



Annual Environmental Performance Report 2015 - 2016

Camden Gas Project

Date: 31 October 2016

Document Version: Final V0



Table of Contents

List of Appendices	vi
Abbreviations	viii
Executive Summary	ix
1. Introduction.....	1
1.1. History of the Camden Gas Project.....	1
1.1.1. Environmental Management Improvements	2
1.2. Purpose of Annual Environmental Performance Report.....	2
1.2.1. Requirements of the NSW Department of Planning and Environment (DP&E).....	2
1.2.2. Requirements of Department of Industry – Division of Resources and Energy (DRE)	3
1.3. Format of the Annual Environmental Performance Report	4
2. Camden Gas Project Area Details	5
2.1. Project Details and Contacts	5
3. Environmental Standards, Performance Measures and Statutory Requirements	6
3.1. Consents, Leases and Licences.....	6
3.1.1. Safework NSW Notification of Storage of Hazardous Chemicals.....	12
4. Operations within the Reporting Period	13
4.1. Description of Operations from July 2015 to June 2016.....	13
4.1.1. Development/Construction.....	13
4.1.2. Exploration	14
4.1.3. Production	15
4.1.4. Land Preparation	15
4.1.5. Mining, Mineral Processing and Ore Production Stockpiles	15
4.1.6. Other Infrastructure Management.....	15
4.1.7. Production and Waste Summary	16
4.1.8. Water Management.....	16
4.1.9. Hazardous Material Management	16



5.	Environmental Management and Performance	17
5.1.	Overview of Environmental Management	17
5.2.	Actions Required by Regulatory Authorities from Previous AEPR Review.	19
5.3.	Air Pollution	19
5.3.1.	Air Pollution Management	19
5.3.2.	Air Quality Criteria and Monitoring Requirements	20
5.3.3.	Air Quality Monitoring Results.....	20
5.3.4.	Air Pollution Environmental Performance / Trends	21
5.4.	Erosion and Sediment	23
5.4.1.	Erosion and Sediment Management	23
5.4.2.	Erosion and Sediment Related Activities	23
5.4.3.	Erosion and Sediment – Environmental Performance	23
5.5.	Surface Water	24
5.5.1.	Surface Water Management	24
5.5.2.	Surface Water Generation Results.....	24
5.5.3.	Surface Water Monitoring Requirements and Results	24
5.5.4.	Surface Water Related Activities	24
5.5.5.	Surface Water – Environmental Performance.....	25
5.6.	Groundwater	25
5.6.1.	Groundwater Management	25
5.6.2.	Groundwater Generation Results	25
5.6.3.	Groundwater Related Activities	26
5.6.4.	Groundwater Monitoring Requirements	26
5.6.5.	Groundwater Monitoring Results	26
5.6.6.	Groundwater – Environmental Performance / Trends.....	27
5.7.	Waste Management.....	28
5.7.1.	Waste Management	28
5.7.2.	Waste Generated and Disposed/Recycled.....	28
5.7.3.	Waste Management – Environmental Performance	29
5.8.	Hazardous Materials.....	29
5.8.1.	Hazardous Material Management	29
5.8.2.	Hazardous Materials Related Activities.....	29
5.8.3.	Hazardous Materials – Environmental Performance	29



5.9. Contaminated Land	29
5.9.1. Contaminated Land Management	29
5.9.2. Contaminated Land Management Requirements.....	30
5.9.3. Contaminated Land – Environmental Performance	30
5.10. Threatened Flora and Fauna.....	30
5.10.1. Threatened Flora and Fauna Management.....	30
5.10.2. Threatened Flora and Fauna – Environmental Performance	31
5.11. Noxious Weeds	31
5.11.1. Noxious Weeds Management.....	31
5.11.2. Noxious Weed Related Activities	31
5.11.3. Noxious Weeds – Environmental Performance	32
5.12. Blasting.....	32
5.13. Operational Noise.....	32
5.13.1. Operational Noise Management	32
5.13.2. Operational Noise Limits and Monitoring Requirements.....	33
5.13.3. Operational Noise - Environmental Performance / Trends.....	34
5.14. Construction Noise	34
5.14.1. Construction Noise Management.....	34
5.14.2. Construction Noise Limits and Monitoring Requirements	35
5.14.3. Construction Noise Monitoring Results	35
5.14.4. Construction Noise Performance and Trends.....	35
5.15. Visual Amenity	35
5.15.1. Visual Amenity Management	35
5.15.2. Visual Amenity Monitoring Requirements	36
5.15.3. Visual Amenity Monitoring Results	36
5.15.4. Visual Amenity Performance / Trends.....	37
5.16. Aboriginal Heritage	37
5.16.1. Aboriginal Heritage Management	37
5.16.2. Aboriginal Heritage Related Activities	38
5.16.3. Aboriginal Heritage Management Performance.....	38
5.17. European Heritage	38
5.17.1. European Heritage Management	38
5.17.2. European Heritage Related Activities	38



5.17.3. European Heritage Management Performance	39
5.18. Spontaneous Combustion.....	39
5.19. Bushfire	39
5.19.1. Bushfire Management.....	39
5.19.2. Bushfire – Environmental Performance	39
5.20. Mine Subsidence	39
5.21. Methane Drainage / Ventilation	39
5.22. Public Safety	40
5.22.1. Public Safety Management	40
5.22.2. Public Safety - Performance	40
5.23. Safety and Risk Management	40
5.23.1. Safety and Risk Management Monitoring Requirement.....	40
5.23.2. Incident Reporting	40
5.23.3. Safety and Risk – Environmental Performance.....	40
5.24. Environmental Training	41
6. Rehabilitation.....	42
6.1. Rehabilitation Overview	42
6.1.1. Rehabilitation of Disturbed Land	42
6.1.2. Well Sites	43
6.1.3. Gas Gathering System.....	44
6.1.4. Access Roads	45
6.1.5. Buildings and Auxiliary Facilities	45
6.1.6. Other Infrastructure.....	45
6.2. Rehabilitation Trials and Research	45
6.3. Further Development of Final Rehabilitation Plan	45
6.4. Rehabilitation Activities Proposed in Next AEPR Period	45
6.5. Further Improvements	46
6.6. Closure Plan	46
7. Project Commitments Register	47
8. Stakeholder Engagement	48
8.1. Environmental Complaints	48
8.1.1. Stakeholder Management	48
8.1.2. Complaints Register Requirements.....	48



8.1.3.	Summary of Environmental Complaints	49
8.1.4.	Complaint Trend	49
8.2.	Community Consultative Committee	49
8.2.1.	Monitoring Requirement	49
8.3.	Community Engagement	50
8.3.1.	Community Consultative Committee (CCC)	50
8.3.2.	Other Consultation and Community Support.....	51
8.4.	Site Visits	52
9.	Summary of Environmental Non-Compliance Issues and Actions	53
9.1.	Identification of Environmental Non Compliance Issues	53
9.1.1.	Annual Return	53
9.1.2.	Penalty Infringement Notices (EPA).....	54
9.1.3.	Non-Compliances Identified During Independent Environmental Audit	54



List of Appendices

Appendix A. Camden Gas Project Petroleum Production Lease Locations

Appendix B. Camden Gas Project Property Details

Appendix C. Camden Infrastructure Map for FY2016

Appendix D. List of Bore Licences and Water Access Licences

Appendix E. Status of Well Operations FY2016

Appendix F. Well Site Inspections Against Site Specific Rehabilitation Completion Criteria

Appendix G. 2012-14 Independent Audit Report – Non-Conformances Corrective Actions Register

Appendix H. 2012-15 Independent Audit Report – Non-Conformances Corrective Actions Register

Appendix I. Air Quality Monitoring Results Reported in 2014/15 Annual Return

Appendix J. Assessable Pollutant Results – RPGP

Appendix K. RPGP Quarterly and Annual Noise Monitoring Results

Appendix L. Flare Event Monitoring

Appendix M. Groundwater Monitoring Results



Document Revision History

Date	Version	Author	Comment	Reviewed by AGL Representative
31/10/2016	Final V0	Aaron Clifton	Camden Gas Project AEPR 2015-2016	Monique Harrison



Abbreviations

Abbreviation	Description
AEMR	Annual Environmental Management Report
AEPR	Annual Environmental Performance Report
APPEA	Australian Petroleum Production and Exploration Association
CCC	Community Consultative Committee
CGP	Camden Gas Project
CoC	Condition of Consent
CSG	Coal Seam Gas
DA	Development Application
DG	Director General
DP&E	Department of Planning and Environment
DRE	Department of Industry – Division of Resources and Energy
EECs	Endangered Ecological Communities
EIS	Environmental Impact Statement
EMAI	Elizabeth Macarthur Agricultural Institute
EMP	Environmental Management Plan
EMS	Environmental Management System
EPA	Environment Protection Authority
EP&A Act	Environmental Planning and Assessment Act 1979
EPL	Environment Protection Licence
GGL	Gas Gathering Line
HS&E	Health Safety and Environment
LGA	Local Government Area
NOW	NSW Office of Water
NOX	Nitrogen oxides
NPI	National Pollutant Inventory
OEH	Office of Environment and Heritage
PA	Project Approval
PAC	Planning Assessment Commission
PEL	Petroleum Exploration Lease
POP	Petroleum Operations Plan
PPL	Petroleum Production Lease
RBTP	Ray Beddoe Treatment Plant
RPGP	Rosalind Park Gas Plant
SIS	Surface to-In-Seam
SOX	Sulphur oxides
SSD	State Significant Development
VLMP	Vegetation and Landscape Management Plan



Executive Summary

This Annual Environmental Performance Report (AEPR) has been prepared to meet the reporting requirements of the NSW Department of Planning and Environment (DP&E) and Department of Industry – Division of Resources and Energy (DRE). This AEPR covers the AGL Camden Gas Project (CGP) located in the Camden, Campbelltown and Wollondilly Local Government Areas (LGAs) for the period of 01 July 2015 to 30 June 2016.

Reporting Requirements

The purpose of the AEPR is to report in accordance with the CGP’s Development Application Approvals and Project Approvals on the following matters:

- > The standards, performance measures and statutory requirements the development is required to comply with;
- > An assessment of the environmental performance of the development to determine whether it is complying with these standards, performance measures, and statutory requirements;
- > Reporting against the implementation of the Project Commitments Register;
- > Copy of the Complaints Register for the preceding twelve month period and indicating what actions were (or are being) taken to address these complaints;
- > Indication of what actions were taken to address any issue and/or recommendation raised by the Community Consultative Committee (CCC);
- > Provision of the detailed results of all the monitoring required by each consent;
- > Review of the results of this monitoring against:
 - » Impact assessment criteria;
 - » Monitoring results from previous years;
 - » Predictions in relevant environmental assessment documents.
- > Identify any non-compliance during the year;
- > Identify any significant trends in the data; and
- > If any non-compliance is detected, describe what actions and measures would be carried out to ensure compliance, clearly indicating who would carry out these actions and measures, when they would be carried out, and how the effectiveness of these measures would be monitored over time.

Field Development

Field development during this reporting period has been limited with no construction works being undertaken. No new wells were drilled. Plug and Abandonment of ten wells (EM02, EM03, EM04, AP01, JD07a, JD05, GL10, MH01, LB07, and LB05) was completed. Plug and abandonment of a further four wells (RP11, RP04, RP05, RP03) commenced during this reporting period and will continue into the next reporting period.



Environmental Management & Performance

In 2008 AGL commenced the development of a Project Environmental Management System (EMS) to manage potential environmental aspects associated with CGP activities. As part of this process an Environmental Management Plan (EMP) and Environmental Sub Plans were prepared in order to facilitate the uniform implementation of environmental management. During this reporting period the EMP and numerous sub-plans were updated to improve AGL's environmental management and procedures.

Air Pollution

Quarterly stack emissions monitoring results were compliant with the licence concentration limits of EPL 12003 for this period.

Nitrogen Dioxide, Sulphuric Acid Mist and Sulphur Dioxide concentrations were measured at the emission monitoring points of the RPGP and compared to the input data used in the modelling for the air impact assessment. The testing confirmed compliance with air emission limits at the RPGP and therefore compliance at the nearest residence during this reporting period.

There were no exceedances of the EPL 12003 licence limits for any of the assessable annual pollutant loads for the RPGP as reported within the 2014/2015 Annual Return. All assessable pollutants were also reported at below the annual load estimations as predicted in the RPGP Environmental Impact Statement (EIS).

Non-compliance with continuous monitoring conditions of EPL 12003 conditions O2 and M2.1 in relation to M2.3, and DA-282-6-2003-I Sch. 4, Condition 58 occurred during this reporting period. Details of this non-compliance are provided within Section 9.1.1 of this report.

The National Pollutant Inventory (NPI) annual report for the 2015/16 financial year was submitted on 23 September 2016.

During the reporting period, there were no registered complaints regarding dust or other air pollutants.

Erosion & Sediment Control

Activities associated with erosion and sediment controls were compliant for the period with no community complaints or reportable incidents recorded.

Surface Water

The CGP harvests rain water from the run off of all buildings within the RPGP. This water is stored in above ground rain water tanks and is used to service the RPGP's amenities and wash bay. Once used, the water is separately stored in in-ground tanks as grey water and septic water. A combined total of 286.6 KL of grey water and septic water was transported off site by licensed contractors for disposal at a licensed facility.

There were no issues identified in relation to surface water for the reporting period.

Groundwater

The total volume of produced water generated has marginally increased from 2,158.91 KL last reporting period to 2,573 KL this period, representing an increase of 19.1%.

There was no produced water reused for well workovers during the reporting period due to the reduced number of workovers and nature of workover activities performed. The total volume of produced water that was reused in workover operations last reporting year was 56.45 KL.

Total recycled produced water from well sites and the RPGP has increased from 3,346.07 KL last reporting period to 4,419.36 KL this period. This increase is due to increased produced water from the well sites and a focus on reducing the volume of produced water stored in the RPGP flare pit.



During this reporting period AGL was compliant with bore licence conditions and EPL 12003 groundwater reporting requirements.

Waste Management

Waste volumes were recorded for the RPGP during this reporting period which conforms to the relevant conditions of DA 282-6-2003-I. No non-compliances with waste requirements were identified during this reporting period.

Hazardous Materials

Activities associated with hazardous material management were compliant for the period with no reportable incidents recorded or community complaints received.

Activities associated with land contamination or pollution were compliant for the period with no reportable incidents or community complaints recorded.

Minor environmental incidents that occurred during the reporting period are discussed in Section 5.23. Responses to minor incidents were undertaken in accordance with the Dangerous Goods and Hazardous Materials Sub Plan and the Emergency Response Plan.

Flora & Fauna

No development and/or clearing activities were undertaken with the potential to impact threatened or native flora and fauna. Consequently, activities associated with threatened or native flora and fauna were compliant for the period with no incidents or complaints recorded.

Noxious Weeds

Activities associated with weed control were compliant for the period with no reportable incidents or community complaints recorded.

Noise (Operational and Construction)

No exceedances relating to operational noise from the RPGP were received during the 2015/16 reporting period. This trend is consistent with previous years. Noise performance is consistent with operational noise predictions in the RPGP EIS.

The CGP's operations continued to meet noise requirements during the reporting period.

Noise monitoring of operating wells were assessed as compliant with the relevant noise criteria.

No complaints were received relating to noise from operations during the reporting period.

Visual Amenity

The Landscape and Lighting Audit Report (September 2014) concluded that ground-truthing of landscape works identified that the majority of the Vegetation and Landscape Management Plan (VLMP) monitoring was correct, in accordance with performance and review objectives, and in a format that is suitable for continued and on-going report monitoring. Based on the performance of the landscape plantings and the findings of the September 2014 audit, the DP&E has granted AGL an exemption from commissioning an independent Landscape and Lighting Audit in September 2016. The next audit will be completed in September 2018.

Four flare events occurred during this reporting period for a combined duration of 263 minutes. This is an increase from the previous AEPR reporting period where one full field flare event occurred at the RPGP which lasted a total of 4 minutes.

Cultural Heritage

There were no activities associated with Aboriginal or European heritage matters identified and consequently no reportable incidents or community complaints recorded.



Bushfire

During the reporting period, there were no bushfires on land managed by AGL.

Public Safety

During this reporting period there were no public safety related reportable incidents recorded.

Safety and Risk Management

During this reporting period there were no significant safety or risk management related reportable environmental incidents recorded.

Rehabilitation

Quarterly inspections were undertaken at rehabilitated wells AP01, EM03, EM04, JD05, JD07a, LB05, LB07 and MH01 throughout the reporting period. Rehabilitation works progressed well towards achieving the Site Specific Rehabilitation Completion Criteria and only minimal weed control and additional seeding was required across the sites.

Environmental Complaints

No community complaints were received during this reporting period.

The number of complaints received in 2015/16 has decreased from the previous reporting period where one environmental complaint was received.

Community Liaison

AGL has pro-actively engaged with the community in order to keep residents informed of the CGP and ensure that community interests are listened to and addressed. AGL has raised awareness of its activities and maintained positive relations with the community through a range of community engagement initiatives.

A considerable amount of consultation has taken place directly with each landowner. This has provided understanding of landowner interests and ensured that these interests can be quickly addressed.

A total of three CCC meetings were undertaken during this reporting period.

Environmental Non Compliance Issues and Incidents

Non-compliances with the RPGP site's EPL 12003 are reported in the Annual Return to EPA.

There was one non-conformance with the EPL reported within the Annual Return in relation to EPL 12003 Conditions O2 and M2.1 in relation to M2.3 (continuous air monitoring).

During this reporting period AGL received no Penalty Infringement Notices (PIN) from the EPA.



Page has been intentionally left blank



1. Introduction

1.1. History of the Camden Gas Project

This Annual Environmental Performance Report (AEPR) has been prepared by AGL Upstream Investments Pty Ltd (AGL) to meet the reporting requirements for the period of 1 July 2015 to 30 June 2016 for the Camden Gas Project (CGP).

The CGP is located 65 kilometres (km) south-west of Sydney in the Camden region of NSW and consists of 144 gas wells, low-pressure underground gas gathering line's (GGLs), a high pressure supply line, gas plant facilities and associated infrastructure.

Sydney Gas initially developed the CGP and established the first two Petroleum Production Leases (PPLs) in New South Wales. Exploration activities in the Camden region commenced in 1998 and since that time an extensive program of geological surveys and exploration drilling has been completed.

The construction of the Ray Beddoe Treatment Plant (RBTP) and the first successful gas delivery into the AGL distribution network occurred in May 2001. This progress led to Sydney Gas applying for PPL 1.

Further appraisal led to the addition of three production wells in 2002 under PPL 2, bringing the total of drilled production wells to twenty-five.

Operation of the Rosalind Park Gas Plant (RPGP) commenced under PPL 4 on 16 December 2004 and the project expanded to include PPL 4, PPL 5 and PPL 6.

In February 2007, the RBTP was shut down and the wells were connected to the RPGP. The RBTP was decommissioned, rehabilitated and the land handed back to the landowner during the 2008/09 reporting period.

In 2008 AGL developed an Environmental Management Plan (EMP) to consolidate the environmental management of the CGP. This plan and selected sub plans were updated during 2012 to improve AGL's environmental management procedures for the CGP. The 2012 EMP was approved by the Director General in July 2012 and implemented. The EMP and numerous Sub-Plans were updated again in this reporting period of 2015 to 2016.

On 1 April 2009 the CGP changed from a Joint Venture between AGL and Sydney Gas (Camden) Operations to become wholly owned by AGL.

Further to AGL's consolidation efforts, PPLs 1, 2, 4, 5, and 6 were transferred to AGL in November 2010.

As part of the progressive development of the CGP gas field, to date, wells have been drilled and proven in the Logan Brae, Wandinong, Glenlee, Menangle Park, Rosalind Park, Mt Taurus, Razorback, Elizabeth Macarthur Agricultural Institute (EMAI), Sugarloaf, Spring Farm and Kay Park fields.

In February 2013 AGL requested that the then NSW Department of Planning & Environment (DP&E) suspend its assessment of the proposed Northern Expansion Project of the CGP so that AGL could consider and address concerns raised by the community.

In February 2016, AGL announced that it will progressively decommission wells and rehabilitate sites at the CGP prior to ceasing production in 2023.

During this reporting period no new wells were constructed. Plug and Abandonment of ten wells (EM02, EM03, EM04, AP01, JD07a, JD05, GL10, MH01, LB07, and LB05) was



completed. Plug and abandonment of a further four wells (RP11, RP04, RP05, RP03) commenced during this reporting period and will continue into the next reporting period.

1.1.1. Environmental Management Improvements

During this reporting period AGL has maintained a focus on enhanced environmental improvements. On-going environmental management improvements have included:

- > Continued enactment of the CGP EMS;
- > Review and implementation of the updated CGP EMP and associated sub plans;
- > Review and implementation of the updated Environmental Aspects and Impacts Register;
- > Testing and revision of the Pollution Incident Response Management Plan (PIRMP);
- > Implementation of "myHSE" – AGL's online system for reporting environmental incidents, near misses and hazards;
- > Continued monitoring of rehabilitation completion criteria for rehabilitated wells (AP01, EM03, EM04, EM23, JD05, JD07a, LB05, LB07, MH01) in consultation with DRE and EPA;
- > Continued provision of environmental monitoring data to external stakeholders through the uploading of information to the CGP website;
- > Hosting Environment Update Meetings with DP&E, EPA and DRE;
- > Implementation of the Authority to Work form and ISN Contractor Prequalification to evaluate contractor environmental performance, scope of works and Health, Safety and Environmental Management System prior to engaging contractors to commence work;
- > Internal environmental awareness training on Spill Response and Leak Detection and Repair delivered to CGP employees;
- > Completion of corrective actions from the 2012-2015 Independent Environmental Audit, and 2012-2014 Independent Environmental Audit;
- > Further implementation of AGL's compliance management system, CMO, and expansion to include legislative compliance requirements, as well as internal audits and associated corrective actions; and
- > Working in partnership with contracting companies, appropriate authorities and the community to resolve issues and concerns with the CSG industry and ensure a practical and sustainable future for the industry.

1.2. Purpose of Annual Environmental Performance Report

This AEPR has been prepared to meet the reporting requirements of the DP&E and DRE for the AGL CGP located in the Camden, Campbelltown and Wollondilly Local Government Areas (LGAs) for the period of July 2015 to June 2016. The requirements of the DP&E and DRE are provided in Section 1.2.1 and 1.2.2 below.

1.2.1. Requirements of the NSW Department of Planning and Environment (DP&E)

The requirements for an AEPR are set out in the following Development Consent Conditions:

- > DA No. 15-1-2002-i dated 23 July 2002, Schedule 3 Condition of Consent (CoC) No. 34;
- > DA No. 246-8-2002-i dated 20 September 2002 Schedule 3 CoC No. 16;



- > DA No. 282-6-2003-i dated 16 June 2004, Schedule 5 CoC No. 5;
- > DA No. 183-8-2004-i dated 16 December 2004 Schedule 2 CoC No. 24;
- > DA No. 9-1-2005 dated 26 May 2005 Schedule 2 CoC No. 42;
- > DA No. 75-4-2005 dated 7 October 2005, Schedule 2 CoC No. 54;
- > PA No. 06_0137 dated 9 December 2006, Schedule 4 CoC No. 3;
- > PA No. 06_0138 dated 9 December 2006, Schedule 4 CoC No. 3; and
- > PA No. 06_0291 dated 4 September 2008, Schedule 4 CoC No.3.

In summary, the Development Consents require the preparation of an AEPR within twelve months of the date of the consent, and annually thereafter during the life of the development. As the approval dates vary, the AEPR is prepared on a July to June basis to standardise reporting and to meet the requirements of both the DP&E and DRE.

The AEPR is to be submitted to the Director-General and shall include, but not be limited to:

- > The standards, performance measures and statutory requirements the development is required to comply with;
- > An assessment of the environmental performance of the development to determine whether it is complying with these standards, performance measures, and statutory requirements;
- > Reporting against the implementation of the Project Commitments Register;
- > A copy of the Complaints Register for the preceding twelve month period and indicating what actions were (or are being) taken to address these complaints;
- > Indication of what actions were taken to address issues and/or recommendations raised by the CCC;
- > Provision of the detailed results of the monitoring required by each consent;
- > Review of the results of this monitoring against:
 - » Impact assessment criteria;
 - » Monitoring results from previous years;
 - » Predictions in relevant environmental assessment documents.
- > Identify non-compliances during the year;
- > Identify significant trends in the data; and
- > If a non-compliance is detected, describe what actions and measures would be carried out to ensure compliance, clearly indicating who would carry out these actions and measures, when they would be carried out, and how the effectiveness of these measures would be monitored over time.

This document has been prepared to address the requirement for an AEPR, for the period of 1 July 2015 to 30 June 2016, pursuant to the above listed Development Application Approvals and Project Approvals.

1.2.2. Requirements of Department of Industry – Division of Resources and Energy (DRE)

The requirement for an Annual Environmental Management Report (AEMR) is set out in Clause 3 of PPL 1, 2, 4, 5, and 6 transferred to AGL by the Director-General on 22 November 2010, which states:

The AEMR must:

- i) Report against compliance with the POP;
- ii) Report on progress in respect of rehabilitation completion criteria;
- iii) Report on the extent of compliance with regulatory requirements; and
- iv) Have regard to any relevant guidelines adopted by the Director-General.



This AEPR has been prepared in accordance with clause 3 of PPL 1, 2, 4, 5 and 6 and the DRE guideline EDG03 'Guidelines to the Mining, Rehabilitation and Environmental Management Process (Version 3, 2006)'.

Where information required under a heading in EDG03 is not applicable to the CGP, the heading has been kept and the applicability stated. Some documents required by DRE EDG03 guideline (e.g. 'Plan 3 Land Preparation', 'Plan 4 Proposed Mining Activities') are not relevant to the operation of the CGP or its annual reporting, and hence have been excluded from this AEPR.

A plan showing the locations of the PPLs is included as Appendix A.

1.3. Format of the Annual Environmental Performance Report

This AEPR is formatted as follows:

- > **Section 1:** Introduction - Provides an introduction and background of the AEPR and its history;
- > **Section 2:** Camden Gas Project Area Details – Provides the projects details and relevant contacts;
- > **Section 3:** Environmental Standards, Performance Measures and Statutory Requirements - Lists the environmental regulatory performance requirements relevant to the C;
- > **Section 4:** Operations within the Reporting Period - Describes the operations during the reporting period;
- > **Section 5:** Environmental Management and Performance - Outlines the environmental management and performance of the CGP for the period;
- > **Section 6:** Rehabilitation - Describes the rehabilitation undertaken within the CPG during the reporting period;
- > **Section 7:** Project Commitments Register - Provides an update to the Project Commitments Register (Compliance Register);
- > **Section 8:** Stakeholder Engagement - Describes the stakeholder engagement that has been undertaken during the reporting period; and
- > **Section 9:** Summary of Environmental Non-Compliance Issues and Actions – Describes the non-conformances identified and actions to address non-conformances for the reporting period.



2. Camden Gas Project Area Details

2.1. Project Details and Contacts

A map of the CGP and its PPL locations is contained in Appendix A. The details of each property or area of the CGP are provided in Appendix B. The CGP infrastructure map for works undertaken during this reporting period is provided in Appendix C.

A list of project details and contacts as required by NSW Trade & Investment EDG03 is provided in Table 2-1.

Table 2-1: Project Details and Contacts

Project Details	
Project Name	Camden Gas Project
Titles / Consents	Refer to Table 3-1
Expiry Date of Titles / Consents	Refer to Table 3-2
Titleholder	AGL Upstream Investments Pty Limited
Operator	AGL Upstream Investments Pty Limited
Project Manager Details	
Contact Name	Kelly Franke
Position	Operations Superintendent
Contact Address	AGL Rosalind Park Gas Plant Lot 35, Medhurst Road, Menangle NSW 2568
Telephone	02 4633 5200
Facsimile	02 4633 5201
Email	kfranke@agl.com.au
Reporting Officer Details	
Contact Name	Aaron Clifton – Environment Business Partner
Contact Address	AGL Rosalind Park Gas Plant Lot 35, Medhurst Road, Menangle NSW 2568
Telephone	02 4633 5200
Facsimile	02 4633 5201
Email	aclifton@agl.com.au
Other Contact Details	
24 hour hotline	1300 799 716
POP and AEMR Reporting Periods	
POP Commencement Date	10 December 2015
POP Period End Date	09 December 2016
AEMR Commencement Date	July 2015
AEMR Period End Date	June 2016



3. Environmental Standards, Performance Measures and Statutory Requirements

This section provides a list of the environmental regulatory requirements relevant to the CGP for the reporting period.

3.1. Consents, Leases and Licences

Seven Development Applications (DAs), three Project Approvals and one Concept Plan Approval have been approved for the CGP under the *Environmental Planning and Assessment Act 1979* (EP&A Act). During the reporting period, there were no new or modifications to existing DAs or Project Approvals. Table 3-1 provides a description of the activities for which each of the DAs and Project Approvals has been issued.

Table 3-1: Activities described by approved Development Applications

Development Application No.	Description of Proposed Development
DA No. 15-1-2002i, dated 23 July 2002	The Minister for Planning (DP&E) determined the development application for Stage 1 in accordance with Section 76A, Section 80, and Section 91 of the <i>Environmental Planning and Assessment Act 1979</i> by granting consent to the proposed development referred to as "The Camden Gas Project Stage 1". The Conditions of Development Consent for DA No. 15-1-2002i-I dated 23 July 2002 relate to the Camden Gas Project Stage 1 (the 'Development') issued to Sydney Gas Operations Ltd. The Development Consent describes the Development as: <ul style="list-style-type: none"> - "The continued operation of the existing 20 production wells; - Operation of 5 additional wells not yet completed and/or drilled; - Operation of the existing and proposed gas gathering system; - Operation of the existing gas treatment plant; - Production of up to 93,000 GL/month from the treatment plant; - Sale and distribution of gas to the AGL gas network; and - Operation of the existing site office and pipeyard depot."
	A modification to this DA, dated 16 May 2006, was issued for the following: <ul style="list-style-type: none"> - "Construction, drilling and operation of a directional well from LB09".
	A modification to this DA, approved 9 February 2007, was issued for the following: <ul style="list-style-type: none"> - "re-drilling of wells Apap 01 and Mahon 01."
	A modification to this DA, dated 4 July 2007, was issued for the following: <ul style="list-style-type: none"> - "construction, drilling and operation of 2 surface to in-seam wells (AP02/AP03) at AP01".
	A modification to this DA, dated 4 August 2008, was issued for the Kay Park and Loganbrae gas gathering line modification project.
DA-246-8-2002i – dated 20 September 2002	The Minister for the then NSW Department of Infrastructure, Planning and Natural Resources (now DP&E) determined the development application in accordance with Section 80 of the <i>Environmental Planning and Assessment Act 1979</i> . The Conditions of Development Consent for DA No. DA-246-8-2002i dated 20 September 2002, relate to the Camden Gas Project Stage 1 (the 'Development'). The Development Consent describes the proposed



Development Application No.	Description of Proposed Development
	<p>development as:</p> <p>-“The connection of 3 existing wells (KP1, KP2, and KP3) to the Ray Beddoe Treatment Plant, and the continued production and sale of methane gas from the 3 wells. “</p> <p>A modification to this DA, dated 4 July 2007, was issued for the following: -construction, drilling and operation of 2 surface to in-seam wells (KP05 and KP06) at KP01”</p> <p>A modification to this DA, dated 4 August 2008 was issued for the Kay park and Loganbrae gas gathering line modification project.</p> <p>A modification to this DA, dated 3 December 2008 was issued for the construction and operation of one Surface SIS well (KP05) and one direction well (KP06) from KP01.</p> <p>A modification to this DA, dated 20 April 2011, was issued for the construction, drilling and operation of 2 surface to in-seam wells (KP05 and KP06).</p>
<p>DA No. 282-6-2003-i – 16 June 2004</p>	<p>The then Minister for Urban Affairs and Planning (now DP&E) determined the development application for Stage 2 in accordance with Section 76A, Section 77A, and Section 91 of the <i>Environmental Planning and Assessment Act 1979</i> by granting consent to the proposed development referred to as “The Camden Gas Project Stage 2”. The Conditions of Development Consent (reference 112467721) for DA No. 282-6-2003-i dated 16 June 2004 relate to the Camden Gas Project Stage 2 (the ‘Development’) issued to Sydney Gas Operations Ltd. The Development Consent describes the Development as:</p> <ul style="list-style-type: none"> - “construction and drilling of 20 wells on the EMAI site; - Operation and production of gas from the existing (drilled) 23 wells and 20 wells to be constructed (a total of 43 wells); - Construction and operation of the gas gathering system; - Construction and operation of the gas treatment plant, associated workshop and office facilities; and - Production of up to 14.5 petajoules per annum from the gas treatment plant.” <p>A modification to this DA, dated 26 August 2004, was issued to include additional land that was emitted from the development consent.</p> <p>A modification to this DA, dated 01 February 2005, was issued to amend an access road and gathering line route on the EMAI.</p> <p>A modification to this DA, was issued, dated 01 June 2005.</p> <p>A modification to this DA, dated 16 May 2006, was issued for the following: - “Construction, drilling and operation of 1 directional well from GL7 and 2 directional wells from GL10”.</p> <p>A modification to this DA, approved 22 October 2006, was issued for the following: -“Construction, drilling and operation of 1 directional well (GL16) from GL7 and 1 directional well (GL15) and 1 Surface to in-seam well (GL14) from GL10”</p> <p>A modification to this DA, approved 1 November 2006, was issued for the following: -“construction, drilling and operation of 1 directional well (GL16) from GL7 and 2 Surface to in-seam wells (GL14 and GL15) from GL10.”</p> <p>A modification to this DA, approved 2 May 2007 was issued for the following: - relocation of the Rosalind Park Gas Plant access road</p> <p>A modification to this DA, dated 4 July 2007, was issued for the following: -“construction, drilling and operation of 1 surface to in-seam well (EM38) at EM20 and upgrading (twinning) of the gas gathering line between MP14-GL10, GL10-GL05, GL05-GL07 and RP03-RP08”</p>



Development Application No.	Description of Proposed Development
	<p>A modification to this DA, dated 11 April 2008, was issued for the following: "construction, drilling and operation of 2 surface to in-seam wells EM39 (from EM02) and GL17 (from GL05), upgrading (twinning) of the gas gathering line from EM39 to the junction of the gas gathering line and road to the EM03 well, and connection of the new wells to the existing gas gathering system."</p> <p>A modification to this DA, dated 16 March 2009, was issued for the construction of an access road to the existing RP09 gas well and the twinning of a small section of the existing gas gathering line between RP08 and the RPGP.</p> <p>A modification to this DA, dated 18 September 2009, was approved for the re-routing of a damaged gas gathering line at Glenlee.</p> <p>A modification to this DA, dated 25 November 2010, was issued for the modification of RPGP noise monitoring requirements, air emission concentration limits and waste storage and generation volumes.</p>
<p>DA-183-8-2004i – 16 December 2004</p>	<p>The then Minister for the NSW Department of Infrastructure, Planning and Natural Resources (now DP&E) determined the development application in accordance with Section 80 of the <i>Environmental Planning and Assessment Act 1979</i>. The Conditions of Development Consent for DA No. DA-183-8-2004i dated 16 December 2004 relate to the Camden Gas Project Stage 2 (the 'Development'). The project involves the following:</p> <ul style="list-style-type: none"> - Connection of 15 existing coal seam methane wells to the Rosalind Park Gas Plant from the Mount Taurus and Menangle Park properties, for the production of methane gas; and - Construction of a Dam at the MT1 gas well site. <p>A modification to this DA , dated 4 July 2007, was issued for the following: "construction, drilling and operation of 1 surface to in-seam well (MP30) at MP13 and upgrading (twinning) of the gas gathering line between MP13 and MP14."</p> <p>A modification of this DA (DA 183-8-2004i - Mod 2), dated the 9 July 2012, was issued for the following: "Construction, drilling and operation of 1 surface to in-seam well (MP25) adjacent to MP16 and upgrading (twinning) of the gas gathering line between MP16 and MP13/30."</p>
<p>DA 9-1-2005 – 26 May 2005</p>	<p>The Minister for the NSW Department of Infrastructure, Planning and Natural Resources (now DP&E) determined the development application in accordance with Section 80 of the <i>Environmental Planning and Assessment Act 1979</i>. The Conditions of Development Consent for DA No. DA-9-1-2005 dated 26 May 2005, relate to the Camden Gas Project Stage 2 (the 'Development'). The Development Consent describes the proposed development as:</p> <ul style="list-style-type: none"> - "Construction and drilling of well GL11; - Construction of a gas gathering system between four wells at Glenlee and two wells at EMAI; - Connection of 6 coal seam methane wells to the previously approved Stage 2 Camden Gas Project – Gas Treatment Plant, for the production of methane gas." <p>A modification to this DA, dated 16 May 2006, was issued for the following: - "Construction, drilling and operation of a directional well from each of GL02 and GL11."</p> <p>A modification to this DA, dated 4 July 2007, was issued for the following: "upgrading (twinning) of the gas gathering line between GL02 and GL05."</p> <p>A modification to this DA, dated 16 November 2010, was issued for the following: modification of Schedule 2, Condition 26.</p>
<p>DA 75-4-2005 – 07 October 2005</p>	<p>The then Minister for the NSW Department of Infrastructure, Planning and Natural Resources (now DP&E) determined the development application in accordance with Section 80 of the <i>Environmental Planning and Assessment Act 1979</i>. The Conditions of Development Consent for DA No. DA-75-4-2005 dated</p>



Development Application No.	Description of Proposed Development
	<p>07 October 2005 relate to the Camden Gas Project Stage 2 (the 'Development'). The Development Consent describes the proposed development as:</p> <ul style="list-style-type: none"> - "Construction and drilling of 7 wells; - Construction of a gas gathering system and access roads; - Connection of the wells to the Stage 2 Camden Gas Project – Gas Treatment Plant; and - Production of methane gas." <p>A modification to this DA, dated 4 July 2007, was issued for the following: "construction and drilling of 9 wells, including 2 surface to in-seam wells (SL08 and SL09) at SL03."</p> <p>A modification to this DA, dated 10 January 2010, was approved for the twinning of a gas gathering line from well surface locations SL03 and SL09 to the Rosalind Park Gas Plant.</p>
<p>Project Approval 06_0137 – 9 December 2006</p>	<p>The then Minister for Planning approved the Project under Section 75J of the <i>Environmental Planning and Assessment Act 1979</i>. The Conditions of Consent for Project Approval 06_0137 dated 9 December 2006 relate to the Razorback Wells (RB03-RB12). The project involves the following:</p> <ul style="list-style-type: none"> - Construction and drilling of wells RB03-RB12 and gas gathering lines.
<p>Project Approval 06_0138 – 9 December 2006</p>	<p>The then Minister for Planning approved the Project under Section 75J of the <i>Environmental Planning and Assessment Act 1979</i>. The Conditions of Consent for Project Approval 06_0138 dated 9 December 2006 relate to the Elizabeth Macarthur Institute Wells (EM23-EM36). The project involves the following:</p> <ul style="list-style-type: none"> - Construction and drilling of wells EM23-36 and gas gathering lines. <p>A modification to this Approval, dated 6 August 2007, was issued for the following: "One additional directional well at an existing well, changing an approved but not yet constructed well to a directional well, connection of the wells to the existing gas gathering system and production of coal seam methane gas."</p>
<p>Project Approval 06_0291 – 4 September 2008</p>	<p>The then Minister for Planning approved the Project under 75J of the <i>Environmental Planning and Assessment Act 1979</i>. The Conditions of Consent for Project Approval 06_0291 dated 4 September 2008 relate to the Spring Farm and Menangle Park wells. The project involves the following: Construction and drilling of wells and gas gathering lines in the Spring Farm and Menangle Park area.</p> <p>Modifications to this PA were issued 7 January 2011 and 20 April 2011 to include gas gathering lines MP06 – 11 and MP11 – MP23 (via MP19), and, MP03-05 and MP22 – SL02 respectively.</p>
<p>Concept Plan Approval 06_0292 – 4 September 2008</p>	<p>The then Minister for Planning approved the Project under 750 of the <i>Environmental Planning and Assessment Act 1979</i>. The Conditions of Consent for Project Approval 06_0292 dated 4 September 2008 relate to the Spring Farm and Menangle Park wells. The project involves the following:</p> <ul style="list-style-type: none"> - Construction and operation of coal seam methane gas wells and associated infrastructure within the Stage 2 Concept Plan area of the Camden Gas Project.

The standards, performance measures and statutory requirements the CGP is required to comply with are outlined in the consents, leases and licences for the CGP. A list of the relevant consents, leases and licences is contained in Table 3-2. The standards, compliance levels and regulatory requirements resulting from the consents, leases and licences are identified for each matter reported in Section 5 Environmental Management and Performance of this AEPR.



Table 3-2: Consents, Leases and Licences

Title	Grant Date and Term
Petroleum Exploration Licence No.2 (PEL), issued by the Department of Mineral Resources (now DRE)	<i>Since the reporting period, AGL has surrendered PEL 2.</i>
PPL No.1, issued by the Department of Mineral Resources (now DRE)	2 September 2002 (for a period of 21 years - the lease holder shall relinquish areas where no wells have been drilled within 10 years of granting this lease)
PPL No.2, issued by the Department of Mineral Resources (now DRE)	10 October 2002 (for a period of 21 years)
PPL No.4, issued by the Department of Mineral Resources (now DRE)	6 October 2004 (for a period of 21 years)
PPL No.5, issued by the Department of Mineral Resources (now DRE)	28 February 2007 (for a period of 21 years)
PPL No. 6, issued by the Department of Industry and Investment (now DRE)	29 May 2008 (for a period of 21 years)
Conditions of Consent for DA 15-1-2002i (file no. S00/00945), issued by the DP&E. The requirements of the Environment Protection Licence 12003 have been incorporated into relevant conditions of consent	<p>23 July 2002 (for a period of 21 years from date of granting of the production lease).</p> <p>If after 5 years of the date of this consent any well that is subject of this consent has not yet been drilled or completed, then the applicant shall surrender the approval for that well.</p> <p>The following modifications have been issued to this DA:</p> <ul style="list-style-type: none"> - modification dated 16 May 2006 - modification dated 9 February 2007 - modification dated 4 July 2007 - modification dated 4 August 2008
Conditions of Consent for DA 246-8-2002i (file no. S02/01615), issued by the DP&E	<p>20 September 2002 (for a period of 21 years from date of granting of the production lease).</p> <p>The following modifications have been used to this DA:</p> <ul style="list-style-type: none"> -modification dated 4 July 2007 -modification dated 4 August 2008 -modification dated 3 December 2008 -modification dated 20 April 2011
Conditions of Consent for DA 282-6-2003-i, issued by the DP&E. The requirements of the Environment Protection Licence 12003 and 3A Permit have been incorporated into this Condition of Consent.	<p>16 June 2004 (for a period of 21 years).</p> <p>The following modifications have been issued to this DA:</p> <ul style="list-style-type: none"> - modification dated 26 August 2004 - modification dated 01 February 2005 - modification dated 01 June 2005 - modification dated 16 May 2006 - modification dated 22 October 2006 - modification dated 1 November 2006 - modification dated 2 May 2007



Title	Grant Date and Term
	<ul style="list-style-type: none"> - modification dated 4 July 2007 - modification dated 11 April 2008 - modification dated 16 March 2009 - modification dated 18 September 2009 -modification dated 25 November 2010
Conditions of Consent for DA-183-8-2004i, issued by the DP&E	16 December 2004 (for a period of 21 years). A notice of modification was issued on the 4 July 2007. A notice for modification was issued on the 9 July 2012
Conditions of Consent for DA 9-1-2005, issued by the DP&E	26 May 2005 (for a period of 21 years). The following modifications have been issued to this DA: <ul style="list-style-type: none"> - modification dated 16 May 2006 - modification dated 4 July 2007 -modification dated 16 November 2010
Conditions of Consent for DA 75-4-2005, issued by the DP&E	07 October 2005 (for a period of 21 years or expiry date of PPL No.4) The following modifications have been issued to this DA: <ul style="list-style-type: none"> - modification dated 4 July 2007 - modification dated 10 January 2010
Conditions of Consent for DA 171-7-2005, issued by the DP&E	25 March 2006 (for a period of 21 years or expiry date of PPL No.4)
Conditions of Approval for PA 06_0137, issued by the DP&E	9 December 2006 (for a period of 21 years or expiry date of PPL No.4)
Conditions of Approval for PA 06_0138 issued by the DP&E	9 December 2006 (for a period of 21 years or expiry date of PPL No.4) A notice of modification was issued on the 6 August 2007.
Conditions of Approval for PA 06_0291 issued by the DP&E	4 September 2008 (for a period of 21 years or expiry date of PPL No.5) The following modifications have been issued to this PA: <ul style="list-style-type: none"> - modification dated 7 January 2011 - modification dated 20 April 2011
Conditions of Approval for Concept Plan Approval 06_0292 issued by the DP&E	4 September 2008 (for a period of 5 years)
Environment Protection Licence No.12003, issued by the Environment Protection Authority (>0.5 – 6PJ Produced)	Issued 22 December 2004, anniversary date 22 December. During the reporting period, the licence was varied on three occasions: <ul style="list-style-type: none"> - variation dated 28 September 2015 (notice #1534008); - variation dated 23 March 2016 (notice # 1538424); - variation dated 16 June 2016 (notice # 1540924)..
Petroleum Operations Plan (POP)	10 December 2015 – 09 December 2016



Title	Grant Date and Term
Pipeline Licence No.30, issued by Department of Energy, Utilities and Sustainability, under NSW Pipelines Act 1987	19 May 2004 (for a period of 20 years)
Water Monitoring Bore Licence no. 10BL604845 (relating to Lot 23/585290), issued by NSW Office of Water (now DPI Water)	6 July 2011 in Perpetuity
Water Monitoring Bore Licence no. 10BL605381 (relating to Lot 23/585290), issued by NSW Office of Water (now DPI Water)	31 May 2013 in Perpetuity
Water Monitoring Bore Licence no. 10BL605366 (relating to Lot 10/1022204), issued by NSW Office of Water (now DPI Water)	08 May 2013 in Perpetuity
Water Monitoring Bore Licence no. 10BL605472 (relating to Lot 1/790254), issued by NSW Office of Water (now DPI Water)	12 November 2013 in Perpetuity
Water Monitoring Bore Licence no. 10BL605581 (relating to Lot 35/230946), issued by NSW Office of Water (now DPI Water)	17 June 2014 in Perpetuity
Water Access Licences, (WAL25054, WAL24856, WAL24736 and WAL24965) and associated Works Approvals and Use Approvals	Various

3.1.1. Safework NSW Notification of Storage of Hazardous Chemicals

There is no requirement to notify Safework NSW regarding the storage of Hazardous Chemicals (Dangerous Goods) at the RPGP due to the minor quantities of Hazardous Chemicals stored on site.



4. Operations within the Reporting Period

This section provides a description of the operations undertaken for the CGP for the reporting period and the status as of June 2016.

4.1. Description of Operations from July 2015 to June 2016

4.1.1. Development/Construction

During the reporting period development associated with the CGP comprised of the following:

Drilling

No new wells were drilled in this reporting period.

Plug and Abandonment

Plug and Abandonment of ten wells (EM02, EM03, EM04, AP01, JD07a, JD05, GL10, MH01, LB07, and LB05) was completed. Plug and abandonment of a further four wells (RP11, RP04, RP05, RP03) commenced during this reporting period and will continue into the next reporting period. Plug and Abandonment was carried out in accordance with the 'NSW Code of Practice for Coal Seam Gas Well Integrity'.

The locations of the existing wells and the plugged and abandoned wells are illustrated in Appendix C.

Gathering Line Installation

No new sections of gas gathering line were installed this reporting period.

Workover Maintenance Activities

The following workover activities took place during this reporting period:

Table 4-1: Description of Workover Maintenance Activities

PPL	Well Name	Date Workover Conducted	Description of Activities
PPL4	SF05	Feb 2016	Clean out well
PPL4	SF09	Feb 2016	Remove Clean out well
PPL4	SF02	Mar 2016	Clean out well
PPL4	MP25	Apr 2016	Replace pump and clean out well



Rosalind Park Gas Plant Compressors

The RGP compressors operated during the reporting period for:

- > Compressor No.1 operated for 728 hours;
- > Compressor No.2 operated for 8377 hours; and
- > Compressor No.3 operated for 7566 hours.

Land Access and Approvals

The EPL 12003 was varied on three occasions within the reporting period. Table 4-2 identifies the details of each licence variation.

Table 4-2 - EPL 12003 Variations (FY16)

Variation Number / Date	Material Effects of Licence Variation
Variation dated 28 September 2015 (notice #1534008)	- Condition U1 PRP 7 - Predictive Emissions Monitoring System (Stage 2) completion date varied to 14 April 2016.
Variation dated 23 March 2016 (notice #1538424)	<ul style="list-style-type: none"> - Condition P1.3; Location descriptions for six of production wells used as groundwater monitoring points have been changed (point 8, 11, 12, 13, 14, and 15). - Condition P1.3; Rosalind Park Gas Plant Flare pit has been added at point 16. - A 'Note' has been added below Condition P1.3 in relation to groundwater monitoring. - Condition M2.7; the monitoring frequency at points 8-15 has been changed from quarterly to six monthly. - Condition M2.7; Monitoring requirements have been added at point 16. - Environment Improvement Program 8 - Gas Well Instrumentation Improvement Program has been added.
Variation dated 16 June 2016 (notice #1540924)	- Added Condition U3 - EIP 9 Water Storage Improvement Program

No new Development Applications have been applied for or Development Consents granted in this reporting period.

Current Status of Well Operations

The status of CGP well operations as of 30 June 2016 is summarised in Appendix E. The only amendment from the previous reporting period is the plug and abandonment of six wells: JD07a, JD05, GL10, MH01, LB07, and LB05. Note that the status of wells EM02, EM03, EM04 and AP01 was changed to plugged and abandoned in the last reporting period.

4.1.2. Exploration



AGL relinquished Petroleum Exploration Licence 2 in July 2015. No exploration activities were undertaken during this reporting period and there will be no further exploration activities across the CGP.

4.1.3. Production

Production information is provided to the DRE on a monthly basis. These monthly production reports include monthly production volumes from each well in the PPLs and total gas flow rates into the RPGP.

4.1.4. Land Preparation

No wells were drilled during this reporting period.

Plug and Abandonment of ten wells (EM02, EM03, EM04, AP01, JD07a, JD05, GL10, MH01, LB07, and LB05) was completed in the reporting period. Plug and abandonment of a further four wells (RP11, RP04, RP05, RP03) commenced in Q4 of FY16 and will be completed in FY17. Rehabilitation works have been completed in consultation with the DRE and EPA.

4.1.5. Mining, Mineral Processing and Ore Production Stockpiles

The CGP produces coal seam gas. No mining, mineral processing or ore stockpiling is undertaken. Hence, this section is not applicable to AGL's operations at the CGP.

4.1.6. Other Infrastructure Management

During the reporting period, civil works were completed on the southern side of the EMAI gas gathering line Pipe Bridge to maintain the bridge integrity. A cantilevered steelwork support system including new foundation was designed and fitted to the existing pipe bridge, minimising the need for any work within Foot Onslow Creek southern embankment.

A concrete bunded truck loading area was also constructed at the RPGP. This provides AGL and external contractor trucks with a fully contained loading area for the loading or unloading of produced water. The bund has a total holding capacity of approximately 30 KL in the event of a loss of containment during loading and unloading activities.

Works also commenced on improving the storage of produced water at the RPGP. Four 70 KL above ground double walled tanks are being installed at the RPGP, replacing the Flare Pit, 65 KL inground concrete tank, and 70 KL above ground frac tank. An additional liner will also be installed within the existing 15 KL inground tank. These improvements will reduce the risk of loss of containment and also reduce the total volume of produced water stored on site. Tank levels will be electronically recorded and communicated to the RPGP Operator via the SCADA. This will give the RPGP Operator full visibility of tank levels to efficiently transfer and process the water and minimise stored volumes. AGL expects these works will be fully completed by 31 October 2016.

Compressor 1 at the RPGP was also successfully repaired and brought back online following an extended period of downtime due to mechanical issues.



4.1.7. Production and Waste Summary

A summary of waste produced is included in Section 5.7.

4.1.8. Water Management

A summary of water management is included in Section 5.5 and 5.6 of this report.

4.1.9. Hazardous Material Management

A summary of hazardous material management for the reporting period is included within Section 5.8 of this report.



5. Environmental Management and Performance

This section of the AEPR outlines the environmental management and performance of the CGP for the reporting period. Where environmental monitoring is required by the Conditions of Consent for the development, the monitoring requirement and results are discussed under the relevant sections headings. The specific environmental control measures, conditions of consent or monitoring requirements are provided within each EMP Sub Plan.

This section documents the implementation and effectiveness of control strategies for environmental risks identified in the EMP and previous AEPR.

5.1. Overview of Environmental Management

CGP Environmental Management Plan (EMP)

In 2008 AGL commenced the development of a Project Environmental Management System (EMS) to manage potential environmental aspects associated with CGP activities. As part of this process an Environmental Management Plan (EMP) and Environmental Sub Plans were prepared in order to facilitate the implementation of environmental management. The EMP was revised and submitted to the DP&E in April/ May 2016, improving AGL's environmental management and procedures. A full copy of the EMP and all Sub Plans is available on the CGP website.

The EMP included Sub Plans and Management plans are listed below, with plans updated during this reporting period noted accordingly:

- > Noise Management (May 2016);
- > Flora and Fauna Management (April 2016);
- > Soil and Water Management (May 2016);
- > European Heritage Management (April 2016);
- > Landscape and Rehabilitation Management (April 2016);
- > Aboriginal Cultural Heritage Management (December 2013);
- > Air Quality Management (April 2016);
- > Waste Management (April 2016);
- > Traffic Management (April 2016);
- > Dangerous Goods and Hazardous Materials Storage (April 2016); and
- > Emergency Response (November 2015).

EMP Sub Plan Compliance Audits have been developed and progressively introduced to enable in-house compliance assessments of each Sub Plan. During the reporting period, in-house compliance assessments were completed against the following EMP Sub Plans:

- > Soil and Water Management (July and September 2015);
- > Landscape and Rehabilitation Management (October 2015);
- > Waste Management (February 2016);
- > Aboriginal Cultural Heritage Management (November 2015);
- > Dangerous Goods and Hazardous Materials Storage (August 2015);
- > Noise Management (December 2015);
- > Flora and Fauna Management (May 2016);
- > Traffic (September 2015); and



> European Heritage (April 2016).

Pollution Incident Response Management Plan

In November 2012, AGL prepared a Pollution Incident Response Management Plan (PIRMP) for the CGP in response to an amendment to the *Protection of the Environment Operations Act 1997* (POEO Act). The PIRMP was most recently updated in March 2016.

The PIRMP details the procedures for the notification of pollution incidents causing, or having the potential to cause, material harm to the environment. The notification of environmental incidents under the PIRMP is only required for those incidents causing or threatening to result in material harm to the environment (a material harm incident) as defined in the POEO Act. During the reporting period, AGL undertook a mock drill of the PIRMP.

All other incidents deemed by AGL not to be causing or threatening to cause material harm to the environment will be managed through AGL’s Emergency Response Plan and supporting procedures. In situations where notification of environmental harm is required under a condition of Camden’s EPL 12003 or a development consent, AGL will report the incident to the relevant authority in accordance with the requirements of the relevant condition.

Petroleum Operations Plan

As required under PPLs 1, 2, 4, 5 and 6, AGL conducts its production operations in accordance with an approved POP.

The POP is reviewed annually, and subsequent versions are provided to the DRE for approval. The POP was revised within this reporting period. Version 9 of the POP applies to the period 10 December 2015 through to 09 December 2016, which was approved by the DRE in January 2016.

The POP summarises the general processes and stages of petroleum operation at the CGP. The sections of the POP are summarised below, and where applicable, referenced to relevant sections of this AEPR.

Table 5-1 – POP Commitments Referenced in this AEPR

POP Section	Aspect of Operations	Petroleum Activity	Relevant AEPR Section(s)
2.1	Production Operations	Construction	4.1.1.
		Production	4.1.3.
		Maintenance (Workover)	4.1.1.
		Produced Water Management	5.6
		Rehabilitation and Final Closure	6.1 – 6.6
2.2	Surface Infrastructure	Wells	4.1.1; 4.1.2; Appendix E
		Gas Gathering Lines	4.1.1
		Access Roads	6.1.4
		Gas Plant	4.1.1
3	Environmental Management and Rehabilitation	Rehabilitation	6.1 – 6.6



5.2. Actions Required by Regulatory Authorities from Previous AEPR Review

The DRE responded to the 2014-2015 AEPR on 29 March 2016. DRE advised that the AEPR was accepted on the terms that future AEPRs *Section 6 Rehabilitation* include detail on the well site rehabilitation monitoring and comparison to the agreed rehabilitation criteria.

No comments have been received from the DP&E in response to the 2014 - 2015 AEPR.

5.3. Air Pollution

5.3.1. Air Pollution Management

Air emissions associated with the CGP are primarily oxides of nitrogen (NO_x) and oxides of sulphur (SO_x) associated with compression of the coal seam gas, and to a lesser extent vehicle emissions. Other air emissions include potential dust emissions associated with construction activities and vehicle movements and fugitive emissions from production operations.

During the reporting period, 12 volt air compressors were installed at all production well sites. Compressed air replaces the use of methane to operate the instrumentation equipment. This is a positive outcome as the use of air compressors to supply instrument air eliminates the need for AGL to use methane from the wells, and contributes towards reducing fugitive emissions from wells.

Management of air emissions is summarised in the CGP Air Quality Management Sub Plan (AQMSP). The objective with regards to air quality is to prevent or minimise air pollution by:

- > Controlling the quality and minimising the quantity of air emissions associated with compression of the coal seam gas resource;
- > Minimising the quantity of vehicle exhaust emissions;
- > Preventing dust generation during construction, maintenance and operations and rehabilitation activities; and
- > Reporting uncontrolled air emissions and implementing corrective actions promptly.

Targets relating to air quality management are identified in the AQMSP as follows:

- > Zero exceedances of the in-stack and ambient licence limits to controlled air emissions.
- > Zero incidents or complaints received regarding uncontrolled air emissions.

Control measures used to meet the objectives for air quality are contained in the CGP AQMSP.

Predictive Emissions Monitoring System (PEMS) Stage 2 Trial

Between 14 September 2015 and 14 March 2016, AGL completed a Predictive Emissions Monitoring System (PEMS) Stage 2 Trial in compliance with EPL 12003, Condition U1. In April 2016, AGL provided its report on the PEMS Trial to the EPA.

The aim of the PEMS Trial was to assess the suitability of PEMS as an alternative monitoring system for Compressor Engine 2 (Monitoring Point 2) and Compressor Engine 3 (Monitoring Point 3) NO_x emissions.



For the duration of the Trial, Compressor Engine 2 and Compressor Engine 3 operated simultaneously, generally at or very near to full engine speed and full engine load. During the Trial, NO_x results remained significantly below the EPL concentration limit at all times. The results of the Trial have shown that the PEMS is functionally reliable and Compressor Engine 2 and 3 predicted NO_x emissions were relatively consistent with stack testing results.

AGL is now consulting with the EPA on the conclusions from the PEMS Stage 2 Trial and the most appropriate means to monitor the reduced NO_x emissions from Compressor Engines 2 and 3 into the future.

5.3.2. Air Quality Criteria and Monitoring Requirements

Ray Beddoe Treatment Plant – DA-15-1-2002i

The Ray Beddoe Treatment Plant (RBTP) was shut down in February 2007, decommissioned, rehabilitated and the EPL surrendered in June 2009; consequently there are no further requirements to undertake air emissions monitoring.

Rosalind Park Gas Plant – DA-282-6-2003-i

Development Consent DA-282-6-2003-i, Schedule 4 CoC 47, 48, and 58 specifies requirements to monitor air quality for the production area and air emission criteria. These requirements are as per the EPL No. 12003 (with the exception of CoC 47 which is not a requirement of the EPL).

DA 282-6-2003, Schedule 5, CoC 12 and EPL 12003 (L2) stipulate load limits for assessable pollutants that must not be exceeded during the reporting period from the RPGP.

Construction and Field Operations – Dust

A number of development consents stipulate requirements relating to dust management. These are detailed in the AQMSP.

5.3.3. Air Quality Monitoring Results

Rosalind Park Gas Plant – Quarterly Stack Emission Monitoring

Quarterly monitoring reports for the RPGP were prepared by Ektimo:

- > Quarterly Stack Emission Survey, 22-24 September 2015;
- > Quarterly Stack Emission Survey, 01 December 2015;
- > Quarterly Stack Emission Survey, 15 March 2016; and
- > Quarterly Stack Emission Survey, 03, 17, 20 June 2016.

Monitoring results for the 2014-15 Annual Return period are provided in Appendix I. All quarterly monitoring results were compliant with the licence concentration limit conditions of the current EPL 12003 for this period.

Rosalind Park Gas Plant – Air Emissions at Residences (Schedule 4, CoC 47)

Ektimo undertook emission testing at the RPGP in accordance with the air pollutant criteria stipulated in DA 282-6-2003-I, Schedule 4, CoC 47.

Nitrogen Dioxide, Sulphuric Acid Mist and Sulphur Dioxide concentrations were measured at the emission points and compared to the input data used in the modelling for the air impact assessment. The testing confirmed compliance with input data used in the modelling for the air impact assessment and therefore compliance at the nearest residence during this reporting period.



Rosalind Gas Plant – Assessable Pollutants and Air Concentration Limits

Under EPL 12003 for the RPGP, AGL is required to meet load limits for assessable pollutants plus calculate the annual pollutant loads and associated fees. Monitoring to enable the annual pollutant loads to be calculated was conducted quarterly by Ektimo and continuously by AGL with the results included in the 2014-2015 Annual Return (summarised in Appendix I and Appendix J). In addition to this, the EPL requires the monitoring of air concentration levels at discharge points for which the concentration of the pollutant must not exceed, which is monitored quarterly and continuously.

No exceedances of the pollutant load limits, or exceedances of air concentration limits, were reported within the 2014-2015 Annual Return.

Rosalind Park Gas Plant – Continuous Monitoring

The EPL 12003 Condition M2.3 and DA-282-6-2003-i Schedule 4 CoC 58 require continuous monitoring of NO_x, temperature, moisture, flow rate, and oxygen at Points 1, 2 and 3 at all times when the compressors are operating. No exceedances of the limits identified in EPL 12003, Condition L3.1, were identified in continuous monitoring monthly reports during the period.

National Pollutant Inventory Reporting

The National Pollutant Inventory (NPI) Report for the RPGP for the 2014-2015 financial year was prepared and submitted on 23 September 2015. The 2015-16 NPI Report was submitted on 23 September 2016. The NPI lists the fuel and energy usage plus emissions data for the RPGP for the financial year.

Construction and Field Operations – Dust Monitoring

During construction and field operations, various measures are implemented to avoid or ameliorate dust generation including reduced travelling speeds on unsealed roads and use of water carts to suppress dust. Visual assessment of dust conditions are undertaken by site personnel during construction and field operation.

No registered complaints regarding dust were recorded during the reporting period.

5.3.4. Air Pollution Environmental Performance / Trends

RPGP Quarterly Stack Emissions Monitoring

Quarterly stack emissions monitoring results were compliant with the licence concentration limits of EPL 12003 and Development Consent DA-282-6-2003-i, Schedule 4 CoC 48 for this reporting period. Air emission monitoring methodology complies with EPL 12003 Condition M2.2.

RPGP Assessable Pollutant and Air Concentration Limits

The following pollutants are assessable emissions from the RPGP for which limits of the pollutants annual load or its air concentration is stipulated by the EPL 12003. The annual assessable pollutant loads are calculated and reported within the EPL Annual Return.

The assessable pollutants and air concentration limits for this reporting period are:

- › **Benzene** - Benzene is an assessable pollutant, measured annually in order to calculate the annual pollutant loads and associated fees under EPL 12003. For the 2014-2015 Annual Return the calculated annual load for benzene was 0.545 kg/year, which is well below the limit of 47 kg/year as required by EPL 12003. This represented a decrease from the previous Annual Return reporting period where 4.927 kg/year was calculated and is less than the annual load estimation of 42.5 kg/yr as predicted in the RPGP Environmental Impact Statement (EIS).



- > **Benzo(a)pyrene (equivalent)** - Benzo(a)pyrene air emissions are an assessable pollutant and are measured annually in order to calculate the annual pollutant loads and associated fees under the EPL 12003. For the 2014-2015 Annual Return, the calculated annual load for Benzo(a)pyrene was 0.00000186 kg/yr, which is less than the annual load limit of 0.27 kg/yr as required by EPL 12003. There was a slight increase from the 0.0 kg/yr reported in the 2013-2014 Annual Return reporting period. This is also less than the annual load estimation of 0.24 kg/yr as predicted in the RPGP EIS.
- > **Fine Particulates** - Fine particulates are an assessable pollutant and are calculated annually to determine the associated fees under EPL 12003. For the 2014-2015 Annual Return, the calculated annual total load for fine particulates was 51.231 kg/year. This is less than the 460 kg/year load limit required by EPL 12003, and less than the annual load estimation of 415 kg as predicted in the RPGP EIS. It also represents a decrease from the previous year's level of 223.61 kg/year.
- > **Hydrogen Sulphide** - Hydrogen sulphide is an assessable pollutant and is calculated annually to determine the associated fees under EPL 12003. For the 2014-2015 Annual Return, the calculated annual load for hydrogen sulphide was 0.788 kg/yr. This is less than the 1.6 kg/yr load limit required by EPL 12003, and also less than the annual load estimation of 1.4 kg/yr as predicted in the RPGP EIS. The results reported in the 2014-2015 Annual Return represents a slight increase from the 0.0 kg/yr reported for the previous Annual Return period.
- > **Nitrogen Oxides** - NOx annual pollutant loads and air concentration limits are monitored on a quarterly and continuous basis. AGL has also completed additional monthly monitoring for NOx at compressors 1, 2 and 3 when operating. For the 2014-2015 Annual Return, the calculated annual load for NOx was 5,365.092 kg/yr, which is well below the licensed limit of 103,000 kg/yr. This represents a decrease compared with the 6,920.66 kg/yr reported in the 2013-2014 Annual Return. The NOx annual load reported in the 2014-2015 Annual Return was approximately less than one-tenth of the predicted assessable load of 93,226 kg/yr as stated in the RPGP EIS.
- > **Sulphur Oxides** - Sulphur oxides are measured quarterly in order to calculate the annual pollutant loads and the associated fees under EPL 12003. For the 2014-2015 Annual Return, the calculated annual total load for Sulphur Oxides was 3.772 kg/yr. This is significantly less than the 3,000 kg/yr load limit required by EPL 12003 and less than the annual load estimation of 2,689 kg/yr for sulphur oxide emissions as predicted in the RPGP EIS. This result is higher than the results reported in the 2013-2014 Annual Return of 0.0 kg/yr.
- > **Volatile Organic Compounds (VOCs)** - VOCs discharged to air are measured annually in order to calculate the annual pollutant loads and associated fees under EPL 12003. For the 2014-2015 Annual Return, the calculated annual load for VOCs was 759.593 kg/yr, which is well below the limit of 33,000 kg/year as required by EPL 12003. This result is also less than the annual load limit of 29,696 kg/yr as predicted by the RPGP EIS. The 2014-2015 load result represented an increase from the 2013-2014 Annual Return result of 12.184 kg/yr.

There were no exceedances of the EPL 12003 licence limits for the assessable annual pollutant loads for the RPGP as reported within the 2014-2015 Annual Return. Assessable pollutants were also reported at below the annual load estimations as predicted in the RPGP EIS.

RPGP Continuous Air Monitoring

Non-compliance with EPL 12003 conditions O2 and M2.1 in relation to M2.3, and DA-282-6-2003-I Sch. 4, CoC 58 occurred during this reporting period as continuous monitoring for air emissions at the RPGP was not carried out for the full reporting period. Details of this non-compliance are provided within Section 9.1.1 of this report.

Due to this non-compliance, AGL did not fully meet its AQMSP target for this reporting period.



5.4. Erosion and Sediment

5.4.1. Erosion and Sediment Management

Soil types within all project areas are assessed on a regional and local scale. The aim of the assessment is to determine the impact of the existing and proposed operations on the soil groups identified within the area and assess what, if any, impacts may arise.

It has been determined that the soils and land capability within the area of current or proposed operations do not pose a significant constraint to development.

Activities that necessitate the removal of vegetation and disturbance to the soil surface have the potential to cause an increase in the effects of wind and water erosion. In order to manage the potential impacts of operations on soil and surface water, all activities that pose a potential threat to soil and or surface water are conducted in accordance with AGL's Soil and Water Management Sub Plan (SWMSP).

Management of erosion and sedimentation issues is summarised in the SWMSP. The objectives of the SWMSP are to:

- > Minimise soil disturbance, prevent contamination and associated impacts on riparian corridors and native vegetation and promote and maintain soil stability throughout the life of the project; and
- > Minimise negative impacts from construction and operational activities on surface water resources.

Targets relating to soil and erosion identified in the SWMSP are as follows:

- > Zero complaints received from landowners or government agencies concerning land disturbance, contamination or soil stability;
- > Zero incidents concerning water levels or water quality during operations.

Control measures employed to meet the objectives for erosion and sediment are outlined in the SWMSP (updated during this reporting period) of the CGP EMP.

5.4.2. Erosion and Sediment Related Activities

During the reporting period, civil works were completed on the southern side of the EMAI gas gathering line pipe bridge to maintain the bridge integrity. A cantilevered steelwork support system including new foundation was designed and fitted to the existing pipe bridge, minimising the need for any work within Foot Onslow Creek southern embankment. Works were performed in compliance with the SWMSP. After installation the disturbed area was promptly reshaped, harrowed and seeded to promote vegetation growth and minimise loss of soil.

During this reporting period AGL's SWMSP was updated. The Sub Plan details specific sediment and erosion control measures across construction, operation and rehabilitation project phases.

5.4.3. Erosion and Sediment – Environmental Performance

Activities associated with erosion and sediment controls were compliant with regulatory requirements and the SWMSP targets and objectives for the reporting period with no community complaints or reportable incidents recorded.



5.5. Surface Water

5.5.1. Surface Water Management

Control of water erosion is a key environmental issue requiring careful consideration and management, to avoid the reduction of surface water quality through erosion processes and subsequent siltation, and potential contamination. Control measures employed to meet the objectives for surface water are outlined in the SWMSP of the CGP EMP.

The target identified in the SWSMP relating to surface water management is as follows:

- > Zero water contamination incidents from construction and operational activities.

The SWMSP was updated during this reporting period.

5.5.2. Surface Water Generation Results

The CGP harvests rain water from the run off of all buildings within the RPGP. This water is stored in above ground rain water tanks and is used to service the RPGP's amenities and wash bay. Once used, the water is separately stored in in-ground tanks for grey water and septic water. A combined total of 397.5 KL of grey water and septic water was transported off site by licensed contractors for disposal at a licensed facility.

5.5.3. Surface Water Monitoring Requirements and Results

The monitoring requirements for water quality stored within the RPGP flare pit are detailed in DA-282-6-2003-I and EPL 12003. It is noted that there are no concentration limits for the specified parameters below as the water is not discharged to the environment.

The RPGP flare pond stores treated water from the RPGP, filtered produced water and direct rainfall. Analysis results for water stored within the RPGP flare pond are as follows:

- > The water level in the flare pond ranged between 2m – approximately 2.2m;
- > Electrical conductivity levels ranged from 4,890 $\mu\text{S}/\text{cm}$ to 10,000 $\mu\text{S}/\text{cm}$;
- > Total suspended solids ranged from <5mg/L to 716 mg/L;
- > Biochemical oxygen demand levels ranged from 8mg/L to 34 mg/L;
- > Oil and grease results ranged from <5 mg/L to 21 mg/L;
- > Total polycyclic aromatic hydrocarbons results were below the Limit of Reporting;
- > Total phenols results ranged from <0.05 mg/L to 0.36 mg/L ;
- > Total organic carbon levels ranged from 3mg/L to 1110 mg/L; and
- > Total petroleum hydrocarbons ranged from 0 $\mu\text{g}/\text{L}$ to 80 $\mu\text{g}/\text{L}$.

While the SWMSP outlined water monitoring requirements, AGL does not trigger the need to monitor surface water.

5.5.4. Surface Water Related Activities

During the reporting period, activities included:

- > EMAI gas gathering line pipe bridge works;
- > Workover of four wells;



- > Plug and Abandonment of ten wells (EM02, EM03, EM04, AP01, JD07a, JD05, GL10, MH01, LB07, and LB05)
- > Commencement of plug and abandonment of four wells (RP11, RP04, RP05 and RP03);
- > The continued operation of the RPGP; and
- > Continued operation of the RPGP water treatment plant.

Rain water that is not collected at the RPGP is diverted to the site's permanent sediment control pond.

5.5.5. Surface Water – Environmental Performance

There were no reportable incidents recorded or community complaints received in relation to surface water for the reporting period. Hence, AGL met its target as outlined in the SWMSP for the reporting period.

5.6. Groundwater

5.6.1. Groundwater Management

Control measures employed to meet the objectives for groundwater are outlined in the SWMSP and Groundwater Management Plan (GMP) of the CGP EMP. The objectives of the GMP are to:

- > Describe the water level and water quality monitoring network across the different groundwater systems located beneath the CGP area;
- > Identify water level and water quality trends that may suggest connectivity or contamination of aquifers due to CSG activities;
- > Provide a monitoring (and an action response) framework for water users and regulators on the groundwater monitoring program at Camden;
- > Provide water triggers for an action plan should there be unexpected water level or water quality impacts; and
- > Outline the reporting and review requirements for the monitoring program.

The roles and responsibilities for groundwater management are stated in the Groundwater Management Plan.

5.6.2. Groundwater Generation Results

During the reporting period, water was produced from CSG wells during dewatering and well workovers in Menangle Park and Spring Farm fields. The following volumes were generated and recycled or disposed during the 2015/2016 reporting period:

- > 2,573 KL of produced groundwater was generated from wells during dewatering during this reporting period. This volume is well below the licensed 30 ML (i.e. 30,000 KL) of groundwater allocated to the CGP;
- > 24.6 KL of produced water from AGL wells was reused for production operations;
- > A total of 4,394.766 KL of water from the RPGP flare pit was recycled by AGL's licensed liquid waste contractor.



5.6.3. Groundwater Related Activities

During the reporting period, AGL has actively undertaken a number of measures in relation to groundwater management:

- > Construction of concrete bunded truck loading and unloading bay for produced water at the RPPG as stated in Section 4.1.6;
- > Commenced extensive improvements to produced water storage at the RPPG as stated in Section 4.1.6;
- > Gained EPA approval to vary EPL 12003 Condition P1.3 to incorporate 8 well surface locations that more reliably produce water for sampling and analysis, and reducing the frequency of sampling from quarterly to twice per year;
- > A 2014-2015 Annual Groundwater and Surface Water Monitoring Report was published in September 2015;
- > AGL continued its revision of the CGP Groundwater Management Plan in consultation with DPI Water;
- > Water quality monitoring events were completed at selected producing gas wells as part of the groundwater monitoring network and as required by the EPL;
- > Two water quality sampling events and continuous water level monitoring were completed at dedicated groundwater monitoring bores.

AGL's Annual Bore Licence Compliance Report (2015-2016) was submitted after the reporting period on 22 September 2016 in accordance with requirements within the NOW bore licence conditions for the CGP CSG wells.

5.6.4. Groundwater Monitoring Requirements

The groundwater quality monitoring requirements for six monthly and annual sampling of water quality are required by *EPL 12003 Condition M2.7 and M2.8*, and the Water Bore Licences.

5.6.5. Groundwater Monitoring Results

Groundwater quality monitoring is required under Condition M2.7 of EPL 12003. The EPL requires groundwater monitoring to be undertaken at monitoring points 8-15; monitoring for some parameters is required on a six monthly basis, while others are required to be monitored annually. Results are released six monthly and are available on the CGP website. In addition, the results of the monitoring are submitted annually as a Groundwater Monitoring Report (GMR) with the Annual Return.

Of the eight monitoring points identified by the Condition P1.3 of the EPL, only three gas wells (RB10, SF08, MP12) contained sufficient water for sampling to take place during the latest GMR period (i.e. 22 December 2014 – 21 December 2015). This is due to many of the operating wells within the CGP producing very low volumes of water. Where produced water from operating wells was sufficient for sampling and testing, salinity (measured by electrical conductivity) ranged between 1,080 and 14,300 $\mu\text{S}/\text{cm}$ during the 2014-2015 period.

Full details of results of groundwater monitoring required under EPL 12003 are provided in the Produced Water Quality Monitoring Reports which are available on the CGP website.

In addition to groundwater monitoring required under EPL 12003, AGL collects data from seven groundwater monitoring bores located within close proximity to operational gas wells



(within approximately 40 meters). This data is compared to data collected from a remote site with four groundwater monitoring bores (RMB site), providing additional information for assessing impacts of wellfield operation on the shallow beneficial aquifers. Results are measured on a six monthly basis and reported in the CGP Annual Bore Licence Compliance Report, which is provided to DPI Water.

The salinity (electrical conductivity) results at the shallow groundwater monitoring bores (where data was available) did not alter significantly during the 2015/16 year. Details of salinity trends from groundwater monitoring bore results are provided at Appendix M of this report.

5.6.6. Groundwater – Environmental Performance / Trends

The total volume of produced water generated has marginally increased from 2,158.91 KL last reporting period to 2,573 KL this period, representing an increase of 19.1%. This increase is a change in trend from last year which experienced a 37.6% decrease from the previous year. The marginal increase reflects AGL's focus on maximising dewatering of production wells in an effort to increase gas production. Approximately 90% of operating wells each produced less than 50 KL of produced water.

There was no produced water reused for well workovers during the reporting period due to the reduced number of workovers and nature of workover activities performed. The total volume of produced water that was reused in workover operations last reporting year was 56.45 KL.

Total recycled produced water from well sites and the RPGP has increased from 3,346.07 KL last reporting period to 4,419.36 KL this period. This increase is due to increased produced water from the well sites and a focus on reducing the volume of produced water stored in the RPGP flare pit.

During this reporting period AGL was compliant with its bore licence conditions and EPL 12003 reporting requirements.

Data collected from the seven groundwater monitoring bores located within close proximity to operational gas wells (within approximately 40 meters) and compared to data collected from a remote site with four groundwater monitoring bores (RMB site) provides additional information for assessing impacts of wellfield operation on the shallow beneficial aquifers. The salinity (electrical conductivity) at shallow groundwater monitoring bores (where data was available) did not alter significantly during the reporting period. In addition, the water levels collected from the individual dedicated groundwater monitoring bore sites do not show any evidence of long term effects other than seasonal/climatic variations.

All groundwater analysis results collected as part of the monitoring requirements for AGL's EPL 12003 (eight gas wells requiring 6 monthly water quality monitoring) and all results collected from the 11 dedicated shallow groundwater monitoring bores (RMB01-04, MPMB01-04, GLMB01-03) are available on the CGP website.

Groundwater monitoring was undertaken in accordance with GMP requirements. There were no reportable incidents recorded or community complaints received in relation to groundwater for the reporting period, consequently AGL's objectives as outlined in the GMP have been met for the reporting period.



5.7. Waste Management

5.7.1. Waste Management

The Waste Management Sub Plan (WMSP) was revised within the reporting period. The objective of the WMSP is to minimise waste generation and disposal by:

- > Purchasing environmentally friendly materials;
- > Implementation of reuse and recycling initiatives; and
- > Ensuring that environmental impacts relating to waste management are reported and acted upon immediately.

The CGP WMSP identifies the following targets against which performance can be measured:

- > Waste disposal and recycling records are accurately maintained for the Environmental Footprint Report and reviewed annually for improvement opportunities; and
- > Zero non-conformances concerning waste management practices.

Control measures used to meet the objectives for waste management are outlined in the CGP WMSP (updated during this reporting period) of the CGP EMP.

5.7.2. Waste Generated and Disposed/Recycled

Table 5-2 summarises the amount of waste generated, disposed and recycled during the reporting period.

Table 5-2: Waste Generated and Disposed / Recycled

Waste Stream	Amount Disposed	Amount Recycled
Sewage and grey water from the RGP site and workover rig facilities	286.6 tonnes	
General Waste	44.96 tonnes	
Produced water		4,419.41 KL
Hazardous Waste (exclusive of septic)	20.86 tonnes	
Waste Oil		30.88 tonnes
Coal Sludge/Workover Mud		268.95 tonnes
Scrap steel		205.51 tonnes
Batteries		1.6 tonnes
Oil filters		0.6 tonnes
Paper		19.15 tonnes
Co-mingled recycling		0.18 tones



5.7.3. Waste Management – Environmental Performance

AGL has maintained its process of waste disposal and recycling records over the reporting period and has met the WMSP targets for this reporting period.

5.8. Hazardous Materials

5.8.1. Hazardous Material Management

AGL has developed a Dangerous Goods and Hazardous Materials Sub Plan (DGHMSP) to specifically address and manage Dangerous Goods and Hazardous Materials at the CGP. The DGHMSP was updated during this reporting period.

The main objective of the DGHMSP is to outline strategies to manage the purchasing, storage, transport, handling and disposal of Dangerous Goods and Hazardous Materials (including waste Dangerous Goods and Hazardous Materials) during operation and maintenance activities so as to minimise the risk of impact to the environment (soil, surface water, groundwater, atmosphere).

The DGHMSP identifies the following target against which performance can be measured:

- › Zero incidents resulting in Dangerous Goods or Hazardous Materials entering the environment or causing harm or injury to personnel.

5.8.2. Hazardous Materials Related Activities

AGL maintains an on-site chemicals register of all chemicals in use. The register includes Safety Data Sheets (SDS) for chemicals and appropriate emergency response and first aid provisions.

A Dangerous Goods Notification issued by Safework NSW is not required due to the small quantities of Dangerous Goods stored at the RPGP.

5.8.3. Hazardous Materials – Environmental Performance

Activities associated with hazardous materials management were compliant for the period with no reportable incidents recorded or community complaints received. Hence, AGL has met the DGHMSP target for the reporting period.

5.9. Contaminated Land

5.9.1. Contaminated Land Management

No land identified as contaminated or polluted forms part of AGL CGP land holdings.

Management objectives and strategies relating to contamination or pollution are covered in the SWMSP and the DGHMSP. The objectives are to:

- › Prevent contamination and associated impacts on riparian corridors and native vegetation throughout the life of the project;



- > Minimise negative impacts from construction and operational activities on surface water resources; and
- > Manage Dangerous Goods and Hazardous Materials during operation and maintenance activities so as to minimise the risk of impact to the environment.

5.9.2. Contaminated Land Management Requirements

The prevention of contamination or pollution management includes a duty to report and manage pollution incidents in accordance with the POEO Act. The provisions of the POEO Act include a requirement for holders of EPLs to prepare, keep, test and implement a Pollution Incident Response Management Plan (PIRMP). The specific requirements for PIRMPs are set out in Part 5.7A of the POEO Act and the *Pollution of the Environment Operations (General) Regulation 2009*.

AGL completed their requirement to develop and implement a PIRMP in 2012. AGL reviewed, updated and tested its CGP PIRMP during the reporting period, in accordance with *Pollution of the Environment Operations (General) Regulation 2009*.

5.9.3. Contaminated Land – Environmental Performance

As noted at sections 5.5.5 and 5.8.3, activities were compliant for the period with no reportable incidents or community complaints associated with land contamination or pollution. Hence, AGL met the relevant Sub Plan targets for this period.

5.10. Threatened Flora and Fauna

5.10.1. Threatened Flora and Fauna Management

An assessment of flora and fauna is undertaken as part of each environmental assessment application relating to a new project development. The aim of the assessment is to determine the potential impact of AGL's operations on the local ecology and to develop suitable management practices to be applied during the project's current and future full scale operational activities. The site assessments are based on a detailed site survey of individual well sites, access routes, pipeline routes and project areas.

In general terms, AGL's selection criteria for new sites, aims to target previously disturbed areas and actively avoids areas of native vegetation or of environmental significance.

The disturbance created by the activities involved with the project is primarily limited to construction activities including ground disturbance from vehicles and drilling related equipment, pipeline trenching activities and limited land clearing for well sites.

Through careful planning the project components avoid significant flora and fauna habitats. There have been no identified significant issues that have been unable to be effectively avoided or managed during the project to date.

The EMAI is an area where preservation of significant stands of Cumberland Plains Woodland provides a breeding area suitable for numerous raptor species. During the reporting period no construction related activities were undertaken in the EMAI field.

Management objectives relating to native flora and fauna are covered in the Flora and Fauna Management Sub Plan (FFMSP). The objectives are:

Flora



- > Minimise the loss of remnant native vegetation and promptly carry out rehabilitation activities.
- > To promote, monitor and maintain regrowth of rehabilitated vegetation cover to ensure that it is consistent with the surrounding environment and to the satisfaction of the landowner.

Fauna

- > Ensure habitat disturbance is avoided during construction and operational activities and to protect fauna from physical harm.

The FFMSPP identifies the following targets against which performance can be measured:

- > Zero unauthorised disturbance to native flora;
- > Zero complaints from landowners relating to native vegetation disturbance; and
- > No injured fauna.

Control measures employed to meet the objectives for flora and fauna are outlined in the CGP FFMSPP.

5.10.2. Threatened Flora and Fauna – Environmental Performance

Activities associated with threatened or native flora and fauna were compliant for the period with no unauthorised disturbance to native flora, injured fauna, incidents or complaints recorded. Hence, AGL met its target for management of Flora and Fauna during the reporting period.

5.11. Noxious Weeds

5.11.1. Noxious Weeds Management

Management of noxious weeds is covered under the Rehabilitation and Landscape Management Sub Plan (RLMSP) of the CGP. The objective of the RLMSP is to “prevent the introduction and dispersal of noxious weeds, pathogens and pest species”. Noxious weeds may be introduced and/or dispersed via personnel vehicles, equipment and plant.

Specific targets identified in the RLMSP as regards weed management are:

- > Close out of identified weed issues within two weeks;
- > Zero complaints from landowners relating to vegetation cover or weed growth.

Control measures employed to meet the objectives and targets for weed control are included within the RLMSP.

5.11.2. Noxious Weed Related Activities

Details of weed spraying including dates, areas sprayed, chemicals used, weather conditions and personnel details are maintained at the RGP site. The following provides a summary of the date and locations of weed spraying undertaken during the reporting period:

- > 30 July 2015: RGP, EM23, LB yard;



- > 21 August 2015: RPGP, Yard, RP10, RP12;
- > 4 September 2015: RB10, RB08, LB11, KP06;
- > 15 September 2015: EM09, EM13, EM14, EM22, EM18, EM24, EM27, MP17;
- > 16 September 2015: EM28, EM34, EM31, MP14, MP15;
- > 22 September 2015: GL and ARTC well sites;
- > 23 September 2015: RB 06, RB09, RB12;
- > 18 December 2015: RPGP and Yard;
- > 20 January 2016: KP05, LB cottage, GL02, GL12, GL04, GL05, GL17, GL06, GL07, GL16, SF17, RP10, RP12;
- > 12 February 2016: RPGP, Yard;
- > 18 February 2016: LB yard;
- > 8 April 2016: RPGP

The main herbicides used were Di-Camba, Round Up (glyphosate), and Kamba M (selective herbicide). Approximately 26.5L of herbicides were used during the reporting period.

5.11.3. Noxious Weeds – Environmental Performance

Activities associated with weed control were compliant with the targets identified in the RLMSP during this period, with no reportable incidents or landholder/community complaints recorded.

5.12. Blasting

No blasting is undertaken as part of the project.

5.13. Operational Noise

5.13.1. Operational Noise Management

All project aspects are designed with the aim of safeguarding the amenity of surrounding residents through the proper management of noise generating activities. The assessment of noise and the design of safeguards have been carried out in conjunction with field noise studies that have been undertaken since the inception of the project.

A program of monitoring has been established at the RPGP. The purpose of the monitoring is to meet licence conditions; demonstrate compliance with licence limits; and to link potential complaints to operational procedures in order to discern those aspects of the project which may be responsible for causing a specific noise problem.

Any noise complaints are compiled and presented for discussion at the regular CCC meetings.

Objectives and targets regarding noise relating to operational activities carried out at the CGP are identified in the Noise Management Sub Plan (NMSP) of the CGP EMP, and are as follows:

Objectives:

- > Comply with the operations noise criteria
- > Ensure that there are no unresolved noise-related complaints from the public



- > Implement best available practice noise management measures for Production Operation works.

Targets:

- > Zero exceedances of noise criteria
- > Zero complaints received from sensitive receivers.

Control measures employed to meet the objectives for noise are outlined in the NMSP.

5.13.2. Operational Noise Limits and Monitoring Requirements

The noise limits and monitoring requirements for the project are listed in the following Development Consents and Project Approvals.

Project Approval No. 06_0291

Noise monitoring of selected operating gas wells was carried out by acoustic consultants Wilkinson Murray during this reporting period. Noise monitoring was undertaken in order to assess compliance with the relevant noise criteria set out in Project Approval 06_0291.

Noise generation from the operating gas wells was measured, assessed and estimated to predict the expected noise levels at the closest sensitive receivers for each well site.

Noise monitoring of operating wells was undertaken in day, evening and night times on 02 March 2016 at the following well locations:

- > Spring Farm (SF20); and
- > Spring Farm (SF17).

The well locations were monitored under suitable weather conditions.

Results of monitoring are discussed at section 5.13.3.

DA 282-6-2003-i Schedule 4 Clause 40 – Annual Noise Monitoring

Noise compliance reports are submitted annually to the EPA as part of the EPL Annual Return. The DP&E receive a summary of this information as part of this AEPR. A summary of the annual report's results is provided in Appendix K.

DA 282-6-2003-i Schedule 4 Clause 41 – Quarterly Noise Monitoring

Quarterly noise monitoring in accordance with DA 282-6-2003-i Schedule 4 Clause 41 was undertaken by Wilkinson Murray at sites R1 and R7, which represent the residential premises most impacted by noise emanating from the RPGP.

Quarterly noise monitoring for this reporting period included:

- > Attended noise monitoring 08 September and 08 October 2015;
- > Attended noise monitoring 08, 16-17 December 2015;
- > Attended noise monitoring 07 and 23 March 2016; and
- > Attended noise monitoring 15 June 2016.

Four quarterly operational noise monitoring reports were prepared for the reporting period of July 2015 to June 2016 for the RPGP.

All reports stated the RPGP to be compliant with noise limits identified in DA-282-6-2003-I, except for indeterminate Evening monitoring results at R7 on 08 September 2015 and Night monitoring results at R7 on 15 June 2016.

On 08 September 2015, the noise result at R7 was only 1dB above noise limits. Wilkinson Murray advised AGL that compliance with licence conditions is indeterminate since the result



did not exceed the noise limit by more than 2dB in accordance with the *NSW Industrial Noise Policy*. Further monitoring on 08 October 2015 confirmed compliance with Evening noise limits at R7.

On 15 June 2016, the noise result at R7 was only 1dB above noise limits. Wilkinson Murray advised AGL that compliance with licence conditions is indeterminate since the result did not exceed the noise limit by more than 2dB in accordance with the *NSW Industrial Noise Policy*. Further, monitoring was conducted during 'non significant weather conditions' (high strength temperature inversion/ G-class Pasquill-Gillford stability category). During such weather conditions, EPL noise limits do not apply according to the *NSW Industrial Noise Policy*. Further Evening monitoring was unable to be completed at R7 before the end of the reporting period. Monitoring after the reporting period confirmed compliance with the noise limit.

A summary of the findings of each report is included within Appendix K.

5.13.3. Operational Noise - Environmental Performance / Trends

Operational Noise performance at the Rosalind Park Gas Plant

No noise complaints relating to operational noise from the RGP were received during the reporting period. This trend is consistent with previous years. Noise performance is consistent with operational noise predictions in the RGP EIS.

Operational Noise Performance – Field Monitoring

No noise complaints were received during the reporting period regarding operational noise.

Noise monitoring was undertaken in order to assess compliance with the relevant noise criteria set out in Project Approval No. 06_0291.

Noise monitoring of operating wells was undertaken in day, evening and night times on 02 March 2016 at the following well locations:

- >
- > Spring Farm (SF20); and
- > Spring Farm (SF17).

Monitoring results indicated compliance with operational noise criteria for the day, evening and night periods.

Operational activities are considered compliant with operational noise targets and objectives.

5.14. Construction Noise

5.14.1. Construction Noise Management

No construction activities were undertaken during this reporting period.

Noise generating activities associated with the construction of wells, gas gathering system and access roads may include:

- > Drilling of wells;
- > Installation of well heads and casing;
- > Hydraulic fracturing of the coal seam;



- > Earth moving activities associated with construction of infrastructures i.e. drilling pads, gathering lines, access roads and rehabilitation; and
- > Truck movements.

The NMSP objectives and targets regarding construction noise are listed below.

Objectives:

- > Comply with the construction noise criteria;
- > Minimise noise during the construction phase;
- > Limit work activities (other than drilling where approved for 24 hours/ 7 days) to daylight hours between 7:00am and 6:00pm weekdays and between 8:00am and 1:00pm on Saturday. No work on Sundays or public holidays except in emergencies; and
- > Implement best available practice noise management measures for construction works.

Targets:

- > Zero exceedances of noise criteria;
- > Zero non-conformances with construction hours; and
- > Zero complaints received from sensitive receivers.

Control measures employed to meet the objectives for noise are outlined in the NMSP of the CGP EMP.

5.14.2. Construction Noise Limits and Monitoring Requirements

The noise limits and monitoring requirements are detailed in the Development Consents, Project Approvals and Modifications for the project.

5.14.3. Construction Noise Monitoring Results

As there was no construction works during the reporting period, no construction noise monitoring was completed.

5.14.4. Construction Noise Performance and Trends

As there was no construction works during the reporting period, construction noise targets and objectives were met for the reporting period.

5.15. Visual Amenity

5.15.1. Visual Amenity Management

The visual impact of the well sites can be considered to be relatively low, primarily due to the small area of land surface occupied. The visual impacts of well sites are minimized further through their design, spacing and integration with the prevailing topography.

Flaring at the RPGP can result in a glow in the event that it occurs at night. The overall approach by AGL has however progressed to the point where flaring at the RPGP was minimal during the reporting period.

Management of Visual Amenity issues is covered in the CGP RLMSP. The objective of the RLMSP as regards visual amenity is to minimise the impacts to the visual characteristics of



the Project area. The target set in the Plan is to achieve zero complaints from local residents relating to visual impacts.

5.15.2. Visual Amenity Monitoring Requirements

The monitoring requirements for visual amenity are detailed in DA 282-6-2003-i.

The biennial independent "Landscape and Lighting Audit Report" (Landscape and Lighting Audit) was conducted during the previous reporting period (September 2014). Based on the performance of the landscape plantings and the findings of the September 2014 audit, the DP&E has granted AGL an exemption from commissioning an independent Landscape and Lighting Audit in September 2016. The next audit will be completed in September 2018.

5.15.3. Visual Amenity Monitoring Results

Flare Events (Schedule 4, Clause 11)

In accordance with DA 282-6-2003-i Schedule 4 Clause 11, AGL recorded the frequency and operation of the flare. The Flare event log is provided in Appendix L.

Four flare events occurred during the reporting period. These events occurred on 29 December 2015, 23 April 2016, 24 April 2016 and 30 June 2016 and had a total duration of 263 minutes.

The duration of flaring events increased since the previous AEPR period, where a full field flare event lasted four minutes. This increase was partially due to activities associated with the Compressor 1 restart.

Independent Audit of Vegetation and Landscape Management Plan (Schedule 4, Clause 13 and 14)

In accordance with DA 282-6-2003-i Schedule 4 Clause 13, a Vegetation and Landscape Management Plan (VLMP) was prepared, submitted and approved by the DP&E on 2 July 2004. The RPGP is maintained and monitored in accordance with the VLMP to ensure the condition of the landscaping and the effectiveness of visual mitigation measures remain adequate.

In accordance with DA 282-6-2003-i Schedule 4 Condition 14 the VLMP was independently monitored every six months for the first two years and thereafter every two years by an approved independent and suitably qualified arborist.

The DP&E has granted AGL an exemption from commissioning an independent Landscape and Lighting Audit in September 2016. The next audit will be completed in September 2018.

Independent Audit of Visual Impacts of the RPGP (Schedule 4, Clause 18)

The DP&E has granted AGL an exemption from commissioning an independent Landscape and Lighting Audit in September 2016. The next audit will be completed in September 2018.

No complaints were received relating to lighting controls during the reporting period.

Landscape Planting Plan for the relocated access road (DA Mod 2 May 2007, Schedule 4, Clause 19A and 19B)

A Landscape Planting Plan was prepared for the Rosalind Park access road and approved by the Director-General (DG) of the then Department of Planning on 21 May 2007.

Clause 19B requires that the requirements of the Landscape Planting Plan is independently audited initially within six months of completion of the landscaping and biennially thereafter. The independent audit was combined with the independent audit of the VLMP required under



Clause 18 and was undertaken in September 2014. The DP&E has granted AGL an exemption from commissioning an independent Landscape and Lighting Audit in September 2016. The next audit will be completed in September 2018.

A Tree Planting Progress Inspection and accompanying Report was completed by Ultimate Horticultural Solution on 26 December 2015. The report concluded that all species were maturing well and had made progress since the last inspection. Notwithstanding this, the report identified that some acacia shrubs are continuing to fail as would be considered predictable for this species.

The Progress Report recommended that the current maintenance activities (grass mowing, weed spraying etc.) be continue throughout the site. This work is being completed by AGL as required. Based on the the success of this project and continued regular maintenance activities being undertaken, the Progress Report stated that the need for a continued annual site inspections is considered unnecessary.

5.15.4. Visual Amenity Performance / Trends

Landscaping and Lighting

No complaints or reportable incidents were received during this reporting period in relation to landscaping or visual impacts at the RPGP for this reporting period.

During the next reporting period, AGL plans to continue the current maintenance program for on-going landscape maintenance measures to ensure continued health of the tree plantings. These include:

- > Continue to observe for insect attack and respond if an infestation is evident;
- > Continue on-going weed and grass control around trees and mulch where necessary to suppress grass growth; and
- > Continued update of the Maintenance Log Book.

Flare Events

Flaring events within this reporting period totalled 263 minutes in duration, which represents a significant increase since the previous AEPR period, where a full field flare event lasted four minutes. This increase is partially due to activities associated with the Compressor 1 restart. Please refer to Appendix L for more information.

Summary

No complaints or incidents relating to visual amenity were recorded during the audit period. Hence, AGL has successfully met its target for visual amenity at the CGP.

5.16. Aboriginal Heritage

5.16.1. Aboriginal Heritage Management

Aboriginal cultural heritage and archaeological assessments are conducted over each new drilling program as part of the Environmental Impact Assessment process.

The conclusion from the various assessments is that the CGP area is generally considered to be of low archaeological potential. Despite this, evidence of Aboriginal occupation of the area has been identified during the surveys.



In regard to cultural heritage, the management objective is to protect and preserve cultural heritage. Control measures employed to meet the objectives for Aboriginal heritage are outlined in the Aboriginal Cultural Heritage Management Sub Plan of the CGP EMP.

The Aboriginal Cultural Heritage Management Sub Plan was updated in December 2013 by Biosis Research. This plan provides the process for on-going management of recorded aboriginal archaeological sites and identified areas of Potential Archaeological Deposit (PAD) to guide the design, location and implementation of future works within the CGP.

5.16.2. Aboriginal Heritage Related Activities

During the reporting period there were no new matters identified in relation to Aboriginal cultural heritage significance.

5.16.3. Aboriginal Heritage Management Performance

There were no activities associated with aboriginal heritage matters identified and no reportable incidents or community complaints recorded. Hence, AGL has successfully met its target regarding aboriginal heritage at the CGP.

5.17. European Heritage

5.17.1. European Heritage Management

In terms of European heritage, the area falls within the lands originally granted to early British pastoralist John Macarthur. Accordingly, the project is located within an area associated with early European occupation and land use, particularly in regard to early agricultural expansion.

The project area is located, at least partially, within three Historic Cultural Landscapes. These areas have been classified on the basis of their landscape patterns and historical associations according to relevant and standard evaluation criteria. For the most part, project components were selected to avoid known or potential sites of non-Aboriginal or natural heritage significance.

In regard to cultural heritage, the management objective is to protect and preserve European cultural heritage.

Control measures employed to meet the objectives for cultural heritage are outlined in the European Heritage Management Sub Plan of the CGP EMP. The European Heritage Management Sub Plan was updated during this reporting period.

5.17.2. European Heritage Related Activities

No activities impacting on European heritage were carried out by AGL during the reporting period.



5.17.3. European Heritage Management Performance

No activities impacting on cultural heritage were undertaken for this period with no reportable incidents or community complaints recorded in regards to European Heritage. Hence, AGL has successfully met its target regarding European Heritage at the CGP.

5.18. Spontaneous Combustion

Spontaneous combustion is an environmental aspect associated with coal mining and as such is not applicable to this Project.

5.19. Bushfire

5.19.1. Bushfire Management

Operational activities have the potential to ignite bushfires through the operation of flammable fuel powered equipment, flares and / or vehicles. Flaring at the RPGP is strictly controlled to minimise any potential to start or spread a bushfire situation. This is achieved by positioning the flare in a non-hazardous location directly above a flare pond containing water and surrounding the pond adjacent to the flare with non-combustible screens.

In regard to bushfire risk, the management objectives are:

- > Manage potential bush fire fuel surrounding our facilities such as grass
- > Manage the preparedness and emergency response of AGL employees for bush fires
- > Comply with government approval license requirements that form part of AGL Camden Gas Project.

Control measures employed to meet the objectives for bushfire control are outlined in the Emergency Response Plan which has been updated during this reporting period.

5.19.2. Bushfire – Environmental Performance

During the reporting period, there were no reported bushfires on land managed by AGL.

5.20. Mine Subsidence

Mine subsidence is an environmental aspect associated with coal mining and as such is not applicable to this project.

5.21. Methane Drainage / Ventilation

Methane drainage/ventilation is the process associated with underground coal mining and as such is not applicable to the Camden Gas Project.



5.22. Public Safety

5.22.1. Public Safety Management

Public safety is assured through compliance with:

- > Operational Protocols;
- > AGL Health and Safety Policy;
- > Implementation of management sub plans within the EMP; and
- > Site and Infrastructure Security.

5.22.2. Public Safety - Performance

During this reporting period there were no public safety related reportable incidents recorded.

5.23. Safety and Risk Management

5.23.1. Safety and Risk Management Monitoring Requirement

The monitoring requirements for incident reporting as a result of a Development Consent condition are outlined in the EMP.

5.23.2. Incident Reporting

During the reporting period a total of 21 Environmental Hazards, Near Misses, and Incidents were reported within this reporting period, with 14 of these recorded as 'low' risk rating; 7 of these recorded as 'moderate' risk rating; and none recorded as a 'high' risk rating level.

The Environmental Hazards, Near Misses and Incidents recorded can be grouped and summarised as follows:

- > Minor spills, storage and handling of liquids;
- > Minor gas leaks;
- > Storage of dangerous goods and hazardous materials; and
- > Noise emissions.

The breakdown of environmental hazards, near misses and incidents is provided below:

- > Hazards: 15;
- > Near Misses: 4;
- > Incidents: 2.

5.23.3. Safety and Risk – Environmental Performance

During this reporting period there were no significant safety or risk management related reportable environmental incidents recorded.



5.24. Environmental Training

During the reporting period, AGL personnel were provided with environmental training on the following topics:

Table 5-3: Environmental Training Delivered in FY16

Title of Training	Date Delivered	Summary of training
NSW Gas Legislation Update	10 December 2015	<ul style="list-style-type: none"> - New changes to NSW gas related legislation - Changes to the role of the EPA - New Codes of Practice
Leak Detection and Repair (LDAR)	September 2015	<ul style="list-style-type: none"> - Background <ul style="list-style-type: none"> o LDAR program o US EPA Approved Method 21 o Leak Classifications o Repair Response times - AGL's EPL LDAR requirements - AGL's management documents (SOPs, PIRMP) - How to perform an LDAR survey
Spill Response	05 May 2016	<ul style="list-style-type: none"> - What is a spill - Reporting spills - Sources of spills - Contents, locations and how to use spill kits - Spill prevention measures



6. Rehabilitation

6.1. Rehabilitation Overview

Operations are planned such that disturbance occurs to the minimum area of land possible. Large trees and canopy areas are avoided wherever possible by careful route and site selection and all disturbed areas restored to as near as practicable their pre-existing conditions and contours. A program of planned maintenance ensures that regrowth is facilitated and weeds do not establish.

At the end of the project's life surface infrastructure is removed prior to full site restoration being undertaken.

The environmental management objectives for rehabilitation are to:

- > Promptly carry out rehabilitation activities to promote vegetation regrowth in disturbed work areas to a standard consistent with the surrounding area;
- > Promote and maintain regrowth of vegetation;
- > Monitor and maintain vegetation cover to ensure that it is consistent with the surrounding environment in consultation with the landowner;
- > Prevent the introduction and dispersal of noxious weeds, pathogens and pest species; and
- > Monitor well compounds, access roads, and gathering line routes for 12 months (or until landowner signs off) following rehabilitation to ensure that areas remain free of weeds, pathogens and pest species.

Control measures employed to meet the objectives for rehabilitation are outlined in the Rehabilitation and Landscape Management Sub Plan.

Targets identified to measure the performance of rehabilitation are listed in the Rehabilitation and Landscape Management Plan as follows:

- > Close out of identified weed issues within two weeks;
- > Zero complaints from landowners relating to vegetation cover or weed growth; and
- > Zero complaints received from landowners relating to land disturbance or infrastructure.

6.1.1. Rehabilitation of Disturbed Land

Specific rehabilitation activities associated with the project may be subdivided into four main components:

- > Wellheads;
- > Gas gathering system;
- > Access Roads; and
- > Gas plants.

Progressive rehabilitation is an on-going management practice for all areas that have resulted in disturbance from the project. Table 6-1 lists a summary of the rehabilitation works completed since the project was commenced.

Table 6-1: Summary of project rehabilitation works complete to date

PPL	Wells Drilled (total)	Wells – Initial Rehabilitation (only)	Wells – Fully Rehabilitated (including P&A)	Gas Plant – Fully Operational	Gas Plant – Fully Rehabilitated	Gas Gathering Line – Fully Operational (km)	Gas Gathering Line – Fully Rehabilitated (km)
1	38	24	14	0	1	30	5*
2	5	5	0	0	0	1.5	0
4	96	90	6	1	0	68.6	0.3*
5	5	5	0	0	0	1.1	0
6	0	0	0	0	0	0	0

*denotes gas gathering lines which have been fully decommissioned including purging and removal of all surface equipment, but have been left in situ (at the request of the landholder/owner).

Rehabilitation during this reporting period consisted of a total of ten fully rehabilitated plugged and abandoned wells AP01, EM02, EM03, EM04, GL10, JD05, JD07a, LB05, LB07 and MH01.

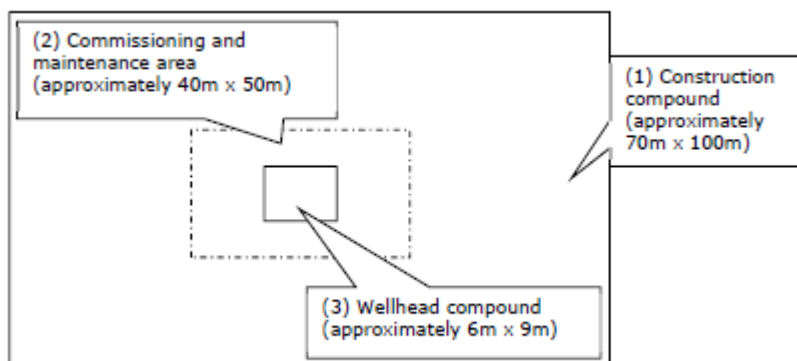
6.1.2. Well Sites

All well sites are located in cleared farmland or in areas clear of native vegetation, with additional clearing being minor or not required.

Rehabilitation of well surface locations is undertaken in stages. These include:

- > Initial rehabilitation of surplus construction footprint following completion of the well drilling and construction phase to the commissioning and maintenance area (refer to stages 1 to 2, Figure 6-1);
- > Further rehabilitation of the commissioning area to the production compound would occur when the well(s) have reached steady state production (refer to stage 2-3, Figure 6-1); and
- > Final rehabilitation of well sites following closure of the wells.

Figure 6-1 – Well Site Progressive Rehabilitation Stages



Long-term operation of the wells requires the retention of a cleared area around each wellhead (indicated as stage 3 in Figure 6-1). The disturbed area outside of the on-going operational area of the well is rehabilitated in the following manner:



- > Backfilling excavated areas such as drill pits which are no longer required as part of operation; and
- > Rehabilitation, contouring, and revegetating disturbed areas surrounding well surface locations using stockpiled soil.

Upon depletion of the field, the wells are to be plugged and abandoned in accordance with the requirements of the NSW Code of Practice for Coal Seam Gas Well Integrity and all surface structures removed.

The final stage rehabilitation works typically include:

- > Preparing Site Specific Rehabilitation Completion Criteria for each well site in consultation with the DRE and EPA;
- > Removing plant and equipment from well surface locations and removal of fenced compounds;
- > Filling in excavated areas and trenches;
- > Sealing/ plugging and abandonment of wells in accordance with NSW Code of Practice for Coal Seam Gas Well Integrity;
- > Lightly ripping disturbed areas;
- > Rehabilitation, contouring, and revegetating disturbed areas;
- > Undertaking quarterly inspections of rehabilitated wells until the Site Specific Rehabilitation Completion Criteria has been fully satisfied and the landowner signs off on the rehabilitation works; and
- > Final site inspection with EPA and DRE to assess that the rehabilitation works have fully satisfied the Site Specific Rehabilitation Completion Criteria.

Inspections were undertaken at rehabilitated wells AP01, EM03, EM04, JD05, JD07a, LB05, LB07 and MH01 throughout the reporting period. Rehabilitation works progressed well towards achieving the Site Specific Rehabilitation Completion Criteria and only minimal weed control and additional seeding was required across the sites. Further details are provided in Appendix F.

As EM02 and GL10 are co-located with other existing producing well sites, final site rehabilitation works are yet to be completed and Site Specific Rehabilitation Completion Criteria has not yet been established.

Plug and abandonment works commenced at a further four wells (RP03, RP04, RP05 and RP11) but was not completed within this reporting period. Hence, rehabilitation of these wells did not commence during this reporting period.

6.1.3. Gas Gathering System

Rehabilitation of the gas gathering system occurs at the time of construction.

Upon depletion of the field and the completion of the CGP, the preferred method for final rehabilitation of the gas gathering system would be to purge with air or water to remove remaining gas, seal and leave the valuable infrastructure in position for future beneficial use and to prevent any further environmental disturbance. All gas gathering line marker posts would be removed from the surface.

The rehabilitation method for the gas gathering lines would be subject to consultation with the land owner. Should removal of the gas gathering system be required, the excavated trench would be backfilled and rehabilitated, including contouring and revegetation, the same as the initial rehabilitation following installation of the gathering lines.



6.1.4. Access Roads

Private roads and tracks used during operations will be returned to their pre-operations state, or to a condition agreed by the landholder. As new roads are provided, requirements for, and location of access roads may vary. AGL will work with this to adapt to the evolving nature of road development and access provision in the locality.

No new access roads were constructed or required rehabilitation during this reporting period.

6.1.5. Buildings and Auxiliary Facilities

The provision of offices and auxiliary services for the CGP operations of AGL are located at the RGP site. There was no rehabilitation of buildings and auxiliary facilities during the reporting period.

6.1.6. Other Infrastructure

Rehabilitation of other infrastructure is not required as part of the CGP.

6.2. Rehabilitation Trials and Research

AGL conducts its operations in areas of extensive previous rural use. It avoids wherever possible stands of remnant native or regrowth native flora at the planning stage. As such AGL rehabilitation processes primarily only require the re-establishment of pastureland.

During this reporting period AGL did not undertake or participate in any rehabilitation research or trials.

6.3. Further Development of Final Rehabilitation Plan

In February 2016, AGL announced that it will progressively decommission wells and rehabilitate sites at the CGP prior to ceasing production in 2023. Once production ceases, the wells which are still operational at that time will be decommissioned and the well sites fully rehabilitated. During the next reporting period, AGL will continue planning work for site closure. Site closure is a continuous series of activities undertaken throughout the life of a project, and it is important that these activities occur in a systematic and cost-effective manner. AGL recognises that early planning will ensure that the closure of operations is technically, socially and economically feasible, and will result in a more satisfactory environmental outcome.

6.4. Rehabilitation Activities Proposed in Next AEPR Period

Planned rehabilitation activities during the next AEPR reporting period will include RP03, RP04, RP05 and RP11 well sites.



6.5. Further Improvements

Over the forthcoming reporting period, AGL will continue to develop the CGP in accordance with the CGP EMS and AGL's Health, Safety and Environment Management System which is based on ISO 14001: 2004.

6.6. Closure Plan

In February 2016, AGL announced that it will progressively decommission wells and rehabilitate sites at the CGP prior to ceasing production in 2023. Once production ceases, the wells which are still operational at that time will be decommissioned and the well sites fully rehabilitated. AGL will continue planning for site closure and progressively plug and abandon each well in accordance with the NSW Code of Practice for Coal Seam Gas Well Integrity as each well reaches the end of its production. Details of wells planned to be P&A will be provided to the DRE annually within the POP.



7. Project Commitments Register

To meet AGL's ongoing commitment to compliance of relevant regulatory requirements AGL continued its development and use of the CMO system relating to the CGP. CMO has also been used successfully for tracking progress with corrective actions arising out of internal and independent audits. CMO includes project commitments relevant to the CGP.



8. Stakeholder Engagement

This Section of the AEPR describes stakeholder engagement that has been undertaken during the reporting period.

8.1. Environmental Complaints

8.1.1. Stakeholder Management

A complaint handling procedure has been established for the CGP operations. AGL has a 24 hour contact telephone number (1300 799 716) which allows the community to raise issues or concerns that relate to the operations of the Project.

This number is included on signs at property entries and well site compounds as well as on notifications to landowners.

Complaints are entered into a complaints database which triggers AGL personnel to undertake an investigation. Relevant site personnel are also notified to resolve issues and to make them promptly aware of the concern.

Resolution details are communicated directly to the complainant and are presented at the next CCC meeting.

8.1.2. Complaints Register Requirements

This section provides a summary of the environmental complaints received and management actions taken to address issues. The requirement for a complaints register to be maintained and complaints' actions is outlined in the following Development Consents as well as the EPL 12003 for the RPGP:

- > DA 246-8-2002-I Schedule 3, Clause 15;
- > DA 282-6-2003-i Schedule 5, Clause 19;
- > DA 15-1-2002i Schedule 3, Clause 29; and
- > DA 75-4-2005 Schedule 2, Clause 59.

The requirements detailed in the above Development Consents are similar with only minor differences in wording between the different approval documents.

In summary the Development Consents require the applicant to record details of all complaints received in an up to date register and record but not necessarily limited to the following:

- a) *the date and time, where relevant of the complaint;*
- b) *the means by which the complaint was made;*
- c) *any personal details of the complainant that were provided, or if no details were provided, a note to that effect;*
- d) *the nature of the complaints;*
- e) *any action(s) taken by the Applicant in relation to the complaint, including any follow-up contact with the complainant; and*



f) *if no action was taken by the Applicant in relation to the complaint, the reason(s) why no action was taken.*

The Complaints Register shall be made available for inspection by the EPA or the Director-General upon request. A record of the complaint must be kept for at least 4 years after it was made.

8.1.3. Summary of Environmental Complaints

No community complaints regarding environmental concerns were received during this reporting period.

8.1.4. Complaint Trend

The number of complaints received in the 2015 – 2016 reporting period was less than the previous reporting period where one environmental complaint was received.

8.2. Community Consultative Committee

8.2.1. Monitoring Requirement

The requirement for a CCC is outlined in the following Development Consents:

- > DA 246-8-2002-I Schedule 3, Clause 31;
- > DA 282-6-2003-i Schedule 5, Clause 17;
- > DA 15-1-2002i Schedule 3, Clause 90;
- > DA 75-4-2005: Schedule 2 Clause 61;
- > PA 06_137: Schedule 4, Clause 8;
- > PA 06_138: Schedule 4, Clause 8; and
- > PA 06_0291 Schedule 4, Clause 8.

The requirements detailed in the above Development Consents are similar with only minor differences in wording between the different approval documents.

In summary the Development Consents require that a CCC is established to oversee the environmental performance of the development. This Committee shall:

- a) be chaired by an independent chairperson approved by the Director-General in consultation with the Applicant, Wollondilly Council and Camden Council;*
- b) have four community representatives residing in the PAL 1 area;*
- c) have one representative from each council;*
- d) two representatives appointed by the Applicant (including the environmental officer);*
- e) two (2) representatives from a recognised environmental group;*
- f) meet at least quarterly;*
- g) take minutes of the meeting; and*
- h) make comments and recommendations about the implementation of the development and environmental management plans, monitor compliance with*



conditions of this consent and other matters relevant to the operation of the development during the term of the consent.

Representatives from relevant government agencies or other individuals may be invited to attend meetings as required by the Chairperson.

8.3. Community Engagement

AGL has pro-actively engaged with the community in order to keep residents informed of the CGP and ensure that community interests are listened to and addressed. AGL has raised awareness of its activities and created a strong relationship with the community through a range of community engagement initiatives which include:

- > Employment of a permanent Community Relations Manager for the CGP;
- > Consultation with affected landholders;
- > Hosting community member and industry stakeholder site tours and information sessions;
- > Listening to and addressing community concerns through monitoring initiatives and studies;
- > Participation in community events;
- > Volunteering with local initiatives;
- > Ensuring the AGL Camden Website is regularly updated; and
- > Distributing community consultation material at local events.

A considerable amount of consultation has taken place directly with each landowner. This has ensured that their interests can be quickly understood and specifically addressed.

The CCC was formed in early 2003. The purpose of the committee is to provide a forum of open discussion between AGL and the community. It is aimed at facilitating good working relationships amongst committee members and to act as a channel to assist AGL in improving communication, education and notification within the general community.

The committee consists of:

- > Chairperson;
- > Camden Council;
- > Campbelltown City Council;
- > Wollondilly Shire Council;
- > Three Community Members; and
- > Three AGL Members.

AGL plans to continue to pro-actively engage the community for the duration of the project.

8.3.1. Community Consultative Committee (CCC)

CCC meetings were undertaken on the following dates:

- > No. 45: 16 September 2015;
- > No. 46: 26 November 2015; and
- > No. 47: 23 March 2016.



CCC meeting minutes are made available on the CGP project website¹ once they have been accepted at the following meeting.

The following table outlines a summary of actions arising from meetings and their current status at the time of this document's publication.

Table 8-1: CCC Meeting Action Items (1 July 2015 to 30 June 2016)

Action Item	Responsible	Status
Meeting 45 16 September 2015		
Share more details on expenditure in local community with the Committee.	AGL	Completed
Provide an update on the Health Forum to the Committee.	EPA	Completed
Follow up with NSW Health about opportunities for the Committee to discuss health.	AGL	Completed
Meeting 46 26 November 2015		
Send AGL Sustainability Report to DH and check distribution list.	AGL	Completed
Share 2012-15 IEA Report findings. AGL to share findings with CCC and update at next meeting.	AGL	Completed
Meeting 47 23 March 2016		
Provide GIS coordinates of well locations to the three Councils.	AGL	Completed
Provide feedback to chairperson regarding preferred frequency of future CCC Meetings. MM to discuss with absent members.	CCC	Completed
Advise CCC on date for next Meeting.	Chairperson	Completed

8.3.2. Other Consultation and Community Support

The following consultation processes have also been undertaken during this reporting period:

- > Quarterly Community Consultative Committee meetings;
- > Platinum Sponsor of Narellan Chamber of Commerce;
- > Attendance at monthly Narellan Chamber of Commerce meetings;
- > Regular email updates to General Managers and Mayors of Camden, Wollondilly and Campbelltown Local Governments;
- > Regular email and phone updates to local State Members of Parliament in the Camden, Campbelltown and Wollondilly Councils;
- > Regular email and phone updates and face to face briefings to local Federal Member for Macarthur, Russell Matheson;
- > AGL's Camden Website updated regularly <http://www.agl.com.au/about-agl/how-we-source-energy/natural-gas/natural-gas-projects/camden-gas-project>
- > Regular project updates and advertorials placed in the Macarthur Chronicle and Camden-Campbelltown Advertisers to update the community on the project, water monitoring and general operations update;

¹<http://www.agl.com.au/about-agl/how-we-source-energy/natural-gas/natural-gas-projects/camden-gas-project/camden-gas-project?yearFilter=&categoryFilter=CCC Meetings CGP&sortOrder=DESC&pg=1>



- > Information stand at NSW Farmers Association Annual Conference (July 2015);
- > Regular information sessions and customer presentations – St Vincent De Paul Nagle Centre;
- > Major supporter and sponsor of community event – Christmas in Narellan (November 2015); and
- > Sponsorship at Camden Show (March 2016).

8.4. Site Visits

During the reporting period, the following site visits were completed:

- > EPA site inspections (x9) to producing well sites;
- > GISERA, CSIRO site tour (May/June 2016);
- > CSIRO site inspections (x4) to producing well sites;
- > EPA and DRE site inspections (x2) to rehabilitated well sites; and
- > Environment Update Meetings (x4) with EPA, DP&E and DRE.



9. Summary of Environmental Non-Compliance Issues and Actions

9.1. Identification of Environmental Non Compliance Issues

This section describes the performance of the CGP against AGL's environmental regulatory requirements (listed in Section 3.1 of this AEPR). AGL reviews its environmental regulatory requirements through the following process:

- > Review during EPL Annual Return process;
- > Weekly CMO review;
- > Annual revision of the CGP EMP (and Sub Plans, as required);
- > Independent Environmental Audits undertaken biennially; and
- > Regulatory audits and inspections completed during the reporting period.

This section provides a summary of the environmental non-compliances identified during this reporting period.

9.1.1. Annual Return

Non-conformances with EPL 12003 are reported in the Annual Return to EPA. The Annual Return for EPL 12003 for the period of 22 December 2014 to 21 December 2015 was submitted to the EPA on 15 February 2016 in accordance with the EPL.

There was one non-compliance with the EPL reported within the Annual Return in relation to EPL 12003 Conditions O2 and M2.1 in relation to M2.3 (continuous air monitoring).

The non-compliances recorded within the 2014/15 Annual Return period represents a significant improvement in compliance compared with the six non-compliances reported in the 2013/2014 Annual Return. Details of the non-compliance are provided below.

Non-Compliance with EPL 12003 Conditions M2.1 and O2 – Regarding AGL not operating equipment in a proper and efficient manner for continuous air monitoring

This non-compliance relates to failing to continuously monitor air emissions at Monitoring Points 2 and 3 as required by Licence Condition M2.3. This non-compliance has also been reported in the 2011-12, 2012-2013 and 2013-2014 Annual Returns, and reported in the previous AEPR.

Due to the non-compliance with EPL Licence Condition M2.3 and DA-282-6-2003-i Sch. 4 Condition 58 (requirements to undertake continuous monitoring), AGL was unable to comply with EPL Conditions O2 (requirement to maintain plant and equipment) and M2.1 (requirement to monitor pollutants using the specific sampling method).

EPL Condition O2 requires AGL to maintain and operate all plant equipment in a proper and efficient manner. As equipment failure resulted in the non-compliance for the continuous emissions monitoring system, Condition O2 could not be met.

EPL Condition M2.1 and DA-282-6-2003-i Sch. 4 Condition 58, requires all monitoring to be undertaken in accordance with the specified pollutant concentration, sample frequency and sampling method. Due to equipment failure AGL was not able to comply with the required sample frequency, and hence was not compliant. The non-compliance took place



for the full Annual Return reporting period. Monitoring Point 2 and Monitoring Point 3 were non-compliant for the annual return period of 22 December 2014 to 21 December 2015 as monitoring for moisture and flow was not carried out, and monitoring was only conducted for 45 minutes of each hour. At the time of writing, Monitoring Point 2 and 3 are still not fully compliant. AGL has liaised with the EPA on this condition and completed a PRP for a PEMS 6 month trial as described in section 5.3.1. The PEMS is proposed as a suitable alternative to continuous emissions monitoring to predict NO_x in-stack concentrations specifically for Monitoring Point 2 and 3.

Monitoring Point 1 was not sampled during the Annual Return period as Compressor Engine 1 was shut down due to mechanical issues.

9.1.2. Penalty Infringement Notices (EPA)

No Penalty Infringement Notices were issued by the EPA during the reporting period.

9.1.3. Non-Compliances Identified During Independent Environmental Audit

2010 – 2012 Independent Environmental Audit

A total of two corrective actions from the 2010-12 IEA have not yet been completed. Both of these corrective actions relate to seeking a modification of CGP's development consents to provide consistency with the conditions of EPL 12003. AGL has commenced consultation with the DP&E and EPA.

2012 – 2014 Independent Environmental Audit

During the previous reporting period, an IEA was undertaken by Golder Associates Pty Ltd (Golder) for the period of 1 July 2012 to 30 June 2014. The audit assessed whether the CGP had complied with the relevant standards, performance measures, and statutory requirements, as outlined in the relevant CGP development consents.

A summary the corrective actions from the 2012-2014 IEA, and their status at the time of writing, is provided at Appendix G. All corrective actions have now been completed.

2012 – 2015 Independent Environmental Audit

During the reporting period, an IEA was undertaken by Golder for the period of 1 July 2012 to 30 June 2015. The audit assessed whether the CGP had complied with the relevant standards, performance measures, and statutory requirements, as outlined in CGP Project Approvals PA 06_0137, PA 06_0138 and PA 06_0291.

The Golder IEA concluded:

"AGL has demonstrated substantial compliance with the relevant standards, performance measures and statutory requirements that apply to the development."

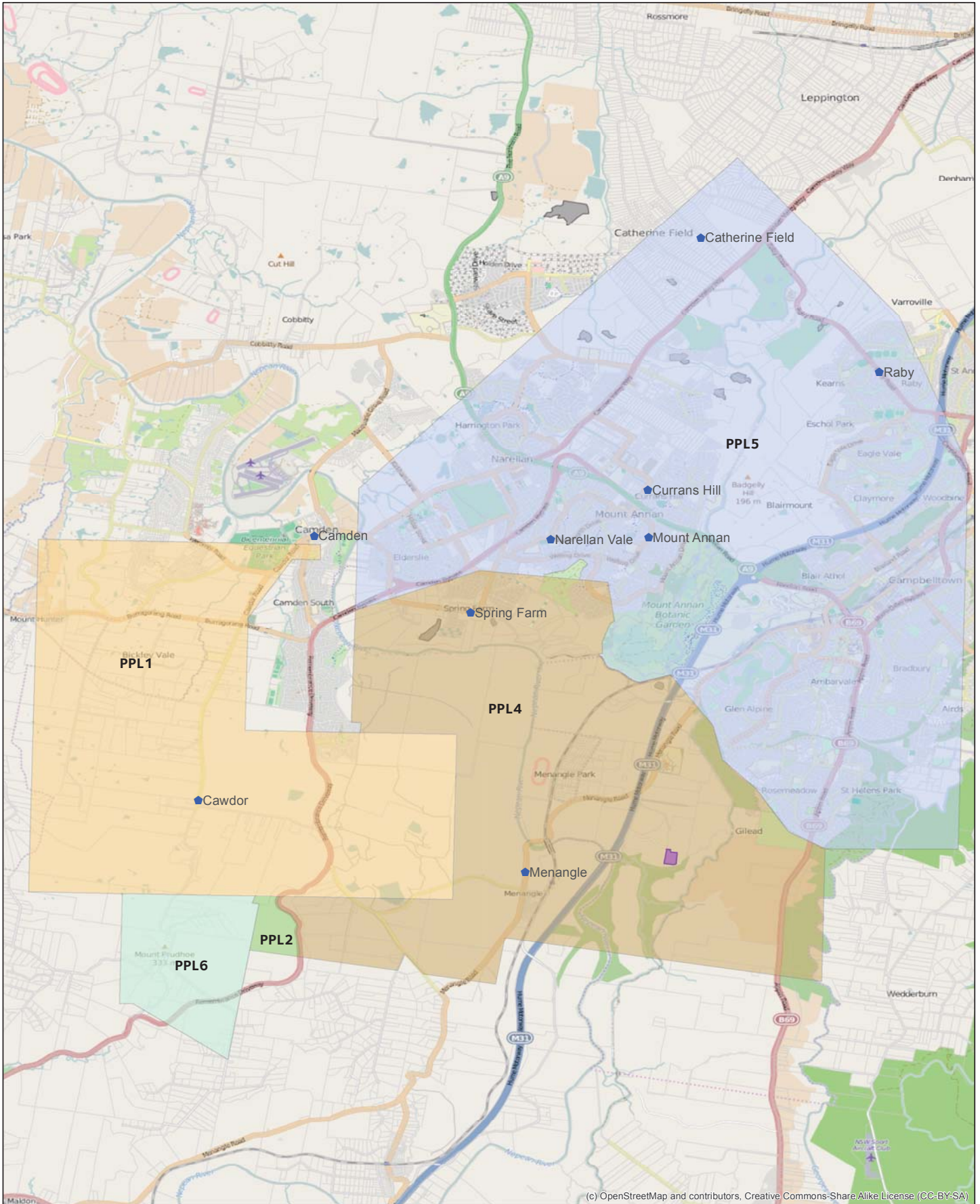
Five 'Non-Compliances (Level 2)' and seven 'Compliance – Improvement Recommended' with regards to the conditions of consent were identified during this Audit. No 'Level 1 Non-Compliances' were identified for the audit period. Three of the Non-Compliances (Level 2) were administrative in nature, and all five Non-Compliances (Level 2) were assessed as unlikely to result in actual or potential harm to the environment or human health.

A summary the corrective actions from the 2012-2015 IEA, and their status at the time of writing, is provided at Appendix H.



Appendix A. Camden Gas Project Petroleum Production Lease (PPL) Locations

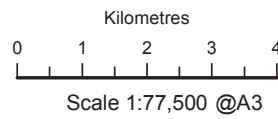
Camden Gas Project PPL Locations



(c) OpenStreetMap and contributors, Creative Commons-Share Alike License (CC-BY-SA)



Author: Upstream Gas
 Date: 05/08/2015
 Ref: 1652R4



Legend
 PPL 1 PPL 5 Towns
 PPL 2 PPL 6 RPGP
 PPL 4 Property Boundaries



Disclaimer: While AGL has taken great care and attention to ensure the accuracy of the data represented on this map, no liability shall be accepted for any errors or omissions. No part of this map may be reproduced without prior permission of AGL.



Appendix B. Camden Gas Project Property Details

Area	Well Numbers	Property Lot Number	Deposited Plan No.	DA No.
Apap	AP 01	11	664430	15-1-2002i
	AP 02* & AP03*	11	664430	15-1-2002i (Mod 4 July 07)
Campbelltown Council – Menangle Park	Gas gathering system	3 7 1	236059 787284 249393	282-6-2003i (Mod 26 August 2004)
	Water storage tank	2	236059	282-6-2003i (Mod 26 August 2004)
Joe Stanley	JS 01, JS 03 & JS 04	2	14701	15-1-2002i
Johndilo	JD 01, JD 05, JD 08* & JD 11	64	785367	15-1-2002i
Lipsombe	LP 01	100	793384	15-1-2002i
Logan Brae	LB 05- LB 07 & LB 09 – LB 11	6	808569	15-1-2002i
Landcom	Gas gathering system	2 X D 2	790254 378264 19853 737485	282-6-2003i (Mod 26 August 2004)
Mahon	MH 01	5	773423	15-1-2002i
Kay Park	KP 01 – KP 03	2	594242	246-8-2002i
	KP05 & KP06	2	594242	246-8-2002i (Mod 4 July 2007 & Mod 20 April 2011)
EMAI	EM 01 - 08	11	658458	282-6-2003i (Mod 26 August 2004)
	EM 09, EM11, EM12, EM 14 - EM 17	PT1	168893	282-6-2003i (Mod 26 August 2004)
	EM 10 & EM 13	1	726446	282-6-2003i (Mod 26 August 2004)
	EM 18-EM 20	1	130288	282-6-2003i
	EM 21 (EM 1H), & EM 22 (EM 1V)	1	1067320	9-1-2005
	EM 24-26*, 27, 29*-32	1	130288	PA 06_0138
	EM 28	1	1067320	PA 06_0138
EM 33-35*, 36*	2	1050479	PA 06_0138	



Area	Well Numbers	Property Lot Number	Deposited Plan No.	DA No.
	EM 37	2	1050479	PA 06_0138 (Mod 6 August 2007)
	EM 38	1	130288	282-6-2003i (Mod 4 July 2007)
	EM 39	2	1050479	282-6-2003i (Mod 11 April 2008)
	Gas gathering system	1 1 11 PT1	130288 726446 658458 168893	282-6-2003i (Mod 26 August 2004)
Glenlee	GL 02, GL 04	501	869561	9-1-2005
	GL 05, GL 7-GL 9	1101	883495	282-6-2003i
	GL 06	2	1076817	9-1-2005
	GL 10	1102	883495	282-6-2003i
	GL 11	501	869561	9-1-2005
	GL 12, GL13	501	869561	9-1-2005
	GL14, GL15	1102	883495	282-6-2003 (Mod 16 May 2006)
	GL 16	1101	883495	282-6-2003 (Mod 16 May 2006)
	GL 17	1101	883495	282-6-2003 (Mod 11 April 2008)
Gas gathering system	1102 & 1101	883495	282-6-2003i (Mod 26 August 2004)	
Menangle Park	MP 13-MP 17	10	1022204	183-8-2004-i
	MP30	10	1022204	183-8-2004-i (Mod 4 July 2007)
Mt Taurus	MT 01-MT 10	1	954424	183-8-2004-i
Razorback	RB 03* & RB 04*	1	959711	PA 06_0137
	RB 05*	2	572954	PA 06_0137
	RB 07	81	588337	PA 06_0137
	RB 06, RB 08 & RB 09	124	809576	PA 06_0137
	RB 10	82	588337	PA 06_0137
	RB 11 & RB 12	123	809576	PA 06_0137
Rosalind Park	RP 01*- RP 03	3	622362	282-6-2003i
	RP 02	3	622362	282-6-2003i
	RP 04-RP 07	58	632328	282-6-2003i
	RP 08, RP 09	PT35	230946	282-6-2003i
	RP 10-RP 12	2	622362	282-6-2003i
	Rosalind Park Gas Plant	PT35	230946	282-6-2003i



Area	Well Numbers	Property Lot Number	Deposited Plan No.	DA No.
	Gas gathering system	2 & 3 PT35 58	622362 230946 632328	282-6-2003i (Mod 26 August 2004)
Sugarloaf	SL 01*, SL02, SL 03	2	842735	75-4-2005
	SL 04*, SL 06*, SL 07*	3	1007066	75-4-2005
	SL 05*	2	842735	75-4-2005
	SL 08* & SL 09	2	842735	75-4-2005 (Mod 4 July 2007)
Wandinong	WG 01 – WG06	1242	1121129	282-6-2003i (Mod 26 August 2004)
	Gas gathering system	1242	1121129	282-6-2003i (Mod 26 August 2004)
Wollondilly Shire Council – EMAI and Loganbrae	Gas gathering system	Road Reserve		282-6-2003i (Mod 26 August 2004)
El Bethel*	EB 5	21	581462	DA 171-7-2005
	EB 1	201	590247	DA 171-7-2005
	EB 2, EB 3, EB 4, EB 6, EB 9	202	590247	DA 171-7-2005
	EB 7, EB 8, EB 10	203	590247	DA 171-7-2005
Spring Farm	SF01 – 03 (SF17 site), SF04A*	13	1081753	PA 06_0291
	SF05, SF07 – 09 (SF 20 site), SF10*,	1	1007608	PA 06_0291
	Gas gathering system & access roads	13	1081753	PA 06_0291
		1	1007608	
		4	1007608	
11		1081753		
	2	1076817		
	54	864754		
Menangle Park	MP01 – 03, 09, 10 (MP03 site)	7	253700	PA 06_0291
	MP06*	2 X	790254 378264	PA 06_0291
	MP11	2	737485	PA 06_0291
	MP19*, MP22	8	249530	PA 06_0291
	MP21*, MP12 & MP23 (MP23 site)	1	598067	PA 06_0291
	MP04*	31	1100981	PA 06_0291
	MP05, MP05A, MP07 & MP08	1	790254	PA 06_0291
MP33*	1	249393	PA 06_0291	



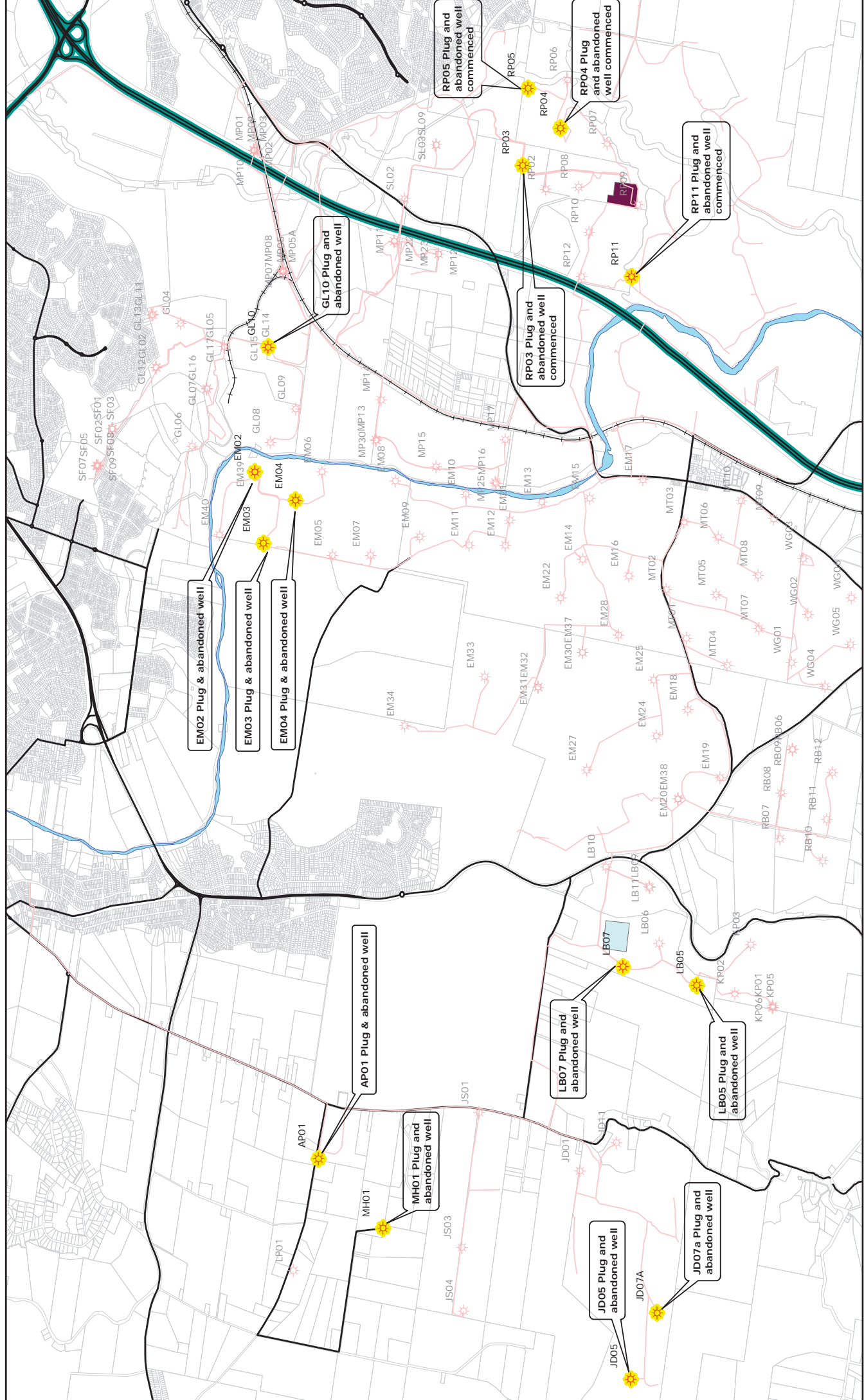
Area	Well Numbers	Property Lot Number	Deposited Plan No.	DA No.
	MP24*	2	236059	PA 06_0291
Menangle Park	Gas gathering system and access roads	7	253700	PA 06_0291 (Mod 3 20 Apr 2011)
		2	790254	
		X	378264	
		D	19853	
		2	737485	
		8	249530	
		1	598067	
		11	584016	
		3	628052	
		8	253700	
		31	1100981	
		26	249530	
		27	249530	
		1	790254	
		9	253700	
		Book 70	No.447	
		Book 80	No. 475	
		2	236059	
		3	236059	
		1	249393	
Menangle Road reserve	Between rail overpass and the Nepean River Bridge			
63	1104486			
64	1104486			
2	842735			
12	249530			
1001	734435			
1002	734436			

Note the above table does not include potential gathering line options and potential access options.

*Note these wells have been approved but not yet drilled.



Appendix C. Camden Infrastructure Map for FY2016



Camden Infrastructure Map
Work completed 2015-16

Author: Gas Operations
 Date: 25/10/2016
 Ref: 2790R5

Disclaimer: While AGL has taken great care and attention to ensure the accuracy of the data represented on this map, no liability shall be accepted for any errors or omissions. No part of this map may be reproduced without prior permission of AGL.

Scale 1:40,000 @A3
 Geocentric Datum of Australia 1994
 Sources: AGL Energy Limited, Omnilink PSMA Data, SKM

Legend

- Plug & Abandoned Wells
- Well P&A in 2015-16
- Wells
- Logan Brae Yard
- Gathering Line
- Public Roads
- Hume Highway
- Nepean River
- Railway
- RPGP
- Property Boundaries

Energy in action™

AGL

0 1.25 2.5 Kilometres

N



Appendix D. List of Bore Licences and Water Access Licences

Licence No.	WAL	Field	Well name	Licence No.	WAL	Field	Well name
10BL603867	24856	EMAI	EM02	10BL603953	24856	Logan Brae	LB09
10BL603868	24856	EMAI	EM03	10BL603954	24856	Logan Brae	LB11
10BL603869	24856	EMAI	EM04	10BL603955	24856	Mahon	MH01
10BL603870	24856	EMAI	EM05	10BL603956	24856	Menangle Park	MP05
10BL603871	24856	EMAI	EM06	10BL603957	24856	Menangle Park	MP07
10BL603872	24856	EMAI	EM07	10BL603958	24856	Menangle Park	MP08
10BL603873	24856	EMAI	EM08	10BL603959	24856	Menangle Park	MP13
10BL603874	24856	EMAI	EM09	10BL603960	24856	Menangle Park	MP14
10BL603875	24856	EMAI	EM10	10BL603961	24856	Menangle Park	MP15
10BL603876	24856	EMAI	EM11	10BL603962	24856	Menangle Park	MP16
10BL603877	24856	EMAI	EM12	10BL603963	24856	Menangle Park	MP17
10BL603878	24856	EMAI	EM13	10BL603964	24856	Menangle Park	MP30
10BL603881	24856	EMAI	EM14	10BL603965	24856	Mt Taurus	MT01
10BL603882	24856	EMAI	EM15	10BL603976	24856	Mt Taurus	MT02
10BL603883	24856	EMAI	EM16	10BL603978	24856	Mt Taurus	MT03
10BL603884	24856	EMAI	EM17	10BL603981	24856	Mt Taurus	MT04
10BL603885	24856	EMAI	EM18	10BL603989	24856	Mt Taurus	MT05
10BL603886	24856	EMAI	EM19	10BL603990	24856	Mt Taurus	MT06
10BL603887	24856	EMAI	EM20	10BL603991	24856	Mt Taurus	MT07
10BL603888	24856	EMAI	EM21	10BL603992	24856	Mt Taurus	MT08
10BL603889	24856	EMAI	EM22	10BL603993	24856	Mt Taurus	MT09
10BL603890	24856	EMAI	EM23	10BL603994	24856	Mt Taurus	MT10
10BL603891	24856	EMAI	EM24	10BL604007	24856	Razorback	RB06
10BL603892	24856	EMAI	EM25	10BL604008	24856	Razorback	RB07
10BL603893	24856	EMAI	EM27	10BL604009	24856	Razorback	RB08
10BL603897	24856	EMAI	EM28	10BL604010	24856	Razorback	RB09
10BL603898	24856	EMAI	EM30	10BL604011	24856	Razorback	RB10
10BL603899	24856	EMAI	EM31	10BL604012	24856	Razorback	RB11
10BL603900	24856	EMAI	EM32	10BL604013	24856	Razorback	RB12
10BL603901	24856	EMAI	EM33	10BL604014	24856	Rosalind Park	RP02



Licence No.	WAL	Field	Well name	Licence No.	WAL	Field	Well name
10BL603902	24856	EMAI	EM34	10BL604015	24856	Rosalind Park	RP07
10BL603903	24856	EMAI	EM37	10BL604016	24856	Rosalind Park	RP08
10BL603905	24856	EMAI	EM39	10BL604017	24856	Rosalind Park	RP09
10BL603906	24856	EMAI	EM40	10BL604031	24856	Rosalind Park	RP10
10BL603911	24856	Glenlee	GL02	10BL604032	24856	Rosalind Park	RP12
10BL603912	24856	Glenlee	GL04	10BL604033	24856	Spring Farm	SF01
10BL603913	24856	Glenlee	GL05	10BL604034	24856	Spring Farm	SF02
10BL603914	24856	Glenlee	GL06	10BL604035	24856	Spring Farm	SF03
10BL603915	24856	Glenlee	GL07	10BL604036	24856	Spring Farm	SF17 #
10BL603917	24856	Glenlee	GL08	10BL604037	24856	Sugarloaf	SL02
10BL603918	24856	Glenlee	GL09	10BL604038	24856	Sugarloaf	SL03
10BL603919	24856	Glenlee	GL10	10BL604039	24856	Sugarloaf	SL09
10BL603920	24856	Glenlee	GL11	10BL604040	24856	Wandinong	WG01
10BL603921	24856	Glenlee	GL12	10BL604041	24856	Wandinong	WG02
10BL603922	24856	Glenlee	GL13	10BL604042	24856	Wandinong	WG03
10BL603924	24856	Glenlee	GL14	10BL604043	24856	Wandinong	WG04
10BL603925	24856	Glenlee	GL15	10BL604044	24856	Wandinong	WG05
10BL603926	24856	Glenlee	GL16	10BL604045	24856	Wandinong	WG06
10BL603927	24856	Glenlee	GL17	10BL604131	24856	EMAI	EM38
10BL603928	24856	Johndilo	JD01	10BL604582	24856	Menangle Park	MP10
10BL603929	24856	Johndilo	JD04	10BL604597	24736	Kay Park	KP06
10BL603930	24856	Johndilo	JD05	10BL604623	24856	Menangle Park	MP01
10BL603931	24856	Johndilo	JD06	10BL604624	24856	Menangle Park	MP02
10BL603932	24856	Johndilo	JD07A	10BL604625	24856	Menangle Park	MP03
10BL159415	24965	Johndilo	JD10	10BL604626	24856	Menangle Park	MP09
10BL603933	24856	Johndilo	JD11	10BL604672	24856	Menangle Park	MP11
10BL603934	24856	Joe Stanley	JS01	10BL604673	24856	Menangle Park	MP22
10BL603935	24856	Joe Stanley	JS03	10BL604888		Menangle Park	MP25
10BL603936	24856	Joe Stanley	JS04	10BL604884		Spring Farm	SF05
10BL603937	24856	Kay Park	KP01	10BL604885		Spring Farm	SF07
10BL603938	24856	Kay Park	KP02	10BL604886		Spring Farm	SF08
10BL603939	24856	Kay Park	KP03	10BL604887		Spring Farm	SF09



Licence No.	WAL	Field	Well name	Licence No.	WAL	Field	Well name
10BL603940	24856	Kay Park	KP05	10BL604878		Menangle Park	MP05A
10BL603941	24856	Logan Brae	LB05	10BL604879		Menangle Park	MP12
10BL603942	25054	Logan Brae	LB06	10BL604880		Menangle Park	MP23
10BL603952	25054	Logan Brae	LB07				
Key							
		Plugged and abandoned well					
#		Pad location only					



Appendix E. Status of Well Operations FY2016

Changes from the previous reporting period are shaded in grey.

Current Status of Well Operations

Well Name	Date Completed	Status of Operation June 2016
AP01	2000	Plugged and Abandonment
EB01-10	Incomplete	Approved – Not Drilled (DA now expired)
EM01	Incomplete	Plugged and Abandoned
EM02 - 20	2005	Drilled
EM02	2005	Plugged and Abandonment
EM03	2005	Plugged and Abandonment
EM04	2005	Plugged and Abandonment
EM21 and 22	2002	Drilled
EM23	2007	Plugged and Abandoned
EM24, 25, 27, 28, 30, 31,32, 33, 34, 37, 38	2007	Drilled
EM26, 29, 35, 36	Incomplete	Approved – Not Drilled
EM39	2008	Drilled
EM40	2006	Drilled
GL01	Incomplete	Approved – Not Drilled.
GL02, 04, 05, 06, 07, 08, 09.	2003	Drilled
GL03	2003	Plugged and Abandoned
GL10	2003	Plugged and Abandoned
GL11	2005	Drilled
GL12, 13, 14, 15 and 16	2006	Drilled
GL17	2008	Drilled
JD01 and 11	1999	Drilled
JD05 and 07A	1999	Plugged and Abandoned
JD02, 03, 04, 06, 09 and 10	1999	Plugged and Abandoned
JD08	Incomplete	Approved under PEL 2 – Not Drilled
JS01, 03 and 04	1999	Drilled
JS02	2000	Plugged and Abandoned
KP01, 02 and 03	2002	Drilled
KP05	2008	Drilled
LB01, 02, 03, 04 and 08	Incomplete	Approved – Not Drilled
LB06, 09, 10	2001	Drilled
LB05 and 07	2001	Plugged and Abandoned



Well Name	Date Completed	Status of Operation June 2016
LB11	2007	Drilled
LP01	Incomplete	Not Completed
MH01	Incomplete	Plugged and Abandoned
MP13, 14, 15, 16 and 17	2003	Drilled
MP30	2008	Drilled
MT01 02, 03, 04, 05, 06, 07, 08, 09 and 10	2004	Drilled
Ray Beddoe Treatment Plant	2001	Decommissioned and rehabilitated (2008)
RB03, 04 and 05	Incomplete	Approved – Not Drilled
RB06, 07, 08, 09, 10, 11 and 12	2007	Drilled
Rosalind Park Gas Plant	2004	Operating
RP01	Incomplete	Approved – Not Drilled
RP02, 06 – 10, 12	2003	Drilled
RP03, 04, 05, 11	2003	Commenced Plugged and Abandonment
SL01, SL04, SL05, SL06, SL07, SL08	Incomplete	Approved – Not Drilled
SL02 and SL03	2006	Drilled
SL09	2008	Drilled
WG01 – 05	2003	Drilled
WG06	Incomplete	Not Completed
SF04A, 10	Incomplete	Approved – Not Drilled
MP05, 07, 08	2009	Drilled
MP04, 06, 19, 21, 24, 33	Incomplete	Approved – Not Drilled
SF 01, 02, 03	2009	Drilled
SF 05, 07, 08, 09	2010	Drilled
MP01, 05A, 12, 23	2010	Drilled
KP06	2011	Drilled
MP02, 03, 09, 10, 11, 22	2011	Drilled
MP25	2012	Drilled



Appendix F. Well Site Inspections Against Site Specific Rehabilitation Completion Criteria

Well Name	Inspection Date	Status Against SSRC	Further Action Required
AP01	16/09/15	Rehabilitation on track	Continue to monitor
	23/10/15	Rehabilitation on track	Continue to monitor
	03/03/16	Rehabilitation complete	Nil – ready to return to landowner
EM03	18/11/15	Rehabilitation on track	Continue to monitor
	09/03/16	Rehabilitation complete	Nil – ready to return to landowner
EM04	30/09/15	Rehabilitation off track	Further top soil and seed to be spread. Continue to monitor
	18/11/15	Rehabilitation on track	Continue to monitor
	11/02/16	Rehabilitation on track	Continue to monitor
	09/03/16	Rehabilitation complete	Nil – ready to return to landowner
EM23	11/09/15	Rehabilitation on track	Continue to monitor
	15/12/15	Rehabilitation complete	Nil – ready to return to landowner
JD05	31/07/15	Rehabilitation on track	Continue to monitor
	09/03/16	Rehabilitation complete	Nil – ready to return to landowner
JD07a	14/07/15	Rehabilitation on track	Continue to monitor
	31/07/15	Rehabilitation on track	Continue to monitor
	03/03/16	Rehabilitation complete	Nil – ready to return to landowner
LB05	05/05/16	Rehabilitation on track	Continue to monitor
	16/06/16	Rehabilitation complete	Nil – ready to return to landowner
LB07	03/03/16	Rehabilitation on track	Continue to monitor
	16/06/16	Rehabilitation on track	Continue to monitor
MH01	03/03/16	Rehabilitation on track	Continue to monitor
	16/06/16	Rehabilitation on track	Continue to monitor



Appendix G. 2012-2014 Independent Audit Report – Non-Conformances Corrective Actions Register



Energy in
action.



AGL Corrective Actions Register: 2012-2014 Independent Environmental Audit.

AGL Camden Gas Project
24 October 2016

Development Consent and Condition Number	Action	Finding	Status / Target Action Date	Action Taken By AGL
DA 15-1-2002i Schedule 3 Condition 1, Condition 11 DA 246-8-2002i Schedule 3 Condition 1, Condition 8 DA 282-6-2003i Schedule 3 Condition 1 DA 183-8-2004i Schedule 2 Condition 1 DA 9-1-2005 Schedule 2 Condition 1 DA 75-4-2005 Schedule 2 Condition 1	Assess if CMO has: a. relevant supporting documentation is referenced b. each condition as a word for word representation of the consent condition	Compliance – Improvement Opportunity	Complete	CMO-Compliance has been assessed and, where required updated, to include relevant supporting documentation, and each consent condition is a 'word for word' representation of the consent condition. All corrective actions within this Corrective Actions Register are tracked within CMO.
DA 15-1-2002i Schedule 3 Condition 15	Provide latest version of the Environmental Management Plan to government agencies for review and comment.	Compliance – Improvement Opportunity	Complete	The Environmental Management Plan has been issued to the respective government agencies for review and comment.
DA 15-1-2002i Schedule 3 Condition 22(d)	Update Traffic Management Sub Plan to include this condition.	Non Compliance – Level 2	Complete	The Traffic Management Sub Plan has been revised to address this Action.

AGL Corrective Actions Register: 2012-2014 Independent Environmental Audit.

AGL Camden Gas Project
24 October 2016

Development Consent and Condition Number	Action	Finding	Status / Target Action Date	Action Taken By AGL
DA 15-1-2002i Schedule 4 DA 282-6-2003i Schedule 6 DA 75-4-2005 Schedule 2 Condition 17	Review the nature and significance of outstanding tasks in the planning maintenance system (MEX) and implement corrective actions where appropriate.	Compliance – Improvement Opportunity	Complete	The Head of Engineering has a performance target for overdue MEX work orders and the status of overdue MEX work orders is assessed at the monthly Upstream Gas Leadership Team meeting.
DA 282-6-2003i Schedule 4 Condition 14	Rosalind Park Gas Plant Landscape and Lighting Audit Report, September 2014 to be amended to provide clarity on how it addresses sub sections of Condition 14.	Compliance – Improvement Opportunity	Complete	The Rosalind Park Gas Plant Landscape and Lighting Audit Report, September 2014 was amended to provide clarity on how it addresses the growth and health of screen trees in accordance with sub sections of Condition 14. This improvement opportunity will also be incorporated in future audit reports.
DA 282-6-2003i Schedule 4 Condition 29A	Undertake night time noise monitoring to verify compliance with noise limits for EM39 and GL17 well sites.	Compliance – Improvement Opportunity	Complete	Night time noise monitoring completed at EM39 and verified compliance with noise limits. GL17 remains shut in.
DA 282-6-2003i Schedule 4 Condition 33	RPGP quarterly noise monitoring reports to quantify wind conditions relative to the wind criteria.	Compliance – Improvement Opportunity	Complete	The scope of work for RPGP noise monitoring reports has been revised to include quantification and documentation of wind conditions relative to the wind criteria.
DA 282-6-2003i Schedule 4 Condition 38	Update Noise Management Sub Plan to state that the Annual Environmental Performance Report is submitted to the Director General.	Compliance – Improvement Opportunity	Complete	The Noise Management Sub Plan has been revised to include that the Annual Environmental Performance Report is submitted to the Director General.
DA 282-6-2003i Schedule 4 Condition 47	Document the processes for assessing Rosalind Park Gas Plant stack testing emissions concentrations at nearest residence.	Compliance – Improvement Opportunity	Complete	The Air Quality Management Sub Plan has been revised to identify how the stack testing emission concentrations from the Rosalind Park Gas Plant are assessed against emission criteria at the nearest residence.
DA 282-6-2003i Schedule 4 Condition 58	Meet the Continuous Emission Monitoring requirements specified in Environment Protection Licence 12003 for moisture and volumetric flow measurement or develop an alternative emission monitoring solution for approval by the EPA.	Non Compliance – Level 2	Pending approval to modification of DA282-6-2003i and EPL 12003	AGL has completed a trial of a Predictive Emissions Monitoring System and is consulting with EPA and DP&E to modify conditions within DA 282-6-2003i and EPL 12003.

AGL Corrective Actions Register: 2012-2014 Independent Environmental Audit.

AGL Camden Gas Project
24 October 2016

Development Consent and Condition Number	Action	Finding	Status / Target Action Date	Action Taken By AGL
DA 282-6-2003i Schedule 4 Condition 119 (b)	Annually notify the Campbelltown Fire Management Committee of the information in the Annual Environmental Performance Report regarding bushfire management.	Compliance – Improvement Opportunity	Complete	The Campbelltown Fire Management Committee was issued with a copy of the 2013-14 Annual Environmental Performance Report which describes the bushfire management activities for 2013-14.
DA 282-6-2003i Schedule 4 Condition 119(c)	Emergency Response Plan to state that it incorporates the relevant bushfire hazard measures and policies of the three councils.	Compliance – Improvement Opportunity	Complete	The Emergency Response Plan has been updated to state that it incorporates the relevant bushfire hazard measures and policies of the Camden, Campbelltown and Wollondilly Shire Councils.
DA 282-6-2003i Schedule 5 Condition 2 (d)	For the 2014-15 Annual Environmental Performance Report, improve the linkage between the Environmental Management Plan objectives/ targets and performance.	Compliance – Improvement Opportunity	Complete	The 2014-15 Annual Environmental Performance Report scope has been prepared and includes the requirement to assess the Camden Gas Project performance against the Environmental Management Plan objectives/ targets. The EMP has also been revised to track performance of the EMP targets on a monthly basis.
DA 282-6-2003i Schedule 5 Condition 4 DA 183-8-2004i Schedule 2 Condition 23	Update the EMP annually.	Non Compliance – Level 2	Complete	The Environmental Management Plan has been reviewed and updated.
DA 282-6-2003i Schedule 5 Condition 20	Update the Pollution Incident Response Management Plan to include notification as soon as practicable.	Compliance – Improvement Opportunity	Complete	The Pollution Incident Response Management Plan has been updated to include notification as soon as practicable.
DA 75-4-2005 Schedule 2 Condition 28	Provide a final copy of the Assessment of Sugarloaf Well design Against Locational Guidelines to the Department of Planning and Environment.	Non Compliance – Level 2	Complete	Assessment of Sugarloaf Well design Against Locational Guidelines has been submitted to the Department of Planning and Environment.
DA 75-4-2005 Schedule 2 Condition 44	Consult with Council and the Rural Fire Service on the Bushfire Management Plan.	Non Compliance – Level 2	Complete	AGL has consulted with the Camden, Campbelltown and Wollondilly Shire Councils and the Rural Fire Service prior to updating the Bushfire Management Plan.

Note: Non compliances have been excluded from this register where no further action is required.



Appendix H. 2012-2015 Independent Audit Report – Non-Conformances Corrective Actions Register



AGL Corrective Actions Register: 2012-2015 Independent Environmental Audit.

AGL Camden Gas Project
24 October 2016

Development Consent and Condition Number	Action	Finding	Status / Target Action Date	Action Taken By AGL
PA 06_0137 Schedule 2 Condition 2 PA 06_0138 Schedule 2 Condition 2 PA 06_0291 Schedule 2 Condition 2	A copy of each source document should be made available within CMO.	Compliance – Improvement Opportunity	Complete	All available source documents for the three Project Approvals have been uploaded to CMO.
PA 06_0137 Schedule 2 Condition 7 PA 06_0138 Schedule 2 Condition 7 PA 06_0291 Schedule 2 Condition 10	Confirm the required process for surrendering approvals with the Department of Planning and Environment (DP&E).	Compliance – Improvement Opportunity	Complete	Process for surrendering approvals has been confirmed with the DP&E.
PA 06_0137 Schedule 4 Condition 7 PA 06_0138 Schedule 4 Condition 7 PA 06_0291 Schedule 4 Condition 7	Review and update Environmental Management Plan and submit to DP&E within 6 months of completing this audit	Non Compliance – Level 2	Complete	The Environmental Management Plan was reviewed and updated and sent to the DP&E on 06 April 2016.

AGL Corrective Actions Register: 2012-2015 Independent Environmental Audit.

AGL Camden Gas Project
24 October 2016

Development Consent and Condition Number	Action	Finding	Status / Target Action Date	Action Taken By AGL
PA 06_0291 Schedule 2 Condition 15	Work with the EPA to complete all actions prescribed within the Penalty Infringement Notice.	Non Compliance Level 2	December 2016	In progress.
PA 06_0291 Schedule 3 Condition 5	Undertake all works in compliance with operational noise criteria.	Compliance – Improvement Opportunity	Complete	AGL has prepared and implemented an internal Compliance Audit process to regularly assess performance against the Noise Management Sub Plan, including operational noise criteria.
PA 06_0291 Schedule 3 Condition 19	Document existing consultation process with landowners regarding selection and use of landscaping materials.	Compliance – Improvement Opportunity	Complete	The process for consultation with Landowners is documented in the Environmental Management Plan, Access and Compensation Agreement and Petroleum Operations Plan



Appendix I. Air Quality Monitoring Results Reported in 2014/15 Annual Return

EPA Monitoring Point 1							
Pollutant	Unit of measure	No. of Samples Required by license	No. of Samples Collected and Analysed	Lowest Sample value	Mean of Sample	Highest Sample	License Limit
Carbon dioxide	%	4	0	N/A	N/A	N/A	N/A
Dry gas density	Kg/m ³	4	0	N/A	N/A	N/A	N/A
Moisture	%	4/CEMS	0	N/A	N/A	N/A	N/A
Molecular weight of stack gases	g/g-mole	4	0	N/A	N/A	N/A	N/A
Nitrogen Oxides	mg/m ³	4/CEMS	0	N/A	N/A	N/A	461
Oxygen (O ₂)	%	4+CEMS	0	N/A	N/A	N/A	N/A
Sulfuric acid mist and sulphur trioxide (as SO ₃)	mg/m ³	4	0	N/A	N/A	N/A	5.0
Sulphur dioxide	mg/m ³	4	0	N/A	N/A	N/A	7
Temperature	Degrees Celsius	4/CEMS	0	N/A	N/A	N/A	N/A
Velocity	m/s	4	0	N/A	N/A	N/A	N/A
Volumetric flowrate	m ³ /s	4/CEMS	0	N/A	N/A	N/A	N/A

*BLD: Below Limit of Detection

Note: Monitoring point 1 was not sampled during the 2014/15 Annual Return reporting period as compressor engine 1 was shut down due to mechanical issues.



EPA Monitoring Point 2							
Pollutant	Unit of measure	No. of Samples Required by license	No. of Samples Collected and Analysed	Lowest Sample value	Mean of Sample	Highest Sample	License Limit
Carbon dioxide	%	4	4	11.60	11.88	12.10	N/A
Dry gas density	Kg/m ³	4	4	1.34	1.34	1.34	N/A
Moisture	%	4/CEMS	4	20	21	23	N/A
Molecular weight of stack gases	g/g-mole	4	4	30.00	30.05	30.10	N/A
Nitrogen Oxides	mg/m ³	4/CEMS	4/CEMS	8.9/ 0.07	77.7/ 52.54	250.0/ 298.69	461
Oxygen (O₂)	%	4/CEMS	4/CEMS	0.30/ 0.07	0.45/ 0.54	0.50/ 1.67	N/A
Sulfuric acid mist and sulphur trioxide (as SO₃)	mg/m ³	4	4	0.1	0.2	0.3	5.0
Sulphur dioxide	mg/m ³	4	4	BLD	BLD	BLD	7
Temperature	Degrees Celsius	4/CEMS	4/CEMS	489.00/ 364.22	492.18/ 498.88	493.00/ 518.21	N/A
Velocity	m/s	4	4	28.00	28.75	30.00	N/A
Volumetric flowrate	m ³ /s	4/CEMS	4	0.91	0.94	1.00	N/A

*BLD: Below Limit of Detection



EPA Monitoring Point 3							
Pollutant	Unit of measure	No. of Samples Required by license	No. of Samples Collected and Analysed	Lowest Sample value	Mean of Sample	Highest Sample	License Limit
Carbon dioxide	%	4	4	11.60	11.90	12.20	N/A
Dry gas density	Kg/m ³	4	4	1.34	1.34	1.34	N/A
Moisture	%	4/CEMS	4	19.00	20.25	21.00	N/A
Molecular weight of stack gases	g/g-mole	4	4	30.00	30.05	30.10	N/A
Nitrogen Oxides	mg/m ³	4/CEMS	4/CEMS	6.9/ 0.65	98.5/ 69.68	260.0/ 229.11	461
Oxygen (O ₂)	%	4/CEMS	4/CEMS	0.50/ 0.45	0.50/ 0.61	0.50/ 2.43	N/A
Sulfuric acid mist and sulphur trioxide (as SO ₃)	mg/m ³	4	4	0.04	0.2	0.3	5.0
Sulphur dioxide	mg/m ³	4	4	*BLD	*BLD	*BLD	7
Temperature	Degrees Celsius	4/CEMS	4/CEMS	457.00/ 365.4	490.76/ 503.80	502.00/ 518.5	N/A
Velocity	m/s	4	4	29.00	29.75	30.00	N/A
Volumetric flowrate	m ³ /s	4/CEMS	4	0.95	0.98	1.00	N/A

*BLD: Below Limit of Detection



EPA Monitoring Point 4							
Pollutant	Unit of measure	No. of Samples Required by license	No. of Samples Collected and Analysed	Lowest Sample value	Mean of Sample	Highest Sample	License Limit
Carbon dioxide	%	4	4	4.00	4.43	5.00	N/A
Dry gas density	Kg/m ³	4	4	1.31	1.31	1.31	N/A
Moisture	%	4	4	7.40	8.08	8.60	N/A
Molecular weight of stack gases	g/g-mole	4	4	29.30	29.35	29.40	N/A
Nitrogen Oxides	mg/m ³	4	4	49.0	89.3	110.0	110
Oxygen (O₂)	%	4	4	12.10	13.28	14.00	N/A
Sulfuric acid mist and sulphur trioxide (as SO₃)	mg/m ³	4	4	*BLD	0.4	1.4	3.5
Sulphur dioxide	mg/m ³	4	4	*BLD	1.8	7.2	35
Temperature	Degrees Celsius	4	4	211.00	257.50	278.00	N/A
Velocity	m/s	4	4	*BLD	2.44	3.30	N/A
Volumetric flowrate	m ³ /s	4	4	*BLD	0.06	0.08	N/A

*BLD: Below Limit of Detection



EPA Monitoring Point 5							
Pollutant	Unit of measure	No. of Samples Required by license	No. of Samples Collected and Analysed	Lowest Sample value	Mean of Sample	Highest Sample	License Limit
Carbon dioxide	%	4	4	12.20	12.68	13.30	N/A
Dry gas density	Kg/m ³	4	4	1.34	1.35	1.35	N/A
Moisture	%	4	4	53.0	65.5	74.0	N/A
Molecular weight of stack gases	g/g-mole	4	4	30.10	30.15	30.20	N/A
Nitrogen Oxides	mg/m ³	4	4	*BLD	*BLD	*BLD	13
Oxygen (O₂)	%	4	4	*BLD	0.18	0.70	N/A
Sulfuric acid mist and sulphur trioxide (as SO₃)	mg/m ³	4	4	0.1	0.5	1.2	35
Sulphur dioxide	mg/m ³	4	4	*BLD	*BLD	*BLD	1042
Temperature	Degrees Celsius	4	4	86.0	89.25	92.00	N/A
Velocity	m/s	4	4	*BLD	0.48	1.90	N/A
Volumetric flowrate	m ³ /s	4	4	*BLD	0.00	0.01	N/A

*BLD: Below Limit of Detection



EPA Monitoring Point 6						
Pollutant	Unit of measure	No. of Samples Required by license	No. of Samples Collected and Analysed	Lowest Sample value	Mean of Sample	Highest Sample
Carbon dioxide	%	4	4	*BLD	*BLD	*BLD
Dry gas density	Kg/m ³	4	4	1.29	1.29	1.29
Moisture	%	4	4	0.96	1.59	2.20
Molecular weight of stack gases	g/g-mole	4	4	29.00	29.00	29.00
Odour	Odour units	4	4	49.00	110.25	160.00
Oxygen (O₂)	%	4	4	20.90	20.90	20.90
Temperature	Degrees Celsius	4	4	24.00	30.25	43.00
Velocity	m/s	4	4	4.80	5.23	5.90
Volumetric flowrate	m ³ /s	4	4	0.12	0.13	0.14

*BLD: Below Limit of Detection



Appendix J. Assessable Pollutant Results – RPPG

Assessable Pollutant	Assessable Load (Kg)	Load Limit (Kg)
Benzene	0.545	47
Benzo(a) pyrene	0.0	0.27
Fine Particulates	51.231	460
Hydrogen Sulphide	0.788	1.60
Nitrogen Oxides	5,365.092	103,000.00
Nitrogen Oxides – Summer	388.101	No limit stipulated
Sulphur Oxides	3.772	3000.00
Volatile Organic Compounds	759.593	33,000.00
Volatile Organic Compounds-Summer	189.898	No limit stipulated



Appendix K. Rosalind Park Gas Plant Quarterly and Annual Noise Monitoring Results

Noise Monitoring Undertaken	Summary of Results
Attended noise monitoring 08 September and 08 October 2015	<p>Measured noise levels complied with the noise criteria for the sensitive receivers during the day, evening and night time periods.</p> <p>On 08 September 2015, the noise result at R7 was only 1dB above noise limits. Wilkinson Murray advised AGL that compliance with licence conditions is indeterminate since the result did not exceed the noise limit by more than 2dB in accordance with the <i>NSW Industrial Noise Policy</i>. Further monitoring on 08 October 2015 confirmed compliance with Evening noise limits at R7.</p>
Attended noise monitoring 16-17 December 2015	<p>Measured noise levels complied with the noise criteria for the sensitive receivers during the day, evening and night time periods.</p>
Attended noise monitoring 07 and 23 March 2016	<p>Measured noise levels complied with the noise criteria for the sensitive receivers during the day, evening and night time period.</p>
tended noise monitoring 15 June 2016	<p>Measured noise levels complied with the noise criteria for the sensitive receivers during the day, evening and night time period.</p> <p>On 15 June 2016, the noise result at R7 was only 1dB above noise limits. Wilkinson Murray advised AGL that compliance with licence conditions is indeterminate since the result did not exceed the noise limit by more than 2dB in accordance with the <i>NSW Industrial Noise Policy</i>. Further, monitoring was conducted during 'non significant weather conditions' (high strength temperature inversion/ G-class Pasquill-Gillford stability category). During such weather conditions, EPL noise limits do not apply according to the <i>NSW Industrial Noise Policy</i>. Further Evening monitoring was unable to be completed at R7 before the end of the reporting period. Monitoring after the reporting period confirmed compliance with the noise limit.</p>
Annual Noise Report Summary (From 2014-15 Annual Noise Compliance Monitoring Report)	<p>All monitoring showed the RPGP to be compliant with the relevant operational noise limits set by the EPL and Development Consent No. 282-6-2003-I at both R1 and R7 receiver locations for day, evening and night under typical operating conditions.</p>



Appendix L. Flare Event Monitoring

The RPGP flare log is provided in this Appendix from July 2015 to June 2016.

Date	Time	Duration (minutes)	Light (Day, Dusk, Night, Dawn)	No. Compressor on line	Cause of Flare Occurrence
29/12/15	2239 to 2256	17	Night	None	Plant shutdown
23/04/16	1720 to 1918	118	Night	None	Plant shutdown
24/04/16	0616 to 0629	13	Day	None	Plant shutdown
30/06/16	0203 to 0358	115	Dawn	None	Plant shutdown



Appendix M. Groundwater Monitoring Results

Electrical conductivity results from dedicated monitoring bores and Nepean River

