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AGL UPSTREAM INVESTMENTS
PTY LTD

GLOUCESTER GAS PROJECT

May 2016 Water Monitoring Report

**Waukivory Pilot Project: Fracture Stimulation and Flow Test
EPL 20358**

Reporting Period: February 2016 – April 2016

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Foreword

PREMISES	Gloucester Coal Seam Gas Project Bucketts Way Gloucester NSW 2422
LICENCE DETAILS	<u>Environment Protection Licence 20358</u>
LICENCEE	AGL Upstream Investments Pty Limited (AGL)
LICENCEE'S ADDRESS	Locked Bag 1837, North Sydney, NSW 2060
MONITORING DATE(s)	15, 16 February, 22 March and 20 April 2016
MONITORING BY	Parsons Brinckerhoff, on behalf of AGL
ANALYSIS BY	ALS Laboratory, Smithfield (Work order: ES1603375, ES1603491, ES1606400, ES1608629)
DATE AGL OBTAINED DATA	29 April 2016
REPORT DATE	10 May 2016
REPORT PREPARED BY	James Duggleby, Senior Hydrogeologist

Introduction

On 4 February 2016 AGL Upstream Investments Pty Ltd (AGL) announced that the GGP will not proceed to final investment stage. AGL will relinquish Petroleum Exploration Licence (PEL) 285 to the NSW Government and will commence a comprehensive decommissioning and rehabilitation program for well sites and other infrastructure in the Gloucester region.

A dedicated water monitoring network is in place which has enabled the collection of baseline water level and water quality data for the different groundwater and surface water systems within the Gloucester Basin. There are currently more than 50 dedicated water monitoring locations and more than five years of baseline monitoring (water levels and water quality) across the Gloucester Basin.

The Gloucester Coal Seam Gas Project has Environment Protection Licence (EPL) 20358 for coal seam gas activities. This Monitoring Report relates to the water monitoring activities specified in Part 5, Monitoring and Recording Conditions, of EPL 20358. This report relates specifically to the monitoring surrounding the Waukivory Pilot Project, and details:

- > Monitoring results from monthly samples at monitoring points 7, 8, 9 (WKSW03, WKSW02, WKSW01) (Appendix B);
- > Monitoring results from continuous water level (including piezometric level) monitoring at monitoring points 10, 11, 12, 85, and 90 (WKMB01, WKMB02, WKMB03, WKMB05, GR-P3) for the period 5 January 2016 to 1-2 February 2016 (Appendix C and D, Figure 2 and Figure 3).

As per the EPL, monitoring encompasses the monitoring points at the locations as shown in Table 1 and Figure 1.

The monitoring points that are the subject of this report are part of the GGP surface water and groundwater monitoring network, as described in AGL's Surface Water and Groundwater Management Plan (SGMP) for the Waukivory Pilot Project (AGL, 2015).

- > A telescopic sampler to collect grab samples from the flowback water monitoring point 92 and the surface water monitoring points 7, 8, and 9.

The water quality samples are analysed by an external NATA certified laboratory (ALS Environmental, Smithfield), in accordance with the EPA Approved Methods Publication "*Approved Methods for the Sampling and Analysis of Water Pollutants in New South Wales*" (EPA, 2004), with the exception of those referenced in Section M2.7 of EPL 20358 and:

- > Monoethanolamine borate, which was analysed as monoethanolamine using the Liquid Chromatography Triple Quadruple Mass Spectrometry (LC/MSMS) method. The EPA have acknowledged that this method is a suitable technique for representing detections of monoethanolamine borate in water (EPA, 2014b); and
- > Sodium hypochlorite, where detections of free and total residual chlorine were used as a proxy. The EPA have acknowledged that this method is a suitable technique for representing detections of sodium hypochlorite in water (EPA, 2014a).

This report is prepared in accordance with the *Requirements for Publishing Pollution Monitoring Data* (EPA, 2012) (Publication Requirements).

The remaining water and land monitoring points in EPL 20358 will be reported in subsequent reports when the requirement for monitoring is triggered. More information on the groundwater monitoring of the GGP is available on the project website: agl.com.au/Gloucester

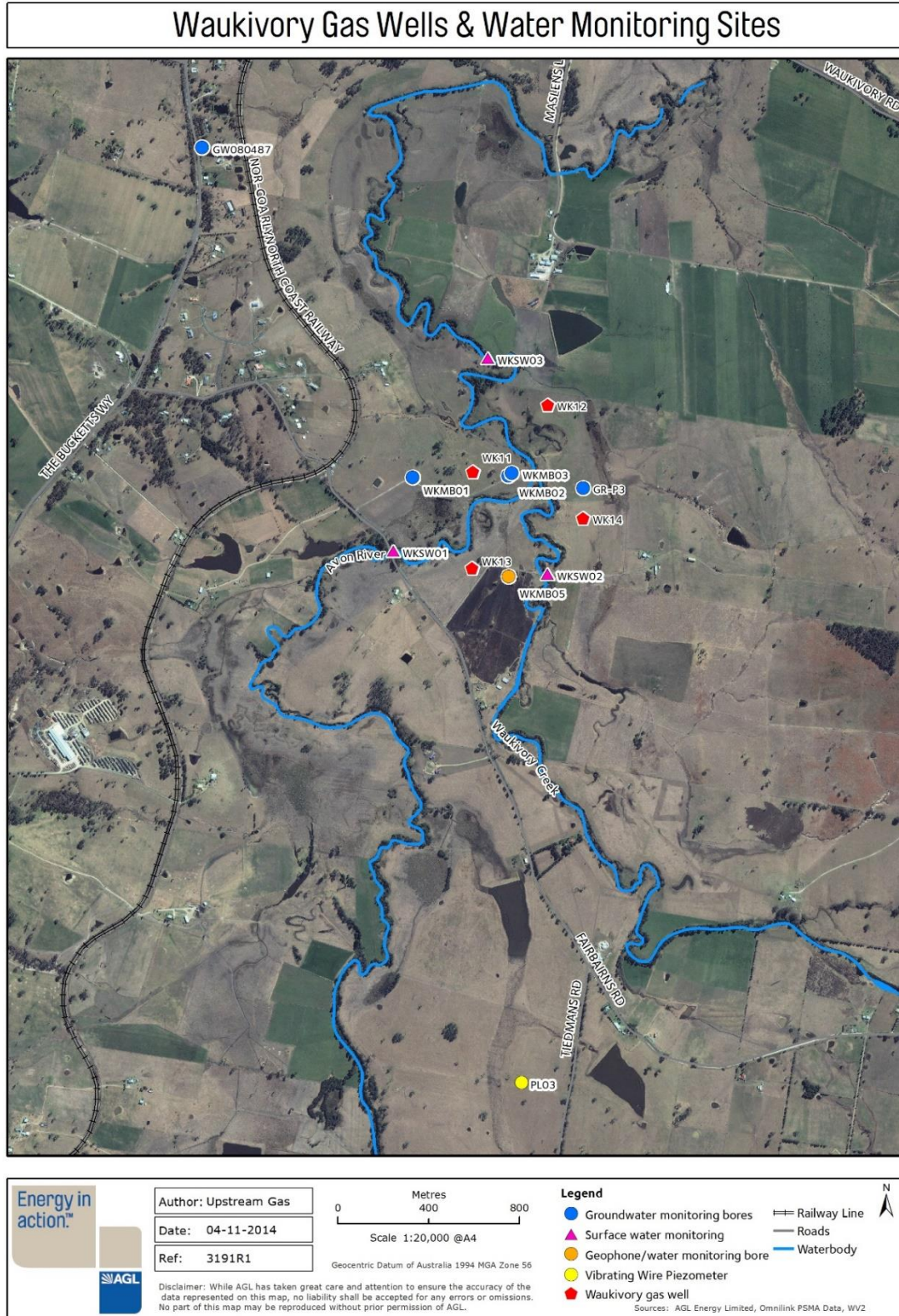
Table 1: Waukivory Pilot Project water monitoring points (as per EPL 20358)

EPA Identification no.	Monitoring Point	Type of monitoring point	Easting (m)	Northing (m)
7	WKSW03	Stream gauge (surface water)	402486.36	6453090.65
8	WKSW02	Stream gauge (surface water)	402748.00	6452139.00
9	WKSW01	Stream gauge (surface water)	402069.00	6452241.00
10	WKMB01	Groundwater monitoring bore	402153.63	6452566.28
11	WKMB02	Groundwater monitoring bore	402575.54	6452572.49
12	WKMB03	Groundwater monitoring bore	402589.87	6452584.93
14	PL03	Vibrating wire piezometer (groundwater)	402633.90	6449898.67
85	WKMB05	Packer and piezometer completion: multizone monitoring well (groundwater)	402576.59	6452128.62
86	WK11	Gas well	402419.02	6452589.82
87	WK12	Gas well	402748.92	6452883.77
88	WK13	Gas well	402416.74	6452164.46
89	WK14	Gas well	402906.10	6452384.08
90	GR-P3	Private groundwater bore	402905.50	6452518.71
91	GW080487	Private groundwater bore	401226.00	6454020.00
92	AST2	Above ground storage tank	Located on the WK13 work pad	

Notes:

Coordinate reference system: Map Grid of Australia 1994

Figure 1: Location of groundwater and surface water quality monitoring points: Waukivory Pilot Program (as per EPL 20358)



References

- AGL, 2015. Surface Water and Groundwater Management Plan for the Waukivory Pilot Program – Gloucester Gas Project. Available online: http://www.agl.com.au/~media/AGL/About%20AGL/Documents/How%20We%20Source%20Energy/Gloucester%20Document%20Repository/Water%20Plans/20150506_Surface%20Water%20and%20Groundwater%20Management%20Plan%20for%20the%20Waukivory%20Pilot%20Program.pdf
- Environment Protection Authority (EPA), 2014a. Letter correspondence to AGL Energy Limited. EPA reference: DOC14/192084-03; SF14/602, delivered on the 20 October 2014, signed: Carmen Dwyer, Special Project Manager – Coal Seam Gas.
- Environment Protection Authority (EPA), 2014b. Letter correspondence to AGL Energy Limited. EPA reference: DOC14/279381-01; SF14/602, delivered on the 1 December 2014, signed: Brett Nudd, Acting Special Project Manager – Coal Seam Gas.
- Environment Protection Authority (EPA), 2004. Approved Methods for the Sampling and Analysis of Water Pollutants in New South Wales, The Department of Environment and Conservation, Sydney, Australia. Available online: <http://www.environment.nsw.gov.au/resources/water/approvedmethods-water.pdf>
- Parsons Brinckerhoff (PB), 2012. Phase 2 Groundwater Investigations – Stage 1 Gas Field Development Area, Gloucester Gas Project. Report dated January 2012, PR_5630. Available online: <http://www.agl.com.au/~media/AGL/About%20AGL/Documents/How%20We%20Source%20Energy/CSG%20and%20the%20Environment/Gloucester/Assessments%20and%20Reports/2012/January/PB%20Gloucester%20Groundwater%20Report%20Phase%202%20Appendices%20E-P.pdf>
- The State of NSW and Environment Protection Authority (EPA), 2012. Requirements for publishing pollution monitoring data. Environment Protection Authority, Sydney, Australia. Available online: <http://www.epa.nsw.gov.au/resources/licensing/130742reqpubpmdata.pdf>

Appendix A: Analytes monitored and frequency required for monitoring points in Table 1 (as per EPL 20358 (dated 24 December 2015))

Pollutant	Units of measure	Monitoring points											
		7,8,9		10,11,90		91		12,14,85		86,87,88,89		92**	
		Frequency	Sampling method	Frequency	Sampling method	Frequency	Sampling method	Frequency	Sampling method	Frequency	Sampling method	Frequency	Sampling method
Aluminium	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Ammonia	milligrams per litre			Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Arsenic	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Barium	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Benzene	micrograms per litre*			Special Frequency 3	Grab sample	Special Frequency 3	Grab sample					Monthly	Grab sample
Beryllium	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Bicarbonate	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Boron	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Cadmium	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Calcium	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Carbonate	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Chloride	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Chromium	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Cobalt	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Copper	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Ethyl benzene	micrograms per litre*			Special Frequency 3	Grab sample	Special Frequency 3	Grab sample					Monthly	Grab sample
Electrical conductivity	microsiemens per centimetre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Fluoride	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Iron	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Lead	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Magnesium	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Manganese	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Mercury	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Methane	milligrams per litre			Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Molybdenum	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Monoethanolamine Borate	micrograms per litre	Special Frequency 5	Method approved in writing by the Authority	Special Frequency 3	Method approved in writing by the Authority	Special Frequency 3	Method approved in writing by the Authority			Special Frequency 4	Method approved in writing by the Authority		
Nickel	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Nitrate	milligrams per litre			Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Nitrite	milligrams per litre			Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
pH	pH	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Phosphorus (total)	milligrams per litre			Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Potassium	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Reactive Phosphorus	milligrams per litre			Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Selenium	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Silica	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Sodium	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Sodium Hypochlorite	milligrams per litre	Special Frequency 5	Method approved in writing by the Authority	Special Frequency 3	Method approved in writing by the Authority	Special Frequency 3	Method approved in writing by the Authority			Special Frequency 4	Method approved in writing by the Authority		
Standing water level	meters (Australian Height Datum)			Special Frequency 8	Special Method 5	Special Frequency 6	Special Method 1	Special Frequency 8	Special Method 5	Special Frequency 9	Special Method 3		
Strontium (dissolved)	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Sulfate	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Toluene	micrograms per litre*			Special Frequency 3	Grab sample	Special Frequency 3	Grab sample					Monthly	Grab sample
Total dissolved solids	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Total organic carbon	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Total suspended solids	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Uranium	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Vanadium	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		
Xylene	micrograms per litre*			Special Frequency 3	Grab sample	Special Frequency 3	Grab sample					Monthly	Grab sample
Zinc	milligrams per litre	Special Frequency 5	Grab sample	Special Frequency 3	Grab sample	Special Frequency 3	Grab sample			Special Frequency 4	Grab sample		

Notes:

Special Frequency 3 – 6 monthly

Special Frequency 4 – Every fortnight for the first 8 weeks of extraction from the commencement of the Waukivory pilot flow testing, then every 2 months thereafter until the cessation of the Waukivory pilot flow testing. Should the flow be suspended during that stage, then the timeframes will also be suspended and recommence when flows from the wells recommence.

Special Frequency 5 – One sampling event within 24 hours of the completion of the fracture stimulation of each well, and one sampling event one week after the completion of the fracture stimulation of each well & 6 months after cessation of fracture stimulation, then monthly for the next 12 months. Sampling requirements to be reassessed in May 2016.

Special Frequency 6 – One monitoring event to determine water level prior to the Waukivory Pilot Project fracture stimulation.

Special Frequency 8 – Every 6 hours

Special Frequency 9 – Every 6 hours when using an automated datalogger, or, once every fortnight using a Sonolog in the event of failure of an automated datalogger.

Special method 1 - manual dip Special method 3 - Use of an automated datalogger. As a back up contingency, by use of Sonolog in the event of failure of an automated datalogger.

Special method 5 - Automated datalogger Special method 7 - Sodium Hypochlorite is monitored through its elemental constituents. Free residual and total chlorine are monitored using existing validated methods

Shaded grey = not required to be analysed

*EPL20358 (issued 24 December 2015) contains inconsistencies in the required Units of Measure for Benzene, Toluene, Ethyl Benzene and Xylene. For consistency with laboratory data BTEX concentrations are reported here in micrograms per litre.

**AST2 (Point 92) was emptied of water and cleaned on 8 February 2016. Therefore no samples were possible from 8 Feb 2016.



Appendix B: Water quality monitoring data for points 7, 8, and 9

Analysis by: ALS Laboratory, Smithfield (Work order: ES1603375, ES1603491, ES1606400, ES1608629)

		Monitoring points	7	7	7	8	8	8	9	9	9	
		Location	WKSW03	WKSW03	WKSW03	WKSW02	WKSW02	WKSW02	WKSW01	WKSW01	WKSW01	Analyte
		Sampled date	15/02/2016	22/03/2016	20/04/2016	16/02/2016	22/03/2016	20/04/2016	16/02/2016	22/03/2016	20/04/2016	Analyte
		Date AGL obtained data	29/04/2016	29/04/2016	29/04/2016	29/04/2016	29/04/2016	29/04/2016	29/04/2016	29/04/2016	29/04/2016	Analyte
		Monitoring event	monthly	monthly	monthly	monthly	monthly	monthly	monthly	monthly	monthly	Analyte
Analyte	Units of measure	Limit of reporting										Analyte
Aluminium	mg/L	0.01	0.06	<0.01	<0.01	0.01	<0.01	<0.01	0.08	<0.01	0.02	Aluminium
Ammonia	mg/L	0.01										Ammonia
Arsenic	mg/L	0.001	<0.001	<0.001	0.002	0.001	0.001	0.002	<0.001	<0.001	0.001	Arsenic
Barium	mg/L	0.001	0.034	0.043	0.056	0.037	0.045	0.057	0.034	0.038	0.043	Barium
Benzene	µg/L	1										Benzene
Beryllium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	Beryllium
Bicarbonate	mg/L	1	58	87	97	72	117	124	43	78	94	Bicarbonate
Boron	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	Boron
Cadmium	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	Cadmium
Calcium	mg/L	1	13	17	19	19	28	30	11	15	17	Calcium
Carbonate	mg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	Carbonate
Chloride	mg/L	0.1	49.4	66.4	92.2	62.2	83.7	108	43.5	53.4	74.0	Chloride
Chromium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	Chromium
Cobalt	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	Cobalt
Copper	mg/L	0.001	0.003	<0.001	<0.001	0.002	<0.001	<0.001	0.002	<0.001	<0.001	Copper
Ethyl benzene	µg/L	2										Ethyl benzene
Electrical conductivity	µS/cm	1	290	391	459	384	510	542	258	335	398	Electrical conductivity
Fluoride	mg/L	0.1	<0.1	0.1	0.2	<0.1	0.1	0.4	<0.1	0.1	0.5	Fluoride
Iron	mg/L	0.05	0.21	0.20	0.30	0.10	0.12	0.22	0.27	0.13	0.34	Iron
Lead	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	Lead
Magnesium	mg/L	1	7	10	12	9	13	15	6	8	11	Magnesium
Manganese	mg/L	0.001	0.074	0.249	0.599	0.180	0.726	0.580	0.065	0.246	0.267	Manganese
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	Mercury
Methane	mg/L	0.01										Methane
Molybdenum	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	Molybdenum
Monoethanolamine Borate	µg/L	1	<1	2	<1	<1	<1	<1	<1	<1	<1	Monoethanolamine Borate
Nickel	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	Nickel
Nitrate	mg/L	0.01										Nitrate
Nitrite	mg/L	0.01										Nitrite
pH	pH Unit	0.01	7.32	7.13	6.91	7.26	6.90	6.59	7.51	7.34	7.09	pH
Phosphorus (total)	mg/L	0.01										Phosphorus (total)
Potassium	mg/L	1	2	3	3	3	3	4	2	3	3	Potassium
Reactive Phosphorus	mg/L	0.01										Reactive Phosphorus
Selenium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Selenium
Silica	mg/L	0.05	20.80	18.8	14.4	14.0	15.8	19.1	22.7	20.4	16.10	Silica
Sodium	mg/L	1	32	44	55	39	52	58	199	38	47	Sodium
Sodium Hypochlorite (reported as free chlorine)	mg/L	0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	Sodium Hypochlorite (reported as free chlorine)
Sodium Hypochlorite (reported as residual chlorine)	mg/L	0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	Sodium Hypochlorite (reported as residual chlorine)
Standing water level	mAHD	0.01										Standing water level
Strontium (dissolved)	mg/L	0.001	0.148	0.221	0.294	0.219	0.295	0.360	0.132	0.188	0.260	Strontium (dissolved)
Sulfate	mg/L	1	7	1	2	7	<1	1	6	1	1	Sulfate
Toluene	µg/L	2										Toluene
Total dissolved solids	mg/L	10	187	232	228	202	272	291	159	192	198	Total dissolved solids
Total organic carbon	mg/L	1	8	8	9	8	8	7	10	8	8	Total organic carbon
Total suspended solids	mg/L	5	<5	10	<5	<5	16	6	<5	12	<5	Total suspended solids
Uranium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	Uranium
Vanadium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Vanadium
Xylene	µg/L	2										Xylene
Zinc	mg/L	0.005	0.005	0.007	<0.005	0.047	0.011	<0.005	0.006	0.012	<0.005	Zinc

Key:
Shaded grey = not required to be reported





Appendix C: Continuous water level monitoring results for monitoring points 10, 11, 12, 85, and 90 from 5 January 2016 – 1/2 February 2016 (tabulated summary)

Monitoring point	10	11	12	85						90
Location	WKMB01	WKMB02	WKMB03	WKMB05						GR-P3
				Sensor 1	Sensor 2	Sensor 3	Sensor 4	Sensor 5	Sensor 6	
Data type	Standing water level									
Units	mAHD (metres Australian Height Datum)									
Data start	20/1/2016	5/1/2016	5/1/2016	5/1/2016	5/1/2016	5/1/2016	5/1/2016	5/1/2016	5/1/2016	5/1/2016
Date data downloaded	1/2/2016	1/2/2016	1/2/2016	2/2/2016	2/2/2016	2/2/2016	2/2/2016	2/2/2016	2/2/2016	2/2/2016
Date data supplied to AGL	26/4/2016	26/4/2016	26/4/2016	26/4/2016	26/4/2016	26/4/2016	26/4/2016	26/4/2016	26/4/2016	26/4/2016
Monitoring frequency as required by licence	Every 6 hours	Every 6 hours	Every 6 hours	Every 6 hours	Every 6 hours	Every 6 hours	Every 6 hours	Every 6 hours	Every 6 hours	Every 6 hours
No. of times measured during monitoring period	3523*	111	111	114	114	114	114	114	114	116
Min. value	95.9	96.4	98.7	103.5	100.5	111.7	118.6	140.9	167.9	97.5
Mean value	96.0	97.2	98.8	103.6	100.7	111.8	118.7	141.0	168.0	98.1
Median value	96.0	97.3	98.8	103.6	100.7	111.8	118.7	141.0	168.0	98.1
Max. value	96.1	97.9	98.9	103.7	100.9	112.0	118.9	141.2	168.1	98.4

*Notes:

- WKMB01 data missing between 16 Dec 2015 and 20 Jan 2016 due to logger failure.
- WKMB01 recording every 5 minutes from 20 Jan 2016 to 2 Feb 2016.

Appendix D: Continuous water level monitoring results (hydrographs)

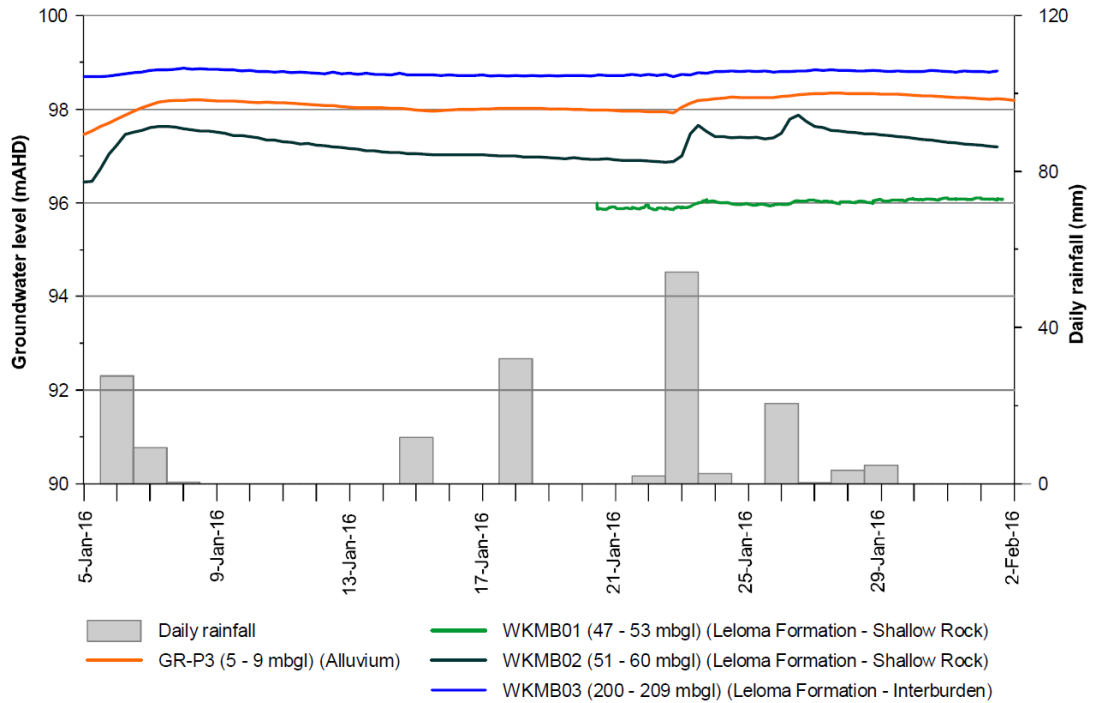


Figure 2: Continuous water level monitoring results for monitoring points 10 (WKMB01), 11 (WKMB02), 12 (WKMB03), and 90 (GR-P3) for the period 5 January 2016 – 1/2 February 2016.

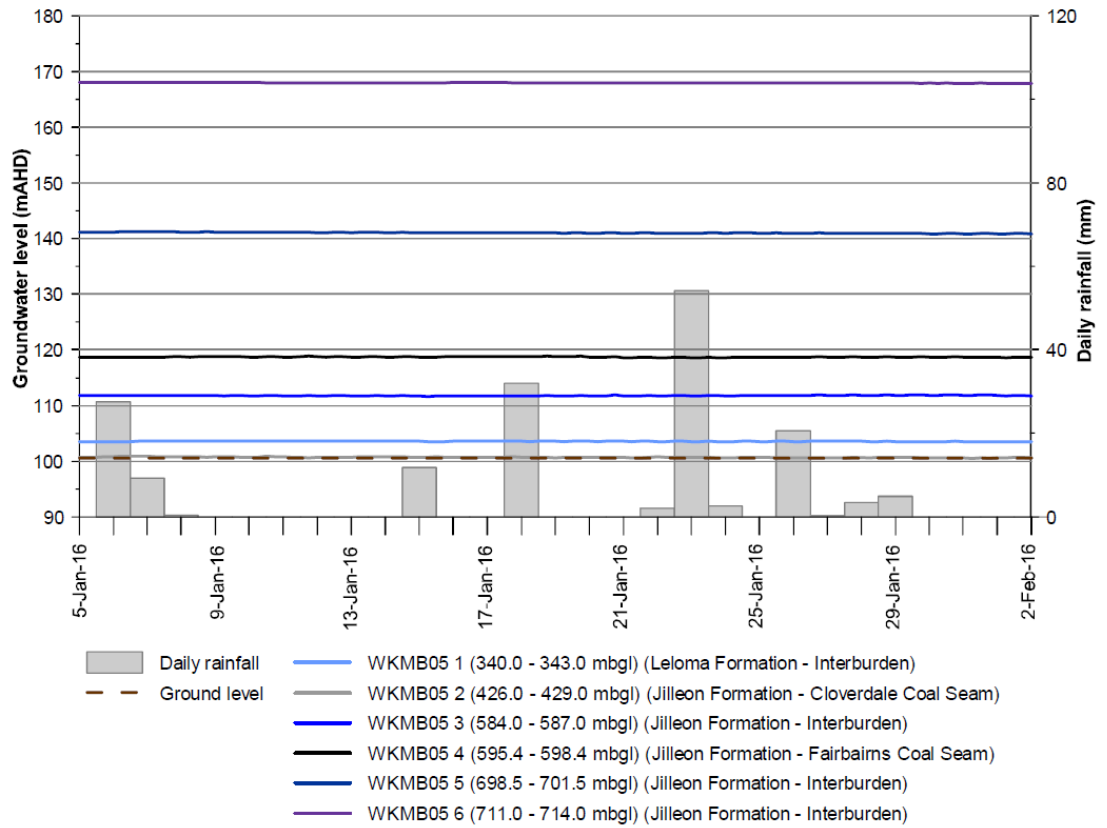


Figure 3: Continuous water level monitoring results for monitoring point 85 (WKMB05) for the period 5 January 2016 – 1/2 February 2016.