



AGL UPSTREAM INVESTMENTS PTY LTD  
CAMDEN GAS PROJECT

**Annual Leak Detection and Repair Summary Report**

Reporting Period: 22 December 2016 – 21 December 2017

AGL Upstream Investments Pty Ltd  
ABN 58 115 063 744  
Locked Bag 1837, St Leonards NSW 2065  
200 George Street, Sydney NSW 2000  
Telephone: 02 9921 2999 Facsimile: 02 9921 2474  
Complaints Line (24 hours): 1300 799 716

## Foreword

|                           |                                                                    |
|---------------------------|--------------------------------------------------------------------|
| <b>PREMISES</b>           | Rosalind Park Gas Plant<br>Lot 35 Medhurst Road<br>GILEAD NSW 2560 |
| <b>LICENCE DETAILS</b>    | <a href="#"><u>Environment Protection Licence 12003</u></a>        |
| <b>LICENCEE</b>           | AGL Upstream Investments Pty Limited (AGL)                         |
| <b>LICENCEE'S ADDRESS</b> | Locked Bag 1837, St Leonards, NSW 2065                             |
| <b>REPORTING PERIOD</b>   | 22 December 2016 – 21 December 2017                                |
| <b>REPORT DATE</b>        | 16 January 2018                                                    |
| <b>REPORT PREPARED BY</b> | Aaron Clifton, Environment Business Partner                        |

## 1. Introduction

### 1.1 Background

The Camden Gas Project (CGP) is owned and operated by AGL and is located in the Macarthur region 65 km southwest of Sydney, in the Wollondilly, Camden and Campbelltown Local Government Areas. The CGP has been producing gas for the Sydney region since 2001 and currently consists of 144 gas wells, low-pressure underground gas gathering pipes and the Rosalind Park Gas Plant (RPGP).

The Environment Protection Licence for the CGP (EPL 12003) includes requirements for the operation and reporting of a Leak Detection and Repair (LDAR) program.

This LDAR Summary Report has been prepared to satisfy the LDAR reporting requirements of the EPL.

### 1.2 EPL 12003: Leak Detection and Repair Program

EPL 12003 includes the following requirements for Leak Detection and Repair:

- Condition M7.2: *The licensee must operate a Leak Detection and Repair Program for all relevant components of plant and equipment.*
- Condition M7.3: *The LDAR Program must, unless otherwise approved by the EPA, monitor for the detection of leaks in accordance with US EPA Method 21- Determination of Volatile Organic Compound (VOC) Leaks (40 CFR Part 60, Appendix A, Method 21).*
- Condition R4.2: *The licensee must submit a brief summary report on the Leak Detection and Repair (LDAR) program with the annual return. The summary report must include, but may not be limited to:*
  - *The total number of components inspected, as well as the number and percentage of minor, major and significant leaking components found by component types;*
  - *The type of components and the scale of the leak for any equipment where leaks are found;*
  - *The emission level of leaking equipment and emission level of re-check after leak was repaired;*
  - *The repair responses and times as listed in Table 1.*

**Table 1- Scale of leaks and classification**

| Scale of leak (ppmv) | Classification |
|----------------------|----------------|
| 1000 - <10,000       | Minor          |
| ≥10,000 - <50,000    | Major          |
| ≥50,000              | Significant    |

- Condition R4.3: *Where a leak is identified, AGL should aim to have the component repaired as follows:*
  - *Within a period of 14 days if the concentration of the fugitive VOCs emission is greater than or equal to 1,000 parts per million by volume (ppmv) but not more than 10,000 ppmv (minor leak), as methane, above background.*
  - *Within a period of 5 days if the concentration of the fugitive VOCs emission is greater than or equal to 10,000 ppmv but not more than 50,000 ppmv (major leak), as methane, above background.*
  - *Within a period of one day if the concentration of the fugitive VOCs emission is greater than or equal to 50,000 ppmv (significant leak > 50,000 ppmv), as methane, above background.*

### **1.3 Methodology**

The LDAR program was undertaken at the CGP by independent third party specialists, Heath Pipeline Services Pty Ltd (HPS). The LDAR program was conducted over 13 working days from 13 November to 25 November 2017, and assessed 113 wellheads, associated above ground facilities and gas gathering lines, and RPGP vessels and piping.

The LDAR program was undertaken in accordance with US EPA Method 21 – Determination of Volatile Organic Compound Leaks (40 CFR Part 60, Appendix A, Method 21).

The LDAR program was undertaken using a GMI leak surveyor operating at 1 part per million (ppm) sensitivity level.

## 2. LDAR Program Results

### 2.1 Field

The results of the LDAR program for the Camden field (including wellheads and associated above ground facilities and infrastructure, and gas gathering lines) are provided in **Table 2**.

**Table 2- Leak detection results for the Camden field LDAR program**

| Component                                                                                |        | Detected Leaks |      |       |      |             |   |
|------------------------------------------------------------------------------------------|--------|----------------|------|-------|------|-------------|---|
|                                                                                          |        | Minor          |      | Major |      | Significant |   |
| Type                                                                                     | No.    | Total          | %    | Total | %    | Total       | % |
| Wells (including valves, instrumentation, vessels, flanges, pipe threads and well heads) | 12,985 | 9              | 0.06 | 3     | 0.02 | 0           | 0 |
| Gas gathering line (km)                                                                  | 78.12  | 0              | -    | 0     | -    | 0           | - |

Where leaks were identified during the field LDAR program, the scale, emission level (pre and post repair), and the repair response and response times were recorded and are summarised in **Table 3**.

**Table 3- Camden field LDAR program repair response**

| Equipment   | Component       | Leak Scale | Repair Response       | Repair Time | Pre Repair (ppmv methane) | Post Repair (ppmv methane) |
|-------------|-----------------|------------|-----------------------|-------------|---------------------------|----------------------------|
| Well - EM17 | Well head       | Minor      | Tightened fitting     | Same day    | 6,000                     | 0                          |
| Well - EM31 | Valve           | Minor      | Tightened and greased | Same day    | 7,000                     | 0                          |
| Well - EM32 | Plug            | Minor      | Tightened and greased | Same day    | 9,000                     | 0                          |
| Well - KP01 | Instrumentation | Minor      | Tightened fitting     | Same day    | 1,500                     | 0                          |
| Well - MP13 | Well head       | Minor      | Applied sealant       | 3 days      | 4,000                     | 0                          |
| Well - MT02 | Valve           | Minor      | Tightened and greased | Same day    | 8,000                     | 0                          |
| Well - MT03 | Well head       | Minor      | Applied sealant       | 3 days      | 2,300                     | 0                          |
| Well - RB08 | Valve           | Minor      | Tightened and greased | Same day    | 6,000                     | 0                          |
| Well - RB08 | Well head       | Minor      | Tightened fitting     | Same day    | 1,300                     | 0                          |
| Well - EM38 | Valve           | Major      | Tightened and greased | Same day    | 25,000                    | 0                          |

| Equipment   | Component       | Leak Scale | Repair Response       | Repair Time | Pre Repair (ppmv methane) | Post Repair (ppmv methane) |
|-------------|-----------------|------------|-----------------------|-------------|---------------------------|----------------------------|
| Well - GL08 | Valve           | Major      | Tightened and greased | Same day    | 40,000                    | 0                          |
| Well - GL13 | Instrumentation | Major      | Tightened fitting     | Same day    | 20,000                    | 0                          |

## 2.2 RPGP

The results of the LDAR program for RPGP (including valves, vessels, instrumentation, piping and compressors) are provided in **Table 4**. Compressors #2 and #3 were not tested as they were not operating at the time of the leak survey.

**Table 4 – Leak detection results for the RPGP LDAR program**

| Component                                                                 |       | Detected Leaks |   |       |   |             |   |
|---------------------------------------------------------------------------|-------|----------------|---|-------|---|-------------|---|
|                                                                           |       | Minor          |   | Major |   | Significant |   |
| Type                                                                      | No.   | Total          | % | Total | % | Total       | % |
| RPGP (including valves, vessels, instrumentation, piping and compressors) | 3,875 | 0              | 0 | 0     | 0 | 0           | 0 |

## 3 Conclusion

The LDAR program was implemented at the CGP and included an assessment of field and RPGP facilities and infrastructure.

The LDAR program was undertaken by third party leak detection specialists in accordance with US EPA Method 21 – Determination of Volatile Organic Compound Leaks (40 CFR Part 60, Appendix A, Method 21).

Leaks that were identified during the LDAR program were classified in accordance with methane emission levels and repairs were undertaken within the target period recommended in EPL 12003.

## 4 References

1. Gas Leakage Audit Report - Camden Gas Project, Heath Pipeline Services, issued 12 January 2018.