

# AGL UPSTREAM INVESTMENTS PTY LTD GLOUCESTER GAS PROJECT

**August 2017 Monitoring Report** 

Tiedman Irrigation Program EPL 20358

Reporting Period: August 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**

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, St Leonards, NSW 2060

MONITORING DATE 8, 9 August 2017

MONITORING BY EMM Consulting Pty Ltd (EMM), on behalf of AGL

ANALYSIS BY ALS Laboratory, Smithfield (Work order: ES1719786)

DATE AGL OBTAINED DATA 18, 22 August 2017

**REPORT DATE** 22 August 2017

REPORT PREPARED BY James Duggleby, Principal Hydrogeologist, EMM, on behalf of AGL

GGP EPL 20358 Water Monitoring Report – Tiedman Irrigation Program: August 2017

# 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 are completing a comprehensive decommissioning and rehabilitation program for well sites and other infrastructure in the Gloucester region.

This Monitoring Report relates to the water monitoring activities specified in Part 5, Monitoring and Recording Conditions, of the Environment Protection Licence 20358. This report relates specifically to the monitoring surrounding the Tiedman Irrigation Program, and details monitoring results from a quarterly water sampling event at the Tiedman Irrigation Program (8, 9 August 2017).

As per the Licence, the monitoring encompasses the monitoring points at the locations as shown in Table 1 and Figure 1. The specific analytes and frequency tested are shown in Table 2. The monitoring results for this reporting period are shown in Table 3, Table 4, and Table 5.

The monitoring points that are the subject of this report were part of the GGP groundwater monitoring network, as described in AGL's Water Management Plan for the Tiedman Irrigation Program (AGL, 2012a) and Soil Quality Monitoring and Management Program (AGL, 2012b)). Water monitoring results for the irrigation program are presented in a baseline water monitoring report (PB, 2013a) and six-monthly compliance reports (PB, 2013a, 2013b, 2014a, 2014b, 2015a, and 2015b).

The following sampling methods were used to obtain surface water and groundwater samples:

- Submersible 12V pump at the groundwater monitoring bores screened within relatively permeable geological materials: TMB01, TMB02 and TMB03. A minimum of three well volumes was purged prior to sampling.
- Submersible 12V pump at the seepage monitoring bores TMB04 and TMB05 which are screened within material of very low permeability. The physical parameters of the purged groundwater were initially tested, then the bores were purged dry and if any inflow was observed within 12 hours then physical parameters were tested again and a sample taken for analysis.
- Disposable bailer at the shallow perched soil water piezometers (with piezometers purged dry and if any inflow was observed within 12 hours then physical parameters were tested again and a sample taken for analysis). Note, all soil water piezometers were dry during the August 2017 sampling event.
- Micro-purge low-flow sample pump for groundwater monitoring bores S4MB01, TTMB02 and TCMB01 screened within material of relatively low permeability.

EC and pH were monitored during purging to ensure that they had stabilised prior to sample collection. 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 calcium, which underwent filtration rather than acid extraction as a preliminary treatment prior to analysis.

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

**WAGL** 



Table 1: Water quality monitoring points: Irrigation Program (as per EPL 20358)

EPA ID no.	Monitoring Point	Type of monitoring point	Easting (m)	Northing (m)	
30	TMB04	Groundwater quality monitoring	402558.1	6448921.7	
31	TMB05	Groundwater quality monitoring	402650.1	6448725.3	
39	TMB01	Groundwater quality monitoring	401996.98	6449419.7	
40	TMB02	Groundwater quality monitoring	401905.11	6449100.6	
41	TMB03	Groundwater quality monitoring	401969.53	6448755	
42	S4MB01	Groundwater quality monitoring	402581.88	6449409.7	
43	TCMB01	Groundwater quality monitoring	402501.7	6448899	
44	TTMB02	Groundwater quality monitoring	402699	6449358	
45	SP1B	Soil water quality monitoring	402570.3	6449381.3	
46	SP2B	Soil water quality monitoring	402444.2	6449100.1	
47	SP4B	Soil water quality monitoring	402252	6449131.3	
48	SP6B	Soil water quality monitoring	402103.5	6449178.6	
49	SP7B	Soil water quality monitoring	402144.8	6449292.1	
50	SP8B	Soil water quality monitoring	402159.1	6449454.8	
51	SP9B	Soil water quality monitoring	402387.5	6449016.9	
52	SP10B	Soil water quality monitoring	402344.2	6448840.6	
91	Tiedman Dams Irrigation Discharge	Discharge point of blended water	Tiedman	South Dam	

Coordinate reference system: Map Grid of Australia 1994

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

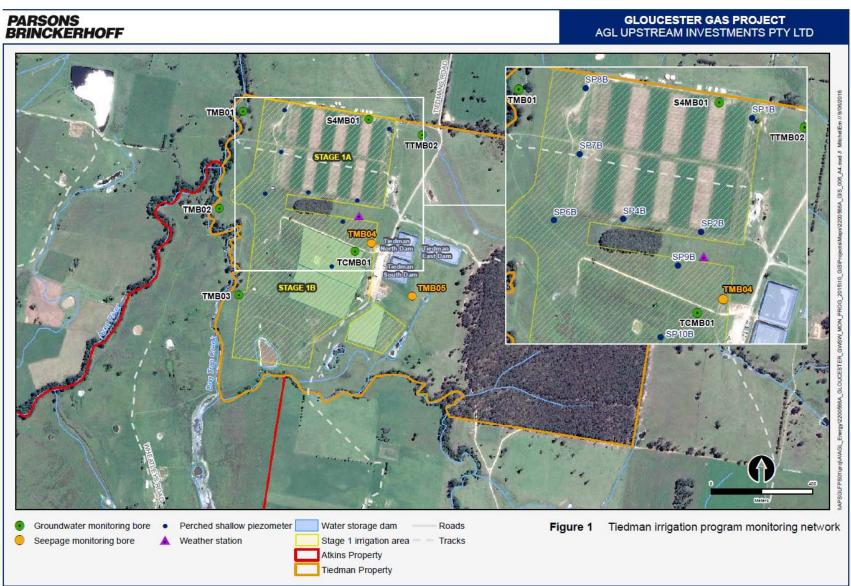




Table 2: Analytes monitored and frequency - monitoring points 30 - 52, as per the EPL 20358 version valid at the time of sampling (version 5 January 2017)

		Monitoring points							
Analyte	Units of measure	30,31		39,40,41,42,43,44		45,46,47,48,49,50,51, 52		91 <sup>b</sup>	
		Frequency	sampling method	Frequency	sampling method	Frequency	sampling method	Frequency	sampling method
Aluminium	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Ammonia	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Arsenic	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Barium	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Benzene	micrograms per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Beryllium	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Bicarbonate	milligrams per litre	Special Frequency 1	Grab sample					Monthly	Grab sample
Boron	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Cadmium	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Calcium	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Chloride	milligrams per litre	Special Frequency 1	Grab sample					Monthly	Grab sample
Chromium	milligrams per litre			Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Cobalt	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Copper	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Dissolved oxygen	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample		
	microsiemens per		Grah sample	Quarterly	Grah sample	Quarterly	Grah sample	Fortnightly	Probe
Electrical conductivity	centimetre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Fortnightly	Probe
Ethyl benzene	micrograms per litre <sup>a</sup>	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
luoride	milligrams per litre							Monthly	Grab sample
ron	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
.ead	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Magnesium	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
/langanese	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Mercury	milligrams per litre			Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
/lolybdenum	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
lickel	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Nitrate	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Nitrite	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Nitrogen (total)	milligrams per litre							Monthly	Grab sample
ьН	pH			Quarterly	Grab sample	Quarterly	Grab sample	Fortnightly	Probe
Phosphorus (total)	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Potassium	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Reactive Phosphorus	milligrams per litre	Special Frequency 1	Grab sample	-		-	·		
			-	Overstant.	Cook cooks	O and and a	Cook conside	E a start a la tito	Doob
Redox potential	millivolts	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Fortnightly	Probe
Selenium	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Silica	milligrams per litre			Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Sodium	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Sodium Adsorption Ratio	milligrams per litre <sup>c</sup>							Monthly	Grab sample <sup>c</sup>
Standing water level	meters (Australian Height Datum)	Special frequency 8	Special method 5	Special frequency 8	Special method 5	Quarterly	Special method 1		
Strontium (dissolved)	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Sulfate	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Temperature	degrees Celcius							Fornightly	Probe
Toluene	micrograms per litre <sup>a</sup>	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Total alkalinity	milligrams per litre			Quarterly	Grab sample			Monthly	Grab sample
Total dissolved solids	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Fornightly	Probe
Total organic carbon	milligrams per litre	Special Frequency 1	Grab sample					Monthly	Grab sample
otal suspended	milligrams per litre							Monthly	Grab sample
	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
/anadium	milligrams per litre	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
	!	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Monthly	Grab sample
Xylene	micrograms per litre <sup>a</sup>	opecial inequency i							

### Notes

Special Frequency 1 - Quarterly if inflow within 12 hours of purging dry.

Special Frequency 8 - Every 6 hours. Note these monitoring points may form part of AGL's rehabilitation work, and should a monitoring point be rehabilitated, than monitoring will no longer be required from that point.

Special Method 1 - Manual dip Special Method 4 - By calculation Special Method 5 - Automated datalogger

Shaded grey - not required to be analysed

<sup>9</sup>EPL20358 (issued 5 January 2017) contains inconsistancies in the required Units of Measure for Toluene, Ethyl Benzene and Xylene. For consistency with laboratory data BTEX concentrations are reported here in micrograms per litre.

<sup>b</sup>Monitoring Point 91 is only required during periods when the Licensee is utilising the water irrigation or stock use.

**≌AGL** 

<sup>&</sup>lt;sup>c</sup> Unit of measure is incorrectly referenced as 'miligrams per litre' - should be 'ratio'. And sampling method is incorrectly assigned as 'grab sample' in EPL - should be 'Special Method 4 - By calculation'

#### Groundwater and surface water monitoring results

Table 3: August 2017 water monitoring results for monitoring points 30-44

		Monitoring points	30	31	39	40	41	42	43	44
		Location	TMB04	TMB05	TMB01	TMB02	TMB03	S4MB01	TCMB01	TTMB02
		Sampled date	9/08/2017	9/08/2017	8/08/2017	8/08/2017	8/08/2017	9/08/2017	9/08/2017	9/08/2017
		Date AGL obtained	22/08/2017	22/08/2017	22/08/2017	22/08/2017	22/08/2017	22/08/2017	22/08/2017	22/08/2017
Accelerate	Units of	data								
Analyte	measure	Limit of reporting								
Aluminium	mg/L	0.01	0.04	0.13	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ammonia	mg/L	0.01	0.08	0.69	4.29	0.32	0.23	1.95	1.22	0.63
Arsenic	mg/L	0.001	< 0.001	0.002	0.001	0.002	0.002	<0.001	< 0.001	< 0.001
Barium	mg/L	0.001	0.065	0.216	0.197	0.751	0.171	3.90	8.35	0.671
Benzene	μg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
Beryllium	mg/L	0.001	<0.001	0.001	<0.001	< 0.001	<0.001	<0.001	<0.001	<0.001
Bicarbonate	mg/L		130		0.05	0.05	0.05	0.44	0.05	0.05
Boron	mg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.14	< 0.05	< 0.05
Cadmium	mg/L	0.0001	0.0012 74	0.0001	<0.0001 200	< 0.0001	<0.0001 159	<0.0001 231	<0.0001 203	< 0.0001
Calcium	mg/L	0.1	1900	54 2220	200	134	159	231	203	163
Chloride	mg/L	0.001	1900	2220	< 0.001	< 0.001	0.004	< 0.001	< 0.001	<0.001
Chromium	mg/L		0.000	0.4/4			< 0.001			
Cobalt	mg/L	0.001	0.082	0.161	<0.001 <0.001	0.002	0.002 <0.001	<0.001 <0.001	<0.001 <0.001	<0.001
Copper	mg/L	0.001	2.79	4.45	0.78	0.001	0.60	0.59	0.42	0.001
Dissolved oxygen <sup>d</sup>	mg/L	0.01	7230	7300	0.78 8220	4100	5740		3080	2450
Electrical conductivity	μS/cm	2	7230 <2	<2	<2	4100 <2	<2	4650 <2	<2	<2
Ethyl benzene Fluoride	μg/L	0.1	<2	<2	<2	<2	<2	<2	<2	<2
	mg/L	0.05	2.10	30.5	2 61	5.65	1.47	0.19	2.21	2.13
Iron Lead	mg/L	0.001	<0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001
	mg/L mg/L	1	199	219	212	84	115	48	65	48
Magnesium Manganese	mg/L mg/L	0.001	9.26	19.6	0.795	1.13	1.29	0.130	0.030	0.093
		0.001	9.26	19.0	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.093
Mercury	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0001	< 0.0001	0.001	< 0.0001
Molybdenum Nickel	mg/L mg/L	0.001	0.036	0.095	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001
Nitrate	mg/L	0.01	0.030	0.07	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Nitrite	mg/L	0.01	< 0.01	0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01
Nitrogen (total)	mg/L	0.1	10.01	0.01	40.01	40.01	40.01	40.01	40.01	10.01
pH <sup>d</sup>	pH	0.01			6.58	6.31	6.66	7.00	6.80	6.61
Phosphorus (total)	mg/L	0.01	0.04	0.19	0.46	0.06	0.03	0.07	0.01	0.37
Potassium	mg/L	1	19	14	3	3	2	5	4	4
Reactive Phosphorus	mg/L	0.01	< 0.01	< 0.01	_	-	_			
Redox potential <sup>d</sup>	mV	0.1	117.9	156.2	-185.5	-46.1	-128.4	-167.6	-119.7	-29.1
Selenium	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Silica	mg/L	0.05			34.0	36.1	33.1	28.4	22.3	35.4
Sodium	mg/L	1	996	915	1100	479	790	607	266	236
Sodium Adsorption Ratio	ratio	0.01								
Standing water level	m AHD	-	Refer to Table 5	Refer to Table 5	Refer to Table 5	Refer to Table	Refer to Table	Refer to Table	Refer to Table	Refer to Table
Strontium (dissolved)	mg/L	0.001	0.726	0.85	5.20	3.06	3.90	22.1	13.7	2.83
Sulfate	mg/L	1	599	172	56	31	189	16	<1	56
Temperature <sup>d</sup>	*C	0.1								
Toluene	μg/L	2	<2	<2	220	2	<2	<2	<2	<2
Total alkalinity	mg/L	1			572	181	548	386	295	369
Total dissolved solids	mg/L	10	4450	4290	4640	2170	2890	2580	1780	1280
Total organic carbon	mg/L	1	2	7						
Total suspended solids	mg/L	5								
Uranium	mg/L	0.001	< 0.001	< 0.001	0.002	< 0.001	0.01	<0.001	< 0.001	< 0.001
Vanadium	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Xylene	μg/L	2	<2	<2	<2	<2	<2	<2	<2	<2
Zinc	mg/L	0.005	0.219	0.401	< 0.005	0.010	< 0.005	< 0.005	0.006	0.006
		•	•	•	•	•			•	

Shaded grey = not required to be analysed

<sup>d</sup>measured with calibrated field meter

na - not analysed as no sample collected



# Groundwater and surface water monitoring results

Table 4: August 2017 water monitoring results for monitoring points 45 – 52

		Monitoring points	45	46	47	48	49	50	51	52
		Location	SP1B <sup>b</sup>	SP2B <sup>b</sup>	SP4B <sup>b</sup>	SP6B <sup>b</sup>	SP7B <sup>b</sup>	SP8B <sup>b</sup>	SP9B <sup>b</sup>	SP10B <sup>b</sup>
		Sampled date	9/08/2017	9/08/2017	9/08/2017	9/08/2017	9/08/2017	9/08/2017	9/08/2017	9/08/2017
		Date AGL	na							
Analyte	Units of	obtained data Limit of								
	measure	reporting								
Aluminium	mg/L	0.01	na							
Ammonia	mg/L	0.01	na							
Arsenic Barium	mg/L	0.001	na na	na						
	mg/L									na
Benzene	ųg/L	0.001	na							
Beryllium	mg/L	1	na							
Bicarbonate Boron	mg/L mg/L	0.05	na							
Cadmium		0.0001	na							
	mg/L	1					na	na	na	na
Calcium	mg/L		na	na	na	na	па	Ha	Па	па
Chloride	mg/L	0.1	no.							
Chromium Cobalt	mg/L	0.001	na na							
	mg/L	0.001	na							
Copper Dissolved oxygen <sup>a</sup>	mg/L mg/L	0.001	na							
Electrical conductivity <sup>a</sup>	μS/cm	1	na							
Ethyl benzene		2	na							
Fluoride	цg/L mg/L	0.1	na	i i a						
Iron	mg/L	0.05	na							
Lead	mg/L	0.001	na							
Magnesium	mg/L	1	na							
Manganese	mg/L	0.001	na							
Mercury	mg/L	0.0001	na							
Molybdenum	mg/L	0.001	na							
Nickel	mg/L	0.001	na							
Nitrate	mg/L	0.01	na							
Nitrite	mg/L	0.01	na							
Nitrogen (total)	mg/L	0.1								
pH <sup>a</sup>	pH	0.01	na							
Phosphorus (total)	mg/L	0.01	na							
Potassium	mg/L	1	na							
Reactive Phosphorus	mg/L	0.01								
Redox potential <sup>a</sup>	mV	0.1	na							
Selenium	mg/L	0.01	na							
Silica	mg/L	0.05	na							
Sodium	mg/L	1	na							
Sodium Adsorption Ratio	ratio	0.01								
Standing water level	m AHD	-	na							
Strontium (dissolved)	mg/L	0.001	na							
Sulfate	mg/L	1	na							
Temperature <sup>a</sup>	°C	0.1								
Toluene	цg/L	2	na							
Total alkalinity	mg/L	1								
Total dissolved solids	mg/L	10	na							
Total organic carbon	mg/L	1								
Total suspended solids	mg/L	5								
Uranium	mg/L	0.001	na							
Vanadium	mg/L	0.01	na							
Xylene	чg/L	2	na							
Zinc	mg/L	0.005	na							
	J		1			1		·		

Shaded grey = not required to be analysed

na - not analysed as no sample collected



<sup>&</sup>lt;sup>a</sup> measured with calibrated field meter

<sup>&</sup>lt;sup>b</sup> No water present at this location at the time of sampling



Monitoring point	30	31	39	40	41	42	43	44			
Location	TMB04	TMB05	TMB01	TMB02	TMB03	S4MB01	TCMB01	TTMB02			
Data type	Standing water level										
Units		mAHD									
Data date range	24/5/2017 - 8/8/2017	24/5/2017 - 9/8/2017	24/5/	/2017 – 8/8/	/2017	24/5/	'2017 – 9/8 <i>i</i>	/2017			
Date data downloaded	8/8/2017	9/8/2017		8/8/2017			9/8/2017				
Date data supplied to AGL		18/08/2017									
Monitoring frequency required by EPL 20358		Every 6 hours									
Actual monitoring frequency				Every 6	hours						
No. of times measured during monitoring period	305	3*	304	304	304	307	307	307			
Min. value	111.22	112.39	102.80	102.80	103.73	113.25	113.84	113.98			
Mean value	113.59	112.92	102.87	102.90	103.84	113.38	113.87	114.01			
Median value	113.61	112.92	102.86	102.92	103.86	113.39	113.87	114.01			
Max. value	113.72	113.32	102.93	102.96	103.89	113.45	113.89	114.04			

<sup>\*</sup>Logger failure at TMB05 (point 31) from 24/5/2017 to 8/8/2017

## References

AGL, 2012a. Water Management Plan for the Tiedman Irrigation Program AGL.

AGL, 2012b. Soil Quality Monitoring and Management Program.

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: <a href="http://www.environment.nsw.gov.au/resources/water/approvedmethods-water.pdf">http://www.environment.nsw.gov.au/resources/water/approvedmethods-water.pdf</a>

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SWAGL

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