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**AGL UPSTREAM INVESTMENTS PTY LTD
ROSALIND PARK GAS PLANT
Quarterly Air Monitoring Report**

Reporting Period: 4th Quarter - December 2016

AGL Upstream Investments Pty Ltd

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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
LICENCEE'S ADDRESS	Locked Bag 1837, St Leonards, NSW 2065
MONITORING DATE	4 th Quarter – 6 & 7 December 2016
MONITORING BY	Ektimo
ANALYSIS BY	Ektimo (laboratory report number R003403)
OBTAINED DATA DATE	23 December 2016 (Ektimo Report R003403)
REPORT DATE	05 January 2017
REPORT PREPARED BY	Aaron Clifton Environment Business Partner

SUMMARY OF ACTIVITY

Rosalind Park Gas Plant, located approximately 60km south west of Sydney, is a natural gas processing and treatment plant, used to process coal seam natural gas from the Camden Gas Project.

Produced natural gas is cleaned, dehydrated, compressed and odourised before being measured and transported by pipeline about 500 metres into the nearby Moomba to Sydney Natural Gas Pipeline. The premises are covered by Environment Protection Licence 12003 which includes all gas wells, gas gathering, reticulation systems, trunk lines and associated effluent storage areas and work areas of the Camden Gas Project.



This Monitoring Report relates to those air monitoring activities specified in Part 5, Monitoring and Recording Conditions, of the Environment Protection Licence. The Licence conditions stipulate air monitoring is required to be carried out at the locations, at the frequency and using the test methods as set out in the tables below.

This report sets out the results of quarterly monitoring. A separate report is issued for continuous monitoring.

This report is prepared in accordance with the *Requirements for Publishing Pollution Monitoring Data* (EPA, October 2013) (**Publication Requirements**).

AIR MONITORING LOCATIONS

Point	Location	Monitoring Frequency
1	Exhaust Stack 1 on Compression Engine 1	Quarterly
2	Exhaust Stack 2 on Compression Engine 2	Quarterly
3	Exhaust Stack 3 on Compression Engine 3	Quarterly
4	Reboiler Flue	Quarterly
5	Reflux Column Vent	Quarterly
6	Carbon Scrubber Vent	Quarterly

Note: monitoring is only undertaken when the compression engines are running.

AIR MONITORING TEST METHODS – POINTS 1, 2, 3, 4 and 5

Parameter	NSW EPA Test Method (Sampling Method)
Carbon dioxide	TM-24
Dry gas density	TM-23
Moisture	TM-22
Molecular weight of stack gases	TM-23
Nitrogen Oxides	TM-11
Oxygen (O ₂)	TM-25
Sulfuric acid mist and sulphur trioxide (as SO ₃)	TM-3
Sulphur dioxide	TM-4
Temperature	TM-2
Velocity	TM-2
Volumetric flowrate	TM-2



AIR MONITORING TEST METHODS – POINT 6

Parameter	NSW EPA Test Method (Sampling Method)
Carbon dioxide	TM-24
Dry gas density	TM-23
Moisture	TM-22
Molecular weight of stack gases	TM-23
Odour	OM-7
Oxygen (O ₂)	TM-25
Temperature	TM-2
Velocity	TM-2
Volumetric flowrate	TM-2



Air Monitoring Results

Monitoring Point	Description	Pollutant	Units of measure	Oxygen correction	Sampling method	Monitoring frequency required by licence	Average Concentration	Concentration limit
1	Compressor Engine 1 (Sampled 06 December 2016)	Carbon dioxide	Percent		TM-24	Quarterly	5	Not applicable
		Dry gas density	Kilograms per cubic metre		TM-23	Quarterly	1.31	Not applicable
		Moisture	Percent		TM-22	Quarterly	7	Not applicable
		Molecular weight of stack gases	Grams per gram mole		TM-23	Quarterly	29.4	Not applicable
		Nitrogen Oxides (as NO ₂ equivalent)	Milligrams per cubic metre	7% oxygen	TM-11	Quarterly	280	461
		Oxygen (O ₂)	Percent		TM-25	Quarterly	11.6	Not applicable
		Sulfuric acid mist and sulphur trioxide (as SO ₃)	Milligrams per cubic metre		TM-3	Quarterly	0.24	5.0
		Sulphur dioxide	Milligrams per cubic metre		TM-4	Quarterly	<5	7
		Temperature	Degrees Celsius		TM-2	Quarterly	355	Not applicable
		Velocity	Metres per second		TM-2	Quarterly	27	Not applicable
		Volumetric flowrate	Cubic metres per second		TM-2	Quarterly	3.1	Not applicable

Monitoring Point	Description	Pollutant	Units of measure	Oxygen correction	Sampling method	Monitoring frequency required by licence	Average Concentration	Concentration limit
2	Compressor Engine 2 (Sampled 06 December 2016)	Carbon dioxide	Percent		TM-24	Quarterly	11.5	Not applicable
		Dry gas density	Kilograms per cubic metre		TM-23	Quarterly	1.34	Not applicable
		Moisture	Percent		TM-22	Quarterly	16	Not applicable
		Molecular weight of stack gases	Grams per gram mole		TM-23	Quarterly	30.0	Not applicable
		Nitrogen Oxides (as NO ₂ equivalent)	Milligrams per cubic metre	7% oxygen	TM-11	Quarterly	14	461
		Oxygen (O ₂)	Percent		TM-25	Quarterly	0.6	Not applicable
		Sulfuric acid mist and sulphur trioxide (as SO ₃)	Milligrams per cubic metre		TM-3	Quarterly	0.042	5.0
		Sulphur dioxide	Milligrams per cubic metre		TM-4	Quarterly	<5	7
		Temperature	Degrees Celsius		TM-2	Quarterly	388	Not applicable
		Velocity	Metres per second		TM-2	Quarterly	14	Not applicable
	Volumetric flowrate	Cubic metres per second		TM-2	Quarterly	0.55	Not applicable	

Monitoring Point	Description	Pollutant	Units of measure	Oxygen correction	Sampling method	Monitoring frequency required by licence	Average Concentration	Concentration limit
3	Compressor Engine 3 (Sampled 07 December 2016)	Carbon dioxide	Percent		TM-24	Quarterly	11.1	Not applicable
		Dry gas density	Kilograms per cubic metre		TM-23	Quarterly	1.34	Not applicable
		Moisture	Percent		TM-22	Quarterly	14	Not applicable
		Molecular weight of stack gases	Grams per gram mole		TM-23	Quarterly	29.9	Not applicable
		Nitrogen Oxides (as NO ₂ equivalent)	Milligrams per cubic metre	7% oxygen	TM-11	Quarterly	27	461
		Oxygen (O ₂)	Percent		TM-25	Quarterly	0.9	Not applicable
		Sulfuric acid mist and sulphur trioxide (as SO ₃)	Milligrams per cubic metre		TM-3	Quarterly	<0.02	5.0
		Sulphur dioxide	Milligrams per cubic metre		TM-4	Quarterly	<5	7
		Temperature	Degrees Celsius		TM-2	Quarterly	367	Not applicable
		Velocity	Metres per second		TM-2	Quarterly	12	Not applicable
		Volumetric flowrate	Cubic metres per second		TM-2	Quarterly	0.53	Not applicable



Monitoring Point	Description	Pollutant	Units of measure	Oxygen correction	Sampling method	Monitoring frequency required by licence	Average Concentration	Concentration limit
4	Reboiler Flue (Sampled 06 December 2016)	Carbon dioxide	Percent		TM-24	Quarterly	3.5	Not applicable
		Dry gas density	Kilograms per cubic metre		TM-23	Quarterly	1.31	Not applicable
		Moisture	Percent		TM-22	Quarterly	9.3	Not applicable
		Molecular weight of stack gases	Grams per gram mole		TM-23	Quarterly	29.3	Not applicable
		Nitrogen Oxides (as NO ₂ equivalent)	Milligrams per cubic metre	7% oxygen	TM-11	Quarterly	51	110
		Oxygen (O ₂)	Percent		TM-25	Quarterly	14.5	Not applicable
		Sulfuric acid mist and sulphur trioxide (as SO ₃)	Milligrams per cubic metre		TM-3	Quarterly	0.023	3.5
		Sulphur dioxide	Milligrams per cubic metre		TM-4	Quarterly	<5	35
		Temperature	Degrees Celsius		TM-2	Quarterly	295	Not applicable
		Velocity	Metres per second		TM-2	Quarterly	3.3	Not applicable
Volumetric flowrate	Cubic metres per second		TM-2	Quarterly	0.076	Not applicable		



Monitoring Point	Description	Pollutant	Units of measure	Oxygen correction	Sampling method	Monitoring frequency required by licence	Average Concentration	Concentration limit
5	Reflux Column Vent (Sampled 06 December 2016)	Carbon dioxide	Percent		TM-24	Quarterly	12.1	Not applicable
		Dry gas density	Kilograms per cubic metre		TM-23	Quarterly	1.34	Not applicable
		Moisture	Percent		TM-22	Quarterly	37	Not applicable
		Molecular weight of stack gases	Grams per gram mole		TM-23	Quarterly	30.1	Not applicable
		Nitrogen Oxides (as NO ₂ equivalent)	Milligrams per cubic metre	7% oxygen	TM-11	Quarterly	<2	13
		Oxygen (O ₂)	Percent		TM-25	Quarterly	<0.4	Not applicable
		Sulfuric acid mist and sulphur trioxide (as SO ₃)	Milligrams per cubic metre		TM-3	Quarterly	0.036	35
		Sulphur dioxide	Milligrams per cubic metre		TM-4	Quarterly	<5	1042
		Temperature	Degrees Celsius		TM-2	Quarterly	75	Not applicable
		Velocity	Metres per second		TM-2	Quarterly	1.8	Not applicable
		Volumetric flowrate	Cubic metres per second		TM-2	Quarterly	0.0068	Not applicable



Monitoring Point	Description	Pollutant	Units of measure	Oxygen correction	Sampling method	Monitoring frequency required by licence	Average Concentration	Concentration limit
6	Carbon Scrubber Vent (Sampled 07 December 2016)	Carbon dioxide	Percent		TM-24	Quarterly	<0.2	Not applicable
		Dry gas density	Kilograms per cubic metre		TM-23	Quarterly	1.29	Not applicable
		Moisture	Percent		TM-22	Quarterly	0.76	Not applicable
		Molecular weight of stack gases	Grams per gram mole		TM-23	Quarterly	29	Not applicable
		Odour	Odour Units		OM-7	Quarterly	420	Not applicable
		Oxygen (O ₂)	Percent		TM-25	Quarterly	20.9	Not applicable
		Temperature	Degrees Celsius		TM-2	Quarterly	28	Not applicable
		Velocity	Metres per second		TM-2	Quarterly	6.8	Not applicable
		Volumetric flowrate	Cubic metres per second		TM-2	Quarterly	0.17	Not applicable