AGL UPSTREAM INVESTMENTS PTY LTD

GLOUCESTER GAS PROJECT

September 2016 Monitoring Report
Revision B (Addendum)

Tiedman Irrigation Program
EPL 20358

Reporting Period: August 2016

AGL Upstream Investments Pty Ltd
ABN 58 115 063 744
Locked Bag 1837, St Leonards NSW 2065
Level 22, 101 Miller Street, North Sydney NSW 2060
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	Environment Protection Licence 20358
LICENCEE	AGL Upstream Investments Pty Limited (AGL)
LICENCEE'S ADDRESS	Locked Bag 1837, North Sydney, NSW 2060
MONITORING DATE	16 August 2016
MONITORING BY	EMM, on behalf of AGL
ANALYSIS BY	ALS Laboratory, Smithfield (Work order: ES1618088)
DATE AGL OBTAINED DATA	29 August 2016
REPORT DATE	5 September 2016 **Revision B (Addendum): 15 September 2016**
REPORT PREPARED BY	James Duggleby, Senior Hydrogeologist

Changes in Revision B (Addendum): correction of name of personnel who undertook monitoring (EMM).

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.

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 quarterly water sampling event at the Tiedman Irrigation Program (16 August 2016).

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 are 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).
- Micro-purge low-flow sample pump for groundwater monitoring bores S4MB01, TTMB02 and TCMB01 screened within material of relatively low permeability.
- Grab sample using a telescopic sampler for dam water samples.

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

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)
27	TND	Produced water storage dam	Tiedman property	
28	TSD	Produced water storage dam	Tiedman property	
29	TED	Produced water storage dam	Tiedman property	
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

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)

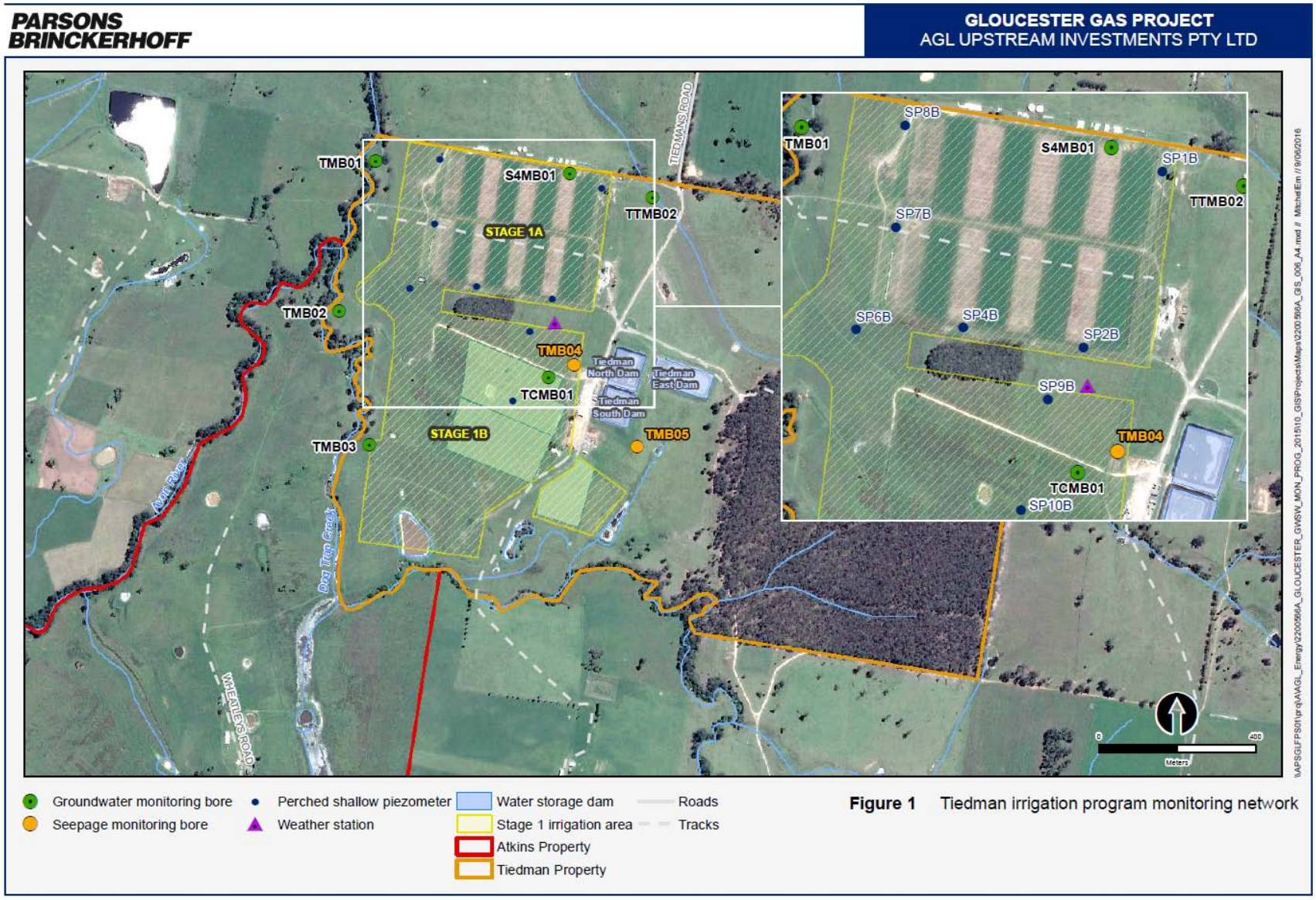

Table 2: Analytes monitored and frequency - monitoring points 27 – 52, as per the EPL 20358 version valid at the time of sampling (version 4 May 2016)

Analyte	Units of measure	Monitoring points											
		27		28		29		30,31		39,40,41,42,43,44		45,46,47,48,49,50,51, 52	
		Frequency	sampling method	Frequency	sampling method	Frequency	sampling method	Frequency	sampling method	Frequency	sampling method	Frequency	sampling method
Aluminium	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Ammonia	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Arsenic	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Barium	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Benzene	micrograms per litre					Weekly[b]	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Beryllium	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Bicarbonate	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample				
Boron	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Cadmium	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Calcium	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Chloride	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample				
Chromium	milligrams per litre									Quarterly	Grab sample	Quarterly	Grab sample
Cobalt	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Copper	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Dissolved oxygen	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Electrical conductivity	microsiemens per centimetre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Ethyl benzene	micrograms per litre[a]					Weekly[b]	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Iron	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Lead	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Magnesium	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Manganese	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Mercury	milligrams per litre									Quarterly	Grab sample	Quarterly	Grab sample
Molybdenum	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Nickel	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Nitrate	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Nitrite	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
pH	pH	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Phosphorus (total)	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Potassium	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Reactive Phosphorus	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample				
Redox potential	millivolts	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Selenium	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Silica	milligrams per litre									Quarterly	Grab sample	Quarterly	Grab sample
Sodium	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Sodium Adsorption Ratio	sodium adsorption ratio			Quarterly	Special Method 4								
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	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Sulfate	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Toluene	micrograms per litre[a]					Weekly[b]	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Total alkalinity	milligrams per litre									Quarterly	Grab sample		
Total dissolved solids	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Total organic carbon	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample				
Total suspended solids	milligrams per litre												
Uranium	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Vanadium	milligrams per litre	Quarterly	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Xylene	micrograms per litre[a]					Weekly[b]	Grab sample	Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample
Zinc	milligrams per litre							Special Frequency 1	Grab sample	Quarterly	Grab sample	Quarterly	Grab sample

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

[a]EPL20358 (issued 4 May 2016) 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.

[b]Weekly sampling from Monitoring Point 29 (Tiedman East Dam) only required if/when flowback water from the Waukivory Pilot Project is transferred to TED.

Groundwater and surface water monitoring results

Table 3: Water monitoring results for August 2016 quarterly water sampling round

		Monitoring points	27	28	29	30	31	39	40	41	42	43	44
		Location	TND	TSD	TED	TMB04	TMB05	TMB01	TMB02	TMB03	S4MB01	TCMB01	TTMB02
		Sampled date	16/08/2016	16/08/2016[b]	16/08/2016	16/08/2016	16/08/2016	16/08/2016	16/08/2016	16/08/2016	16/08/2016	16/08/2016	16/08/2016
		Date AGL obtained data	29/08/2016	na	29/08/2016	29/08/2016	29/08/2016	29/08/2016	29/08/2016	29/08/2016	29/08/2016	29/08/2016	29/08/2016
Analyte	Units of measure	Limit of reporting											
Aluminium	mg/L	0.01	0.02	na	<0.01	0.14	0.28	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ammonia	mg/L	0.01	0.03	na	0.02	0.05	0.24	0.14	0.30	0.11	1.6	1.2	0.55
Arsenic	mg/L	0.001	0.003	na	0.003	<0.001	0.001	0.001	0.003	0.003	0.001	<0.001	0.002
Barium	mg/L	0.001	0.184	na	0.143	0.054	0.093	0.213	0.909	0.200	2.97	9.96	0.754
Benzene	ug/L	1				<1	<1	<1	<1	<1	<1	<1	<1
Beryllium	mg/L	0.001	<0.001	na	<0.001	0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bicarbonate	mg/L	1	141	na	158	96	10						
Boron	mg/L	0.05	0.08	na	0.10	<0.05	<0.05	<0.05	<0.05	<0.05	0.16	<0.05	<0.05
Cadmium	mg/L	0.0001	<0.0001	na	<0.0001	0.0011	0.0022	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	mg/L	1	26	na	13	79	56	207	159	184	283	244	178
Chloride	mg/L	0.1	67.8	na	111	1900	2370						
Chromium	mg/L	0.001						<0.001	<0.001	<0.001	0.005	<0.001	<0.001
Cobalt	mg/L	0.001	<0.001	na	<0.001	0.110	0.224	<0.001	0.002	0.004	<0.001	<0.001	<0.001
Copper	mg/L	0.001	0.001	na	0.007	0.030	0.038	<0.001	<0.001	<0.001	<0.001	0.003	0.007
Dissolved oxygen[a]	mg/L	0.01	9.66	na	9.06	3.68	4.36	0.64	0.67	0.47	0.53	0.42	0.54
Electrical conductivity	µS/cm	1	716	na	839	7190	7390	7600	3880	5710	4730	3050	2370
Ethyl benzene	ug/L	2				<2	<2	<2	<2	<2	<2	<2	<2
Iron	mg/L	0.05	<0.05	na	<0.05	2.11	19.3	2.81	7.24	1.14	0.17	1.72	2.38
Lead	mg/L	0.001	<0.001	na	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	mg/L	1	8	na	4	206	249	188	91	123	48	69	51
Manganese	mg/L	0.001	0.012	na	0.004	11.2	21.1	0.890	1.16	1.68	0.136	0.029	0.099
Mercury	mg/L	0.0001						<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	mg/L	0.001	0.003	na	0.003	0.002	0.002	<0.001	<0.001	<0.001	0.002	<0.001	0.001
Nickel	mg/L	0.001	<0.001	na	<0.001	0.049	0.106	<0.001	<0.001	<0.001	0.002	<0.001	0.002
Nitrate	mg/L	0.01	<0.01	na	<0.01	0.05	0.24	<0.01	<0.01	<0.01	<0.01	<0.01	0.07
Nitrite	mg/L	0.01	<0.01	na	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
pH[a]	pH	0.01	7.69	na	9.24	5.92	5.35	6.58	6.36	6.67	7.38	7.06	6.71
Phosphorus (total)	mg/L	0.01	1.27	na	0.40	0.03	0.02	0.05	0.06	0.01	0.05	<0.01	0.27
Potassium	mg/L	1	38	na	38	20	15	2	4	2	6	4	4
Reactive Phosphorus	mg/L	0.01	0.01	na	<0.01	<0.01	<0.01						
Redox potential[a]	mV	0.1	7.59	na	-71	120.3	146.1	-34.2	-0.8	1.4	-137.7	-92.2	-50.2
Selenium	mg/L	0.01	<0.01	na	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silica	mg/L	0.05						36.8	34.0	30.7	25.7	19.7	32.3
Sodium	mg/L	1	95	na	148	1090	1080	1140	489	879	676	296	255
Sodium Adsorption Ratio	ratio	0.01		na									
Standing water level	m AHD	-				Refer to Table 5	Refer to Table 5	Refer to Table 5	Refer to Table 5	Refer to Table 5	Refer to Table 5	Refer to Table 5	Refer to Table 5
Strontium (dissolved)	mg/L	0.001	0.324	na	0.194	0.863	0.888	5.95	3.87	4.78	21.6	15.4	3.27
Sulfate	mg/L	1	94	na	6	434	193	74	24	190	32	<1	46
Toluene	ug/L	2				<2	<2	<2	<2	<2	<2	<2	<2
Total alkalinity	mg/L	1						493	158	503	376	279	350
Total dissolved solids	mg/L	10	476	na	416	4440	4390	4480	2310	3040	2550	1790	1320
Total organic carbon	mg/L	1	55	na	57	4	5						
Total suspended solids	mg/L	5											
Uranium	mg/L	0.001	<0.001	na	<0.001	<0.001	<0.001	0.001	<0.001	0.008	<0.001	<0.001	<0.001
Vanadium	mg/L	0.01	<0.01	na	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Xylene	ug/L	2				<2	<2	<2	<2	<2	<2	<2	<2
Zinc	mg/L	0.005				0.342	1.06	<0.005	<0.005	<0.005	<0.005	0.006	0.007

Key:

Shaded grey = not required to be analysed

[a] measured with calibrated field meter

[b] No water present at this location at the time of sampling

na - not analysed as no sample collected

Groundwater and surface water monitoring results

Table 4: August 2016 water monitoring results for monitoring points 45 – 52

		Monitoring points	45	46	47	48	49	50	51	52
		Location	SP1B[b]	SP2B[b]	SP4B[b]	SP6B[b]	SP7B[a]	SP8B[b]	SP9B[b]	SP10B[b]
		Sampled date	16/08/2016	16/08/2016	16/08/2016	16/08/2016	16/08/2016	16/08/2016	16/08/2016	16/08/2016
		Date AGL obtained data	na	na	na	na	na	na	na	na
Analyte	Units of measure	Limit of reporting								
Aluminium	mg/L	0.01	na	na	na	na	na	na	na	na
Ammonia	mg/L	0.01	na	na	na	na	na	na	na	na
Arsenic	mg/L	0.001	na	na	na	na	na	na	na	na
Barium	mg/L	0.001	na	na	na	na	na	na	na	na
Benzene	µg/L	1	na	na	na	na	na	na	na	na
Beryllium	mg/L	0.001	na	na	na	na	na	na	na	na
Bicarbonate	mg/L	1								
Boron	mg/L	0.05	na	na	na	na	na	na	na	na
Cadmium	mg/L	0.0001	na	na	na	na	na	na	na	na
Calcium	mg/L	1	na	na	na	na	na	na	na	na
Chloride	mg/L	0.1								
Chromium	mg/L	0.001	na	na	na	na	na	na	na	na
Cobalt	mg/L	0.001	na	na	na	na	na	na	na	na
Copper	mg/L	0.001	na	na	na	na	na	na	na	na
Dissolved oxygen[a]	mg/L	0.01	na	na	na	na	na	na	na	na
Electrical conductivity	µS/cm	1	na	na	na	na	na	na	na	na
Ethyl benzene	µg/L	2	na	na	na	na	na	na	na	na
Iron	mg/L	0.05	na	na	na	na	na	na	na	na
Lead	mg/L	0.001	na	na	na	na	na	na	na	na
Magnesium	mg/L	1	na	na	na	na	na	na	na	na
Manganese	mg/L	0.001	na	na	na	na	na	na	na	na
Mercury	mg/L	0.0001	na	na	na	na	na	na	na	na
Molybdenum	mg/L	0.001	na	na	na	na	na	na	na	na
Nickel	mg/L	0.001	na	na	na	na	na	na	na	na
Nitrate	mg/L	0.01	na	na	na	na	na	na	na	na
Nitrite	mg/L	0.01	na	na	na	na	na	na	na	na
pH[a]	pH	0.01	na	na	na	na	na	na	na	na
Phosphorus (total)	mg/L	0.01	na	na	na	na	na	na	na	na
Potassium	mg/L	1	na	na	na	na	na	na	na	na
Reactive Phosphorus	mg/L	0.01								
Redox potential[a]	mV	0.1	na	na	na	na	na	na	na	na
Selenium	mg/L	0.01	na	na	na	na	na	na	na	na
Silica	mg/L	0.05	na	na	na	na	na	na	na	na
Sodium	mg/L	1	na	na	na	na	na	na	na	na
Sodium Adsorption Ratio	ratio	0.01								
Standing water level	m AHD	-	na	na	na	na	na	na	na	na
Strontium (dissolved)	mg/L	0.001	na	na	na	na	na	na	na	na
Sulfate	mg/L	1	na	na	na	na	na	na	na	na
Toluene	µg/L	2	na	na	na	na	na	na	na	na
Total alkalinity	mg/L	1								
Total dissolved solids	mg/L	10	na	na	na	na	na	na	na	na
Total organic carbon	mg/L	1								
Total suspended solids	mg/L	5								
Uranium	mg/L	0.001	na	na	na	na	na	na	na	na
Vanadium	mg/L	0.01	na	na	na	na	na	na	na	na
Xylene	µg/L	2	na	na	na	na	na	na	na	na
Zinc	mg/L	0.005	na	na	na	na	na	na	na	na

Shaded grey = not required to be analysed

[a] measured with calibrated field meter

[b] No water present at this location at the time of sampling

na - not analysed as no sample collected

Table 5: Continuous water level monitoring results for monitoring points 30, 31, 39 - 44 for the period 24 May 2016 – 16 August 2016

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	24/05/2016 - 16/08/2016				25/05/2016 - 16/08/2016			
Date data downloaded	16/08/2016							
Date data supplied to AGL	29/08/2016							
Monitoring frequency required by EPL 20358	Every 6 hours	Every 6 hours	Every 6 hours	Every 6 hours	Every 6 hours	Every 6 hours	Every 6 hours	Every 6 hours
Actual monitoring frequency	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	335	335	335	335	335	333	334	334
Min. value	111.66	110.2	102.52	102.60	103.50	111.11	113.50	113.57
Mean value	113.26	113.16	102.81	102.74	103.66	113.09	113.76	113.88
Median value	113.28	113.24	102.78	102.73	103.65	113.10	113.76	113.88
Max. value	113.34	113.32	103.39	102.99	103.86	113.17	113.80	113.93

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