only be used for the activities referred to in relation to that waste in the column titled "Activity" in the table below.

Any waste received at the premises is subject to those limits or conditions, if any, referred to in relation to that waste contained in the column titled "Other Limits" in the table below.

This condition does not limit any other conditions in this licence.

Code	Waste	Description	Activity	Other Limits
NA	General or Specific exempted waste	Waste that meets all the conditions of a resource recovery exemption under Clause 51A of the Protection of the Environment Operations (Waste) Regulation 2005	As specified in each particular resource recovery exemption	NA
NA	Waste	Any waste received on site that is below licensing thresholds in Schedule 1 of the POEO Act, as in force from time to time	-	NA

L4.2 Asbestos

Note: The licensee must comply with the conditions as specified in this licence or where no specific conditions are outlined in this licence, the licensee must comply with the Protection of the Environment Operations (Waste) Regulation 2005.

L5 Noise limits

L5.1 Noise from the premises must not exceed the noise limits in the table below:

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Receiver Location	Day	Evening	Night	Flaring (night)
	LAeq(15 minute)	LAeq(15 minute)	LAeq(15 minute)	LAeq(15 minute)
R1 Medhurst Road, Gilead	35	35	35	45
R7 Mt. Gilead, Gilead	37	36	36	45

Note: Pressure safety valve (discharge) and pressure safety valve (suction) flaring events are exempted from the limits in condition L5.1.

L5.2 For the purposes of condition L5.1:

- Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public holidays;
- Evening is defined as the period 6pm to 10pm;
- Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays; and
- The receiver locations R1 and R7 are as shown in Figure 5.1 of the Environmental Noise and Vibration Study by Environmental Resources Management Australia Pty Ltd dated June 2003 which accompanied the Environmental Impact Statement for the project.

L5.3 Incidence of flaring events

L5.4 Noise for flaring event, must not exceed the noise limits in the table below:

Receiver Location	Type & Duration of Flare event	Day	Evening	Night
		LAeq(15 minute)	LAeq(15 minute)	LAeq(15 minute)
R1 Medhurst Road, Gilead	Spill valve >2.5 hours	35	35	35
	Compressor blowdown (ESD) 15-60 minutes	40	40	35
	Compressor blowdown (shut down and unload) 6-15 minutes	42	42	37
R7 Mt. Gilead, Gilead	Spill valve >2.5 hours	37	36	36
	Compressor blowdown (ESD) 15-60 minutes	42	41	40 ^a
	Compressor blowdown (shut down and unload) 6-15 minutes	44	43	37

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Note: 1. For the purposes of the table above, ^a is where ESD (Emergency Shut Down) flare events exceed a frequency of occurrence of 1 per 21 days or a duration higher than 15 minutes per event to a reduced flow rate of less than 0.5 mmscf/d for each event, a lower limit of 36dB(A) LAeq (15 Minutes) applies at night.

Note: 2. For the purposes of the table above, a flare event is defined as the period of time when the gas flow to the flare is greater than the gas flow necessary to maintain the pilot flare.

Note: 3. Pressure safety valve (discharge) and pressure safety valve (suction) flaring events are exempted from the limits in condition L5.4.

L5.5 Noise measurements

L5.6 Noise from the premises is to be measured at any point on or within the residential boundary or at any point within 30m of the dwelling (rural situations) where the dwelling is more than 30m from the boundary to determine compliance with the LAeq(15 minute) noise limits in condition L5.1.

Where it can be demonstrated that direct measurement of noise from the premises is impractical, the EPA may accept alternative means of determining compliance. See Chapter 11 of the NSW Industrial Noise Policy January 2000 for general guidance for determining compliance.

The modification factors presented in Section 4 of the NSW Industrial Noise Policy January 2000 shall also be applied to the measured noise levels where applicable.

L5.7 Noise from the premises is to be measured at 1m from the dwelling façade to determine compliance with the LA1 (1 minute) noise level in L5.1.

L5.8 The noise emission limits identified in this licence apply under all meteorological conditions except:
a) during rain and wind speeds (at 10m height) greater than 3m/s; and
b) under "non-significant weather conditions".

Note: Field meteorological indicators for non-significant weather conditions are described in the NSW Industrial Noise Policy, Chapter 5 and Appendix E in relation to wind and temperature inversions.

L5.9 Well, Gathering System and Trunk Line Maintenance noise management protocol

L5.10 The licensee must have in place a Well, Gathering System and Trunk Line Maintenance Noise Management Protocol to be used for the premises as defined in Condition A2 of this licence for the duration of the licence. The Protocol must include, but not limited to:

- a) noise compliance standards;
- b) community consultation;
- c) advance notice to affected members of the community for planned well maintenance activities;
- d) complaints handling monitoring/system;
- e) site contact person to follow up complaints;
- f) mitigation measures;
- g) the design/orientation of the proposed mitigation methods demonstrating best practice;
- h) construction times;
- i) contingency measures where noise complaints are received; and
- j) monitoring methods and program.

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L6 Hours of operation

L6.1 Planned maintenance activities at any of the wells must only be conducted between:

(a) 7am and 6pm on weekdays; and

(b) 8am and 1pm on Saturdays (excluding Public Holidays).

L6.2 This condition does not apply to the delivery of material outside the hours of operation permitted by condition L6.1, if that delivery is required by police or other authorities for safety reasons; and/or the operation or personnel or equipment are endangered. In such circumstances, prior notification must be provided to the EPA and affected residents as soon as possible or within a reasonable period in the case of emergency.

L7 Potentially offensive odour

L7.1 No condition of this licence identifies a potentially offensive odour for the purposes of section 129 of the Protection of the Environment Operations Act 1997.

Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

Note: Should odour emissions become an issue, the EPA will consider requiring investigation and implementation of further odour control measures.

L8 Other limit conditions

L8.1 **Polychlorinated Biphenyls (PCBs)**

Note: The licensee must comply with the conditions as specified in this licence or where no specific conditions are outlined in this licence, the licensee must comply with the "Chemical Control Order in Relation to Materials and Wastes Containing Polychlorinated Biphenyl, 1997".

L8.2 **Hydraulic Fracturing**

L8.3 The licensee must not use chemicals that contain BTEX compounds (Benzene, Toluene, Ethyl Benzene and Xylene) in the fracturing fluid additives.

4 Operating Conditions

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O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.

This includes:

- a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
- b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:

- a) must be maintained in a proper and efficient condition; and
- b) must be operated in a proper and efficient manner.

O3 Dust

O3.1 The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.

O4 Emergency response

O4.1 The licensee must maintain, and implement as necessary, a current emergency response plan for the premises. The licensee must keep the emergency response plan on the premises at all times. The emergency response plan must document systems and procedures to deal with all types of incidents (e.g. spills, explosions or fire) that may occur at the premises or that may be associated with activities that occur at the premises and which are likely to cause harm to the environment. If a current emergency response plan does not exist at the date on which this condition is attached to the licence, the licensee must develop an emergency response plan within three months of that date.

O5 Processes and management

O5.1 The licensee must ensure that any liquid and/or non-liquid waste generated and/or stored at the premises is assessed and classified in accordance with the DECC Waste Classification Guidelines as in force from time to time.

O5.2 The licensee must ensure that waste identified for recycling is stored separately from other waste.

5 Monitoring and Recording Conditions

M1 Monitoring records

M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must

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be recorded and retained as set out in this condition.

M1.2 All records required to be kept by this licence must be:

- a) in a legible form, or in a form that can readily be reduced to a legible form;
- b) kept for at least 4 years after the monitoring or event to which they relate took place; and
- c) produced in a legible form to any authorised officer of the EPA who asks to see them.

M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:

- a) the date(s) on which the sample was taken;
- b) the time(s) at which the sample was collected;
- c) the point at which the sample was taken; and
- d) the name of the person who collected the sample.

M2 Requirement to monitor concentration of pollutants discharged

M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee 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 Air Monitoring Requirements

POINT 1,2,3,4,5

Pollutant	Units of measure	Frequency	Sampling Method
Carbon dioxide	percent	Quarterly	TM-24
Dry gas density	kilograms per cubic metre	Quarterly	TM-23
Moisture	percent	Quarterly	TM-22
Molecular weight of stack gases	grams per gram mole	Quarterly	TM-23
Nitrogen Oxides	milligrams per cubic metre	Quarterly	TM-11
Oxygen (O ₂)	percent	Quarterly	TM-25
Sulfuric acid mist and sulfur trioxide (as SO ₃)	milligrams per cubic metre	Quarterly	TM-3
Sulphur dioxide	milligrams per cubic metre	Quarterly	TM-4
Temperature	degrees Celsius	Quarterly	TM-2
Velocity	metres per second	Quarterly	TM-2
Volumetric flowrate	cubic metres per second	Quarterly	TM-2

POINT 6

Pollutant	Units of measure	Frequency	Sampling Method
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Carbon dioxide	percent	Quarterly	TM-24
Dry gas density	kilograms per cubic metre	Quarterly	TM-23
Moisture	percent	Quarterly	TM-22
Molecular weight of stack gases	grams per gram mole	Quarterly	TM-23
Odour	odour units	Quarterly	OM-7
Oxygen (O ₂)	percent	Quarterly	TM-25
Temperature	degrees Celsius	Quarterly	TM-2
Velocity	metres per second	Quarterly	TM-2
Volumetric flowrate	cubic metres per second	Quarterly	TM-2

M2.3 POINTS 1,2,3

Pollutant	Units of measure	Frequency	Sampling Method
Nitrogen Oxides	milligrams per cubic metre	Continuous	CEM-2
Temperature	degrees Celsius	Continuous	TM-2
Moisture	percent	Continuous	Method approved by EPA in writing
Volumetric flow rate	cubic metres per second	Continuous	CEM-6
Oxygen	percent	Continuous	CEM-3

M2.4 Continuous emissions monitoring results for moisture, as required by Condition M2.3, must be calibrated by reference to sampling method TM-22 as specified in EPA Approved Methods for the Sampling and Analysis of Air Pollutants in NSW, as in force from time to time.

Note: The requirement for quarterly monitoring at point 6 may be reviewed based on odour emission performance after 12 months from commissioning of the treatment plant.

M2.5 For the purposes of Condition M2.2, the selection of sampling positions for quarterly monitoring at points 1, 2, 3, 4 and 6 must be carried out in accordance with test method TM-1 as specified in Approved Methods for the Sampling and Analysis of Air Pollutants in NSW, as in force from time to time.

M2.6 For the purposes of Condition M2.2, the selection of sampling positions for quarterly monitoring (excluding velocity) at point 5 must be carried out in accordance with test method TM-1 as specified in Approved Methods for the Sampling and Analysis of Air Pollutants in NSW, as in force from time to time.

M2.7 Water and/ or Land Monitoring Requirements

POINT 8,9,10,11,12,13,14,15

Pollutant	Units of measure	Frequency	Sampling Method
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Aluminium	milligrams per litre	Every 6 months	Grab sample
Ammonia	milligrams per litre	Yearly	Grab sample
Arsenic	milligrams per litre	Every 6 months	Grab sample
Barium	milligrams per litre	Every 6 months	Grab sample
Benzene	milligrams per litre	Yearly	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
Electrical conductivity	microsiemens per centimetre	Every 6 months	Grab sample
Ethyl benzene	milligrams per litre	Yearly	Grab sample
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	Yearly	Grab sample
Molybdenum	milligrams per litre	Every 6 months	Grab sample
Nickel	milligrams per litre	Every 6 months	Grab sample
Nitrate	milligrams per litre	Yearly	Grab sample
Nitrite	milligrams per litre	Yearly	Grab sample
Phenols	milligrams per litre	Yearly	Grab sample
Polycyclic aromatic hydrocarbons	milligrams per litre	Yearly	Grab sample
Potassium	milligrams per litre	Every 6 months	Grab sample
Reactive Phosphorus	milligrams per litre	Yearly	Grab sample
Selenium	milligrams per litre	Every 6 months	Grab sample
Silica	milligrams per litre	Every 6 months	Grab sample
Sodium	milligrams per litre	Every 6 months	Grab sample
Strontium (dissolved)	milligrams per litre	Every 6 months	Grab sample
Sulfate	milligrams per litre	Every 6 months	Grab sample
Toluene	milligrams per litre	Yearly	Grab sample
Total dissolved solids	milligrams per litre	Every 6 months	Grab sample
Total petroleum hydrocarbons	milligrams per litre	Yearly	Grab sample
Uranium	milligrams per litre	Every 6 months	Grab sample

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Vanadium	milligrams per litre	Every 6 months	Grab sample
Xylene	milligrams per litre	Yearly	Grab sample
Zinc	milligrams per litre	Every 6 months	Grab sample

POINT 16

Pollutant	Units of measure	Frequency	Sampling Method
BOD	milligrams per litre	Monthly	Grab sample
Electrical conductivity	microsiemens per centimetre	Monthly	Grab sample
Oil and Grease	milligrams per litre	Monthly	Grab sample
Phenols	micrograms per litre	Monthly	Grab sample
Total organic carbon	milligrams per litre	Monthly	Grab sample
Total PAHs	micrograms per litre	Monthly	Grab sample
Total petroleum hydrocarbons	micrograms per litre	Monthly	Grab sample
Total suspended solids	milligrams per litre	Monthly	Grab sample

M2.8 For the purposes of the table above for points 8, 9, 10, 11, 12, 13, 14, and 15 the monitoring results are required to be submitted annually as a Groundwater Monitoring Report with the Annual Return.

M2.9 For the purposes of Condition M2.7 EPA has approved the following method of analysis for the following pollutants only:

- Methane - ALS "Static Headspace GC/FID technique"
- Phenols - USEPA method 8270D.
- Polycyclic aromatic hydrocarbons - USEPA method 8270D

All other monitoring must be undertaken in accordance with Condition M3.2.

M3 Testing methods - concentration limits

M3.1 Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:

- a) any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or
- b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or
- c) if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.

Note: The *Protection of the Environment Operations (Clean Air) Regulation 2010* requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".

M3.2 Subject to any express provision to the contrary in this licence, monitoring for the concentration of a water

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pollutant must be done in accordance with the EPA Approved Methods Publication "*Approved Methods for the Sampling and Analysis of Water Pollutants in New South Wales*" unless another method has been approved by the EPA in writing before any tests are conducted.

M3.3 Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

M4 Testing methods - load limits

Note: Division 3 of the *Protection of the Environment Operations (General) Regulation 2009* requires that monitoring of actual loads of assessable pollutants listed in L2.2 must be carried out in accordance with the relevant load calculation protocol set out for the fee-based activity classification listed in the Administrative Conditions of this licence.

M5 Recording of pollution complaints

M5.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

M5.2 The record must include details of the following:

- a) the date and time of the complaint;
- b) the method by which the complaint was made;
- c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
- d) the nature of the complaint;
- e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
- f) if no action was taken by the licensee, the reasons why no action was taken.

M5.3 The record of a complaint must be kept for at least 4 years after the complaint was made.

M5.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M6 Telephone complaints line

M6.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.

M6.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.

M6.3 The preceding two conditions do not apply until 3 months after: the date of the issue of this licence.

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M7 Other monitoring and recording conditions

M7.1 Leak Detection and Repair Program

M7.2 The licensee must operate a Leak Detection And Repair Program for all relevant components of plant and equipment.

M7.3 The LDAR Program must, unless otherwise approved by the EPA, monitor for the detection of leaks in accordance with US EPA Method 21- Determination of Volatile Organic Compound Leaks (40 CFR Part 60, Appendix A, Method 21).

6 Reporting Conditions

R1 Annual return documents

- R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:
1. a Statement of Compliance,
 2. a Monitoring and Complaints Summary,
 3. a Statement of Compliance - Licence Conditions,
 4. a Statement of Compliance - Load based Fee,
 5. a Statement of Compliance - Requirement to Prepare Pollution Incident Response Management Plan,
 6. a Statement of Compliance - Requirement to Publish Pollution Monitoring Data,
 7. a Statement of Compliance - Environmental Management Systems and Practices; and
 8. a Statement of Compliance - Environmental Improvement Works.

At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

- R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

- R1.3 Where this licence is transferred from the licensee to a new licensee:
- a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
 - b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

- R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:
- a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is

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given; or

b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

- R1.5 The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').
- R1.6 Where the licensee is unable to complete a part of the Annual Return by the due date because the licensee was unable to calculate the actual load of a pollutant due to circumstances beyond the licensee's control, the licensee must notify the EPA in writing as soon as practicable, and in any event not later than the due date. The notification must specify:
- a) the assessable pollutants for which the actual load could not be calculated; and
 - b) the relevant circumstances that were beyond the control of the licensee.
- R1.7 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.
- R1.8 Within the Annual Return, the Statements of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
- a) the licence holder; or
 - b) by a person approved in writing by the EPA to sign on behalf of the licence holder.
- R1.9 The licensee must submit a noise compliance monitoring report on 16 April 2004 and on an annual basis with the annual return required in condition R1.1 thereafter, to assess compliance with the noise limits provided in condition L5.1. The noise monitoring must be undertaken in accordance with the NSW Industrial Noise Policy August 2000.

R2 Notification of environmental harm

- R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.
- R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R3 Written report

- R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
- a) where this licence applies to premises, an event has occurred at the premises; or
 - b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,
- and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.

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- R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.
- R3.3 The request may require a report which includes any or all of the following information:
- the cause, time and duration of the event;
 - the type, volume and concentration of every pollutant discharged as a result of the event;
 - the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
 - the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
 - action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
 - details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
 - any other relevant matters.
- R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

R4 Other reporting conditions

R4.1 Leak Detection and Repair Program Summary Report

- R4.2 The licensee must submit a brief summary report on the Leak Detection and Repair (LDAR) program with the annual return. The summary report must include, but may not be limited to:
- The total number of components inspected, as well as the number and percentage of minor, major and significant leaking components found by component types;
 - The type of components and the scale of the leak for any equipment where leaks are found;
 - The emission level of leaking equipment and emission level of re-check after leak was repaired;
 - The repair responses and times as listed in the table below

Table: Repair Responses and Times

Scale of leak (ppmv)	Initial remedial repair in response	Actual repair time
1,000 - < 10,000 (Minor)		
>=10,000 - <50,000 (Major)		
>=50,000 (Significant)		

- R4.3 Where a leak is identified, AGL should aim to have the component repaired as follows:
- Within a period of 14 days if the concentration of the fugitive VOCs emission is greater than or equal to 1,000 parts per million by volume (ppmv) but not more than 10,000 ppmv (minor leak), as methane, above background
 - Within a period of 5 days if the concentration of the fugitive VOCs emission is greater than or equal to

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10,000 ppmv but not more than 50,000 ppmv (major leak), as methane, above background
 • Within a period of one day if the concentration of the fugitive VOCs emission is greater than or equal to 50,000 ppmv (significant leak > 50,000 ppmv), as methane, above background.

R4.4 Groundwater Monitoring Report

R4.5 The licensee must supply with the Annual Return a Groundwater Monitoring Report for points 8, 9, 10, 11, 12, 13, 14, and 15 which provides:
 (a) an analysis and interpretation of monitoring results and
 (b) actions to correct identified adverse trends.

R4.6 Spatial Information

R4.7 The licensee must submit to the EPA updated spatial information with the Annual Return when there have been infrastructure changes to the licence as identified in condition A2.1. The information must be provided in an ESRI geodatabase or shapefile format or any ESRI compatible dataset in GDA94.

7 General Conditions

G1 Copy of licence kept at the premises or plant

- G1.1 A copy of this licence must be kept at the premises to which the licence applies.
- G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.
- G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

G2 Signage

G2.1 The location of EPA point number(s) 1,2,3,4,5,6 and 7 must be clearly marked by signs that indicate the point identification number used in this licence and be located as close as practical to the point.

G3 Other general conditions

G3.1 Completed Programs

PRP	Description	Completed Date
PRP 1 - Groundwater Attributes for EPA Groundwater Assessment	Groundwater Assessment. By 30 May 2012 the licensee must submit to the EPA Regional Office a report that details all groundwater assessed data for the premises.	30-May-2012

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PRP 2 - Groundwater Monitoring	Groundwater Monitoring. The licensee must prepare and submit for endorsement to the EPA by the 31 July 2012 a Groundwater Management Plan for the premises and any proposed expansion areas	31-July-2012
PRP 3 - Spatial Database	Spatial Database. The licensee must provide to the EPA by 30 January 2012 a spatial layer that details all of coal seam gas infrastructure and gas and water gathering lines associated with Rosalind Park Gas Plant.	30-January-2012
PRP 4 - Leak Detection and Repair Program (LDAR)	Leak Detection and Repair Program. 1. The licensee must prepare and submit to the EPA by 27 February 2012 a report detailing the existing LDAR program currently implemented at the premises. 2. The licensee must prepare and submit to the EPA by 30 November 2012 a report investigating best management practices and monitoring techniques for the detection and quantification of VOC emissions from premises.	30-November-2012
PRP 5 - CSG Drilling, Hydraulic Fracturing, Well Workover and Chemical Addition Report	CSG drilling, hydraulic fracturing, well workover and chemical addition best management practice investigation. By 26 March 2012 AGL Upstream Investments must carry out an investigation and provide a written report to the EPA.	26-March-2012
PRP 6 - Predictive Emissions Monitoring System	Trial a Predictive Emissions Monitoring System for Compressor Engines 2 and 3 for a six month period. Upon completion of the trial the EPA may approve PEMS as the monitoring system for Compressor Engines 2 and 3 subject to conditions of the (EPL).	31-August-2014

8 Pollution Studies and Reduction Programs

U1 PRP 7 - Predictive Emissions Monitoring System (Stage 2)

U1.1 AIM

The aim of this Pollution Reduction Program (PRP) is for the licensee to refine the Predictive Emissions Monitoring System (PEMS) on its Compressor Engine 2 and 3 (Licensed Discharge Points 2 and 3 respectively on EPL 12003).

BACKGROUND

The Trial PEMS Program (PRP 6) was undertaken in accordance with Clause 2.2 of the Enforceable Undertaking signed by the Environment Protection Authority (EPA) and AGL on 8 August 2013. The PEMS is proposed as a suitable alternative to continuous emissions monitoring to predict Nitrogen Oxides (NOx) in-stack concentrations specifically for Compressor Engines 2 and 3.

The Licensee provided its report '*PRP 6 – Predictive Emissions Monitoring System Post Trial Report*' to EPA on 29 August 2014. The report identified that while the Trial generally provided information consistent with the proposal it identified that additional and more sensitive monitoring of deviations from normal compressor engine operations and catalyst performance is required. The Licensee has therefore

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proposed a Stage 2 PRP to investigate PEMS improvements.

U1.2 STAGE 2 - PROGRAM

The Stage 2 PEMS Program is outlined in the document *Environment Protection Licence 12003 PRP 6 – Predictive Emissions Monitoring System Post Trial Report* (AGL, 29 August 2014). The Stage 2 Program will be undertaken for a period of six (6) months.

The PEMS for Engines 2 and 3 will continue to utilise monitoring data from the engine compressors (load and speed) and differential catalyst temperature (pre and post catalyst). This data will be compared against engine emission and catalyst destruction efficiency specifications that have been conservatively derived to ensure predicted emission concentrations are less than actual emission concentrations. In addition, the following works will be carried out:

- Installation of secondary sacrificial catalyst upstream of existing primary catalyst
- Installation of differential pressure transmitter across the catalyst
- Replacement of the existing exhaust thermocouples
- Collect additional information from engine controller for deviation monitoring; and
- Tune the Catalyst destruction efficiency.

The Licensee has indicated the proposed sacrificial catalyst will also serve to reduce the NO_x levels; however, its primary function is to protect the downstream primary catalyst from contamination.

The Licensee must:

- continue monitoring emissions with the current TESTO CEMS units on Compressor Engines 2 and 3 for the duration of the revised Trial
- continue monthly independent air emission monitoring for the duration of the Trial on Compressor Engines 2 and 3
- ensure the PEMS is consistent with the abovementioned PEMS proposal, including consistency with US EPA Performance Specification 16 requirements as far as practicable.

U1.3 STAGE 2 REPORT

Within 30 days of completion of the Stage 2 Program, the licensee must submit a written report to the EPA. The report must include, but not be limited to, the following information:

1. Operating conditions during the Trial period, including compressor engine operational hours.
2. The results of all stack emissions testing conducted for each compressor engine during the Trial.
3. The results of all reference method tests.
4. All test reports and raw data.
5. How ongoing operations will be managed to ensure compliance with EPL NO_x concentration limits.
6. Any conclusions reached by AGL as a result of the Trial.

Note:

1. Upon completion of the Stage 2 Program, the EPA may approve PEMS as the monitoring system for Compressor Engines 2 and 3 subject to conditions of the EPL.

COMPLETION DATE: 14 APRIL 2016

U2 EIP 8 - Gas Well Instrumentation Improvement Program

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U2.1 Background

Leak Detection and Repair Monitoring identified a number low level gas leaks from control instrumentation components at different gas wells. AGL use methane from the gas well to operate this equipment. As some of these components are designed to reduce pressure, there can be small releases of methane to atmosphere.

During 2015 AGL undertook a trial using alternate technology at a number of well sites in the Camden Gas well field. A 12 volt battery powered air compressor was installed at these gas wells. Compressed air replaced the use of methane to operate the instrumentation equipment. The trial proved successful and AGL will install this technology across all production well sites during 2016.

The EPA considers this a positive outcome as air compressors to supply instrument air eliminates the need for AGL to use methane from the wells, and will contribute towards reducing fugitive emissions from wells.

Program

AGL proposes to install 12 volt air compressors according to the following schedule:

Installation Period	Gas Wells
February - April 2016	SL02, GL02, GL05, GL12, GL16, EM17, EM19, MP02, MP03, MP09, MP10, MP12, MP23, JD11, LB09, LB10
May - June 2016	SF05, SF07, SF08, SF09, MT01, MT02, MT03, MT04, MT06, MT07, GL07, GL14, GL15
July - October 2016	Remaining production wells.

U2.2 Whilst this schedule is implemented AGL will continue to operate its internal Leak Detection and Repair Program Survey for all operational and suspended wells.

Completion Date: 31 December 2016

9 Special Conditions

E1 TEMPORARY 'START-UP PERIOD - STAGE 1 AND STAGE 2' FOR COMPRESSOR ENGINE 1

E1.1 Background:

Compressor Engine 1 at the Rosalind Park Gas Plant has been off line and undergoing repair since early November 2013. Compressor Engine 1 has now been rebuilt and the Licensee plans to re-start the compressor. The 'Start-up period' will involve 'Stage 1' commissioning and 'Stage 2' mechanical conditioning. The 'Start-up period - Stage 1 and Stage 2', is expected to take approximately five (5) weeks.

Notification Protocol:

E1.1 Two weeks prior to commencing the Compressor Engine 1 'Start-up period - Stage 1 and Stage 2',

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AGL must provide notification of the 'Start-up period - Stage 1 and Stage 2' to the following stakeholders:

- Camden Gas Project Community Consultative Committee
- Neighbouring landowners
- Camden Council
- Wollondilly Shire Council
- Campbelltown City Council
- State and Federal Members of Parliament within the Camden Gas Project area; and
- Relevant government agencies including the Office of Coal Seam Gas, the Department of Planning and Environment and the EPA.

E1.2 The notification protocol must include (but not necessarily be limited to):

The scope of the 'Start-up period - Stage 1 and Stage 2' including duration

- A description of potential environmental impacts (in particular, Nitrogen Oxides emissions)
- A description of mitigation measures that will be undertaken to prevent and/or minimise impacts during the 'Start-up period - Stage 1 and Stage 2'; and
- The AGL contact details for any further enquiries.

E1.3 A copy of the notification will also be made publicly available on the Camden Gas Project website for the duration of the 'Start-up period - Stage 1 and Stage 2'.

Start-up Period:

'Start-up period Stage 1' commissioning of the Compressor 1 engine will occur over an approximate 2 week period and consist of:

- Multiple engine start-ups and shut downs
- Operating the Compressor 1 at variable speed and load
- Monitoring and adjustment of engine control systems during a start-up/shut down cycle to allow continued operation within optimal engine durability and exhaust emissions; and
- Monitoring and assessment of engine exhaust emissions at variable speeds and loads utilising the Ecotech CEMS unit.

E1.4 Prior to the 'Start-up period Stage 1', the Licensee must calibrate the existing Compressor 1 Ecotech CEMS unit. The CEMS unit will resume operation at the commencement of the 'Start-up period Stage 1'.

E1.5 Once Compressor 1 'Start-up period Stage 1' is complete and the compressor engine is operating, AGL must engage suitably qualified stack testing consultants to perform a RATA test on the CEMS unit.

'Start-up period Stage 2' Mechanical conditioning is required to:

- Assess the adequacy of engine repair;
- Monitor and adjust operating parameters; and
- Enhance engine performance (including reducing Nitrogen Oxides emissions where possible, and providing ongoing reliable and stable engine operations during 'normal operations').

As a consequence of 'Start-up period Stage 2' mechanical conditioning being operated across a range of speeds and loads it is expected that Compressor 1 Nitrogen Oxides emission concentrations will vary.

E1.6 The mechanical conditioning must be completed within a period of 500 hours (21 days) after the initial start-up. At the completion of the 'Start-up period Stage 2' mechanical conditioning, the Licensee will resume normal operation of Compressor 1.

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Nitrogen Oxides Concentration Limit for Compressor 1:

E1.7 Despite condition L3.1, the concentration limit for Nitrogen Oxides with respect to Discharge Point 1 specified in the table in condition L3.3 does not apply for the duration of the 'Start-up period – Stage 1 and Stage 2'.

Minimise Air Emissions/Temporary Load Limit:

E1.8 Despite condition E1.7, in accordance with Section 128 of the Protection of the Environment Operations Act 1997, the Licensee must ensure it minimises air emissions for the Rosalind Park Gas Plant during the 'Start-up period - Stage 1 and Stage 2'.

E1.9 To ensure overall Nitrogen Oxides loads from the premises are minimised during the 'Start-up period - Stage 1 and Stage 2' the Licensee must not operate three compressors concurrently. To be perfectly clear, while operating compressor Engine 1 is fully operational and discharging gas, only one other compressor engine at RGP, either compressor engine 2 or compressor engine 3, may also be operated.

E1.10 EPL 12003 has a Nitrogen Oxides annual load of 103,000kg per annum for the RGP or approximately 293 kg/day. During 'Start-up period - Stage 1 and Stage 2' the Licensee must ensure that Nitrogen Oxides loads from RGP do not exceed 6,600 kg over the 5 week start up period (average 189 kg/day).

Note: Should compressor engine 1 be required to be shut down the remaining idle compressor engine at RGP may be restarted during the period compressor engine 1 is shutting down to continue plant operations.

Reporting:

E1.11 The Licensee must provide a written report to the EPA within 8 weeks of the completion of 'Start-up period - Stage 1 and Stage 2'.

The written report must provide information on the 'Start-up period - Stage 1 and Stage 2' including but not limited to:

- Nitrogen Oxides Emissions data (concentration) from Compressor engine 1
- Nitrogen Oxides Emissions data (load) from Compressor engine 1
- Nitrogen Oxides Emissions data (load) from RGP
- Description of works completed under 'Start-up period - Stage 1 and Stage 2'
- Timetable of works completed under 'Start-up period - Stage 1 and Stage 2'

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Dictionary

General Dictionary

3DGM [in relation to a concentration limit]	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
Act	Means the Protection of the Environment Operations Act 1997
activity	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
actual load	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
AM	Together with a number, means an ambient air monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
AMG	Australian Map Grid
anniversary date	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
annual return	Is defined in R1.1
Approved Methods Publication	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
BOD	Means biochemical oxygen demand
CEM	Together with a number, means a continuous emission monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
COD	Means chemical oxygen demand
composite sample	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
cond.	Means conductivity
environment	Has the same meaning as in the Protection of the Environment Operations Act 1997
environment protection legislation	Has the same meaning as in the Protection of the Environment Administration Act 1991
EPA	Means Environment Protection Authority of New South Wales.
fee-based activity classification	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.
general solid waste (non-putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997

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flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composite time of collection.
general solid waste (putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
grab sample	Means a single sample taken at a point at a single time
hazardous waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
licensee	Means the licence holder described at the front of this licence
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
local authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
material harm	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
MBAS	Means methylene blue active substances
Minister	Means the Minister administering the Protection of the Environment Operations Act 1997
mobile plant	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
motor vehicle	Has the same meaning as in the Protection of the Environment Operations Act 1997
O&G	Means oil and grease
percentile [in relation to a concentration limit of a sample]	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
pollution of waters [or water pollution]	Has the same meaning as in the Protection of the Environment Operations Act 1997
premises	Means the premises described in condition A2.1
public authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
regional office	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
reporting period	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 months. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
restricted solid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
scheduled activity	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
special waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TM	Together with a number, means a test method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .

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TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste type	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non - putrescible), special waste or hazardous waste

Mr Robert Marr

Environment Protection Authority

(By Delegation)

Date of this edition: 22-December-2004

Environment Protection Licence

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End Notes

- 1 Licence transferred through application 144297, approved on 20-Jul-2006, which came into effect on 01-Feb-2006.
- 2 Licence varied by notice 1064314, issued on 14-Sep-2006, which came into effect on 14-Sep-2006.
- 3 Licence varied by correction to DEC catchment record, issued on 15-May-2007, which came into effect on 15-May-2007.
- 4 Licence varied by notice 1073749, issued on 19-Jun-2007, which came into effect on 19-Jun-2007.
- 5 Licence varied by change to legislation, issued on 05-Jul-2007, which came into effect on 05-Jul-2007.
- 6 Licence varied by notice 1076711, issued on 12-Sep-2007, which came into effect on 12-Sep-2007.
- 7 Licence varied by notice 1078337, issued on 22-Oct-2007, which came into effect on 22-Oct-2007.
- 8 Condition A1.3 Not applicable varied by notice issued on <issue date> which came into effect on <effective date>
- 9 Licence varied by notice 1090214, issued on 18-Nov-2008, which came into effect on 18-Nov-2008.
- 10 Licence varied by notice 1096297, issued on 21-Jan-2009, which came into effect on 21-Jan-2009.
- 11 Licence varied by notice 1105118, issued on 02-Oct-2009, which came into effect on 02-Oct-2009.
- 12 Licence varied by notice 1110279, issued on 27-May-2010, which came into effect on 27-May-2010.
- 13 Licence varied by notice 1122545, issued on 15-Dec-2010, which came into effect on 15-Dec-2010.
- 14 Licence varied by notice 1501788 issued on 01-Nov-2011
- 15 Licence varied by notice 1503210 issued on 22-Dec-2011
- 16 Licence varied by notice 1504429 issued on 16-Feb-2012
- 17 Licence varied by notice 1507776 issued on 13-May-2013
- 18 Licence varied by notice 1517004 issued on 22-Oct-2013
- 19 Licence varied by notice 1518939 issued on 19-Dec-2013
- 20 Licence varied by notice 1522947 issued on 19-Sep-2014

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21	Licence varied by notice	1526141 issued on 13-Nov-2014
22	Licence varied by notice	1527147 issued on 16-Dec-2014
23	Licence varied by notice	1529286 issued on 31-Mar-2015
24	Licence format updated on	10-Apr-2015
25	Licence varied by notice	1534008 issued on 28-Sep-2015
26	Licence varied by notice	1538424 issued on 23-Mar-2016

