



AGL UPSTREAM INVESTMENTS PTY LTD
CAMDEN GAS PROJECT

Annual Leak Detection and Repair Summary Report

Reporting Period: 22 December 2017 – 21 December 2018

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Foreword

PREMISES	Rosalind Park Gas Plant Lot 35 Medhurst Road GILEAD NSW 2560
LICENCE DETAILS	<u>Environment Protection Licence 12003</u>
LICENCEE	AGL Upstream Investments Pty Limited (AGL)
LICENCEE'S ADDRESS	Locked Bag 3013, Australia Square, NSW 1215
REPORTING PERIOD	22 December 2017 – 21 December 2018
REPORT DATE	06 December 2018
REPORT PREPARED BY	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 08 to 20 October 2018, and assessed 106 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)	12,917	2	0.015	0	0	0	0
Gas gathering line (km)	72.34	0	-	1	-	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 - EM22	Threaded fitting	Minor	Tightened fitting	Same day	2,050	0
Well - RB11	Threaded fitting	Minor	Tightened fitting	Same day	5,500	0
Gas Gathering Line - Water Trap 22	Threaded fitting	Major	Tightened fitting	Same day	23,000	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 tested but 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)	5,923	3	0.05	1	0.017	0	0

Where leaks were identified during the RPGP LDAR program, the scale, emission level (pre and post repair), and the repair response and response times were recorded and are summarised in **Table 5**.

Table 5- Rosalind Park Gas Plant LDAR program repair response

Equipment	Component	Leak Scale	Repair Response	Repair Time	Pre Repair (ppmv methane)	Post Repair (ppmv methane)
Compressor 1	Pipe join on control on fuel line	Major	Tightened fitting	2 days	30,000	0
Compressor 2	Flange to actuator on start gas line	Minor	Resealed and tightened fitting	2 days	4,760	205
TEG Skid	Cap thread on regulator between valves	Minor	Tightened fitting	2 days	1,010	0
Metering Skid	Lid seal on filter	Minor	Replaced O-ring and retightened	5 days	3,550	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 29 November 2018.