

ENVIRONMENT PROTECTION LICENCE 20350 MONITORING DATA

Licence Holder: Santos NSW (Eastern) Pty Ltd
Premises: Narrabri Gas Field
X-Line Road, Narrabri NSW 2390

Licence No: 20350

EPL LINK: <http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=33816&SYSUID=1&LICID=20350>

EPL Period: May 1st 2021 to April 30th 2022

Reporting Period: Quarter 1 - May 2021 - July 2021

Published Date: Aug-21 Version 1

Oct-21 Version 2 Data update

Monitoring Location: Refer to Table 1

Scheduled Activity: Coal seam gas exploration, assessment and production

General Notes: Monitoring points removed in accordance with Environmental Protection Licence (EPL) 23050 ammended 11th April 2021 (16, 17, 22, 23, 24, 25, 29, 30, 31, 32, 33, 34, 35, 36, 50, 51, 52, 53, 55, 58, 67 and 68)
Monitoring Point 80, 81 & 82 - no sample required in accordance with EPL20350 Condition M2.7
Monitoring Point 77 - no sample required in accordance with EPL20350 Condition M2.7
Monitoring Point 69, 70, 75 & 76 - no sample required in accordance with EPL20350 Condition M2.6
Monitoring Point 83, 84, 85 & 86 - no sample required in accordance with EPL20350 Condition M2.7
Monitoring point 18 - The bore is sealed shut and unable to open. Historically dry.
Monitoring points visited and reported dry : 26, 38, 39, 40, 43, 66 and 78
Monitoring points visited with insufficient recharge to collect a lab sample: 28, 62 and 64
Monitoring points 47, 48 and 49: no water level results available. Repairs and maintenance being investigated.

Table 1: EPL20350 Water Monitoring Locations

EPA Identification No.	Monitoring type	Location	Easting	Northing
7	Groundwater quality monitoring	BWD27PRUPS02	755433.048	6604684.807
8	Groundwater quality monitoring	BWD27PRLPS03	755436.361	6604699.035
9	Groundwater quality monitoring	BWD26PRUPS01	749372.75	6609376.69
10	Groundwater quality monitoring	BWD26PRLPS02	749364.45	6609363.35
11	Groundwater quality monitoring	DWH14PRUPS01	764703.313	6617145.443
12	Groundwater quality monitoring	DWH14PRLPS02	764689.147	6617119.109
13	Groundwater quality monitoring	DWH14PRPUR03	764696.211	6617132.298
14	Groundwater quality monitoring	DWH3PRUPS01	762239.68	6605589.32
15	Groundwater quality monitoring	DWH3PRLPS02	762251.05	6605598.98
16	Groundwater quality monitoring	NYOPRORA01	736293.46	6643110.4
17	Groundwater quality monitoring	NYOPRUPS02	736308.8	6643107.84
18	Groundwater quality monitoring	BWD27PRORA01	755429.176	6604670.682
20	Groundwater quality monitoring	BHN14PRORA01	747158.13	6626109.12
21	Groundwater quality monitoring	BHN14PRUPS02	747152.71	6626123.91
22	Groundwater quality monitoring	TULPRNAP01	774464.07	6612048.13
23	Groundwater quality monitoring	TULPRDGY02	774466.48	6612032.98
24	Groundwater quality monitoring	BWDMW13D	753863.3	6608108.51
25	Groundwater quality monitoring	BWDMW13S	753864.82	6608109.3
26	Groundwater quality monitoring	BWDMW12S	753830.65	6608202.74
27	Groundwater quality monitoring	BWDMW12D	753831.91	6608203.71
28	Groundwater quality monitoring	BWDMW12I	753832.68	6608202.25
29	Groundwater quality monitoring	BWDMW2	753912.83	6608241.35
30	Groundwater quality monitoring	BWDMW3	753935.87	6608254.02
31	Groundwater quality monitoring	BWDMW4D	753980.81	6608285.74
32	Groundwater quality monitoring	BWDMW4	753984.14	6608288.04
33	Groundwater quality monitoring	BWDMW15S	753868.09	6608258.34
34	Groundwater quality monitoring	BWDMW15D	753867.1	6608256.75
35	Groundwater quality monitoring	BWDMW16S	753858.95	6608316.49
36	Groundwater quality monitoring	BWDMW16D	753856.98	6608315.57
37	Groundwater quality monitoring	LWDMW1D	751387.93	6623862.96
38	Groundwater quality monitoring	LWDMW1S	751388.92	6623862.46
39	Groundwater quality monitoring	LWDMW1I	751390.64	6623861.85
40	Groundwater quality monitoring	LWDMW2S	751102.84	6622293.02
41	Groundwater quality monitoring	LWDMW2D	751101.81	6622293.15
42	Groundwater quality monitoring	LWDMW3D	751876.16	6622163.76
43	Groundwater quality monitoring	LWDMW3S	751876.47	6622164.93
44	Groundwater level monitoring	DWH8AGMB1	765546.74	6616987.99
45	Groundwater level monitoring	DWH8AGMB2	765546.74	6616987.99
46	Groundwater level monitoring	DWH8AGMB3	765546.74	6616987.99

EPA Identification No.	Monitoring type	Location	Easting	Northing
47	Groundwater level monitoring	BWD28QGUPS01	752949.898	6604219.732
48	Groundwater level monitoring	BWD28QGLPS01	752949.898	6604219.732
49	Groundwater level monitoring	BWD28QGPUR01	752949.898	6604219.732
50	Groundwater quality monitoring	WPKMW01	755684.14	6638105.31
51	Groundwater quality monitoring	WPKMW01D	755689.75	6638097.35
52	Groundwater quality monitoring	WPKMW02	755671.2	6638034.29
53	Groundwater quality monitoring	WPKMW04	755632.5	6637993.07
55	Groundwater quality monitoring	WPKMW08	755634.11	6638166.87
56	Groundwater quality monitoring	WPKMW09D	755663.98	6637988.2
57	Groundwater quality monitoring	WPKMW09S	755664.4	6637990.54
58	Groundwater quality monitoring	WPKMW12S	755456.18	6638228.91
59	Groundwater quality monitoring	WPKMW13I	755552.65	6638189.56
60	Groundwater quality monitoring	WPKMW13S	755554.88	6638189.05
61	Groundwater quality monitoring	WPKMW14D	755364.51	6638049.06
62	Groundwater quality monitoring	WPKMW14S	755364.77	6638048.26
63	Groundwater quality monitoring	WPKMW15D	755365.48	6638233.36
64	Groundwater quality monitoring	WPKMW15S	755365.5	6638230.74
65	Groundwater quality monitoring	WPKMW16D	755051.03	6637988.5
66	Groundwater quality monitoring	WPKMW16S	755050.53	6637986.64
67	Groundwater quality monitoring	WPKMW17D	756151.06	6638128.32
68	Groundwater quality monitoring	WPKMW17S	756149.54	6638128.05
69	Produced water storage dam	BWDPD2	753875.87	6607995.06
70	Produced water storage dam	BWDPD3	753992.17	6608125.97
71	Produced water storage dam	LWDPD1CELL4	751473.349	6623513.252
72	Produced water storage dam	LWDPD1CELL3	751460.723	6623323.85
73	Produced water storage dam	LWDPD1CELL2	751428.103	6623124.978
74	Produced water storage dam	LWDPD1CELL1	751390.223	6622935.575
75	Produced water storage dam	TFDPD1	755611.6	6638072.85
76	Produced water storage dam	TFDPD2	755480.11	6638099.04
77	Treated water quality monitoring	LWWTPDM1	751648.02	6622508.31
78	Groundwater quality monitoring	WPKMW18S	755944.01	6638100.84
79	Groundwater quality monitoring	WPKMW18I	755945.07	6638105.04
80	Groundwater quality monitoring	LWDMW4	752080.54	6623038.94
81	Groundwater quality monitoring	LWDMW5	752491.08	6623301.16
82	Groundwater quality monitoring	LWDMW6	752667.55	6623165.03
83	Soil quality monitoring	LWDSMP1	751942.34	6622941.21
84	Soil quality monitoring	LWDSMP2	752164.06	6623143.83
85	Soil quality monitoring	LWDSMP3	752572.6	6623126.32
86	Soil quality monitoring	LWDSMP4	752457.14	6622764.26

Spatial Reference: GDA94 MGA Zone 55

TABLE 2: GROUNDWATER QUALITY MONITORING

		EPA Identification No	7	8	9	10	11	12
		Location	BWD27PRUPS02	BWD27PRLPS03	BWD26PRUPS01	BWD26PRLPS02	DWH14PRUPS01	DWH14PRLPS02
		Date	3/06/2021	3/06/2021	7/06/2021	7/06/2021	2/06/2021	2/06/2021
		Sample Method	in situ	in situ	in situ	in situ	in situ	in situ
Parameter	Units	LOR	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT
Dissolved Oxygen	mg/L	-	3.79	0.03	0.26	0.71	0.26	0.35
Electrical Conductivity	µS/cm	-	135.4	222.1	76.5	133.1	215	177.5
pH	pH Unit	-	5.38	5.87	5.71	5.99	5.7	5.38
Redox Potential	mV	-	93.6	-6	-12.1	-50.9	54.2	-62.4
Standing Water Level	mTOC	-	38.835	38.345	30.025	29.315	53.355	54.135

		EPA Identification No	13	14	15	18	20	21
		Location	DWH14PRPUR03	DWH3PRUPS01	DWH3PRLPS02	BWD27PRORA01	BHN14PRORA01	BHN14PRUPS02
		Date	15/06/2021	3/06/2021	3/06/2021		2/06/2021	
		Sample Method	in situ	in situ	in situ	No sample - dry	in situ	No sample available
Parameter	Units	LOR	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT
Dissolved Oxygen	mg/L	-	0.54	1.93	0.59		0.73	0.55
Electrical Conductivity	µS/cm	-	568	119.1	129.3		471.3	457.9
pH	pH Unit	-	5.41	5.19	5.43		7.3	7.17
Redox Potential	mV	-	-97	60.4	55.4		-210.6	-106.7
Standing Water Level	mTOC	-	52.14	67.355	67.575		26.345	15.255

		EPA Identification No Location Date	10 BWD26PRLPS02 7/06/2021	11 DWH14PRUPS01 2/06/2021	12 DWH14PRLPS02 2/06/2021	13 DWH14PPUR03 15/06/2021	14 DWH3PRUPS01 3/06/2021	15 DWH3PRLPS02 3/06/2021
		Sample Method	Grab Sample	Grab Sample	Grab Sample	Grab Sample	Grab Sample	Grab Sample
Parameter	Units	LOR	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT
Aluminium	mg/L	0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.01
Ammonia as N	mg/L	0.01	0.05	<0.01	<0.01	0.75	<0.01	<0.01
Arsenic	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	mg/L	0.001	0.679	0.242	0.07	0.488	0.039	0.058
Beryllium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bicarbonate Alkalinity as CaCO3	mg/L	1	36	50	35	268	20	34
Boron	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromide	mg/L	0.01	0.072	0.108	0.098	0.164	0.057	0.057
Cadmium	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	mg/L	1	1	1	2	24	<1	1
Carbonate Alkalinity as CaCO3	mg/L	1	<1	<1	<1	<1	<1	<1
Chloride	mg/L	1	20	39	36	35	23	23
Chromium	mg/L	0.001	<0.001	0.001	0.004	<0.001	0.011	<0.001
Cobalt	mg/L	0.001	0.014	0.005	0.005	<0.001	0.005	0.003
Copper	mg/L	0.001	<0.001	0.008	0.003	<0.001	0.009	0.012
Dissolved Oxygen	mg/L	-	0.71	0.26	0.35	0.54	1.93	0.59
Electrical Conductivity	µS/cm	-	133.1	215	177.5	568	119.1	129.3
Fluoride	mg/L	0.1	0.1	<0.1	<0.1	0.4	<0.1	<0.1
Iron	mg/L	0.05	<0.05	<0.05	<0.05	0.98	<0.05	<0.05
Lead	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	mg/L	1	2	5	2	1	2	1
Manganese	mg/L	0.001	0.052	0.096	0.051	0.136	0.035	0.033
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Methane	mg/L	0.01	<0.01	<0.01	<0.01	1.16	<0.01	<0.01
Molybdenum	mg/L	0.001	<0.001	<0.001	0.002	0.033	<0.001	<0.001
Nickel	mg/L	0.001	0.013	0.436	0.156	0.001	0.123	0.092
Nitrate as N	mg/L	0.01	0.1	0.1	<0.01	<0.01	0.08	0.1
Nitrite as N	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
pH	pH Unit	-	5.99	5.7	5.38	5.41	5.19	5.43
Potassium	mg/L	1	11	9	4	21	2	3
Reactive Phosphorus	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Redox Potential	mV	-	-50.9	54.2	-62.4	-97	60.4	55.4
Selenium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	mg/L	1	15	30	29	102	20	23
Standing Water Level	mbTOC	-	29.315	53.355	54.135	52.14	67.355	67.575
Strontium	mg/L	0.001	0.052	0.045	0.024	0.537	0.008	0.015
Sulfate as SO4 2-	mg/L	1	1	<1	1	12	5	2
Total Dissolved Solids @180°C	mg/L	10	95	157	104	445	74	82
Uranium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	mg/L	0.005	0.006	0.015	0.013	<0.005	<0.005	0.01

		EPA Identification No Location Date	20 BHN14PRORA01 2/06/2021	21 BHN14PRUPS02 2/06/2021	26 BWDMW125 4/06/2021	27 BWDMW12D 4/06/2021	28 BWDMW12I 4/06/2021	37 LWDMW1D 5/06/2021
		Sample Method	Grab Sample	Grab Sample	No sample - dry	Grab Sample	No sample - Insufficient liquid	Grab Sample
Parameter	Units	LOR	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT
Aluminium	mg/L	0.01	<0.01	<0.01	-	<0.01	-	<0.01
Ammonia as N	mg/L	0.01	0.04	0.06	-	0.05	-	<0.01
Arsenic	mg/L	0.001	<0.001	0.002	-	<0.001	-	<0.001
Barium	mg/L	0.001	0.58	0.492	-	1.18	-	0.417
Beryllium	mg/L	0.001	<0.001	<0.001	-	<0.001	-	<0.001
Bicarbonate Alkalinity as CaCO3	mg/L	1	213	252	-	1970	-	194
Boron	mg/L	0.05	0.07	<0.05	-	<0.05	-	0.14
Bromide	mg/L	0.01	0.092	0.046	-	3.81	-	1.63
Cadmium	mg/L	0.0001	<0.0001	<0.0001	-	<0.0001	-	<0.0001
Calcium	mg/L	1	36	41	-	15	-	6
Carbonate Alkalinity as CaCO3	mg/L	1	<1	<1	-	<1	-	<1
Chloride	mg/L	1	34	20	-	794	-	633
Chromium	mg/L	0.001	<0.001	<0.001	-	<0.001	-	<0.001
Cobalt	mg/L	0.001	<0.001	<0.001	-	<0.001	-	<0.001
Copper	mg/L	0.001	<0.001	<0.001	-	<0.001	-	<0.001
Dissolved Oxygen	mg/L	-	0.73	0.55	-	3.72	5.77	2.71
Electrical Conductivity	µS/cm	-	471.3	457.9	-	5084	9655	2141
Fluoride	mg/L	0.1	0.2	0.2	-	0.6	-	0.3
Iron	mg/L	0.05	<0.05	1.96	-	0.34	-	<0.05
Lead	mg/L	0.001	<0.001	<0.001	-	<0.001	-	<0.001
Magnesium	mg/L	1	9	9	-	171	-	13
Manganese	mg/L	0.001	0.123	0.087	-	0.008	-	0.004
Mercury	mg/L	0.0001	<0.0001	<0.0001	-	<0.0001	-	<0.0001
Methane	mg/L	0.01	0.06	1.49	-	<0.01	-	<0.01
Molybdenum	mg/L	0.001	<0.001	0.005	-	0.001	-	<0.001
Nickel	mg/L	0.001	0.002	0.001	-	0.002	-	0.002
Nitrate as N	mg/L	0.01	<0.01	<0.01	-	0.18	-	0.08
Nitrite as N	mg/L	0.01	<0.01	<0.01	-	<0.01	-	<0.01
pH	pH Unit	-	7.3	7.17	-	6.83	7.18	6.31
Potassium	mg/L	1	4	7	-	37	-	13
Reactive Phosphorus	mg/L	0.01	<0.01	<0.01	-	-	-	-
Redox Potential	mV	-	-210.6	-106.7	-	-12.4	-66.6	27.7
Selenium	mg/L	0.01	<0.01	<0.01	-	<0.01	-	<0.01
Sodium	mg/L	1	59	48	-	1050	-	420
Standing Water Level	mbTOC	-	26.345	15.255	-	30.665	21.965	29.935
Strontium	mg/L	0.001	0.483	0.456	-	0.488	-	0.116
Sulfate as SO4 2-	mg/L	1	5	<1	-	66	-	16
Total Dissolved Solids @180°C	mg/L	10	339	352	-	3290	-	1270
Uranium	mg/L	0.001	<0.001	<0.001	-	0.011	-	<0.001
Vanadium	mg/L	0.01	<0.01	<0.01	-	<0.01	-	<0.01
Zinc	mg/L	0.005	<0.005	<0.005	-	<0.005	-	<0.005

		EPA Identification No Location Date	38 LWDMW1S 5/06/2021	39 LWDMW1I 5/06/2021	40 LWDMW2S 5/06/2021	41 LWDMW2D 5/06/2021	42 LWDMW3D 5/06/2021	43 LWDMW3S 5/06/2021
		Sample Method	No sample - dry	No sample - dry	No sample - dry	Grab Sample	Grab Sample	No sample - dry
Parameter	Units	LOR	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT
Aluminium	mg/L	0.01	-	-	-	<0.01	<0.01	-
Ammonia as N	mg/L	0.01	-	-	-	0.03	2.75	-
Arsenic	mg/L	0.001	-	-	-	<0.001	0.001	-
Barium	mg/L	0.001	-	-	-	0.578	0.08	-
Beryllium	mg/L	0.001	-	-	-	<0.001	<0.001	-
Bicarbonate Alkalinity as CaCO3	mg/L	1	-	-	-	448	119	-
Boron	mg/L	0.05	-	-	-	0.12	0.09	-
Bromide	mg/L	0.01	-	-	-	1.1	0.797	-
Cadmium	mg/L	0.0001	-	-	-	<0.0001	<0.0001	-
Calcium	mg/L	1	-	-	-	17	2	-
Carbonate Alkalinity as CaCO3	mg/L	1	-	-	-	<1	<1	-
Chloride	mg/L	1	-	-	-	438	246	-
Chromium	mg/L	0.001	-	-	-	<0.001	<0.001	-
Cobalt	mg/L	0.001	-	-	-	<0.001	<0.001	-
Copper	mg/L	0.001	-	-	-	<0.001	<0.001	-
Dissolved Oxygen	mg/L	-	-	-	-	0.98	1.24	-
Electrical Conductivity	µS/cm	-	-	-	-	1960	955	-
Fluoride	mg/L	0.1	-	-	-	0.4	0.2	-
Iron	mg/L	0.05	-	-	-	0.17	0.92	-
Lead	mg/L	0.001	-	-	-	<0.001	<0.001	-
Magnesium	mg/L	1	-	-	-	26	4	-
Manganese	mg/L	0.001	-	-	-	0.044	0.019	-
Mercury	mg/L	0.0001	-	-	-	<0.0001	<0.0001	-
Methane	mg/L	0.01	-	-	-	<0.01	0.858	-
Molybdenum	mg/L	0.001	-	-	-	0.002	<0.001	-
Nickel	mg/L	0.001	-	-	-	0.002	<0.001	-
Nitrate as N	mg/L	0.01	-	-	-	<0.01	<0.01	-
Nitrite as N	mg/L	0.01	-	-	-	<0.01	<0.01	-
pH	pH Unit	-	-	-	-	6.73	6.36	-
Potassium	mg/L	1	-	-	-	26	10	-
Reactive Phosphorus	mg/L	0.01	-	-	-	-	-	-
Redox Potential	mV	-	-	-	-	-86.6	-180.3	-
Selenium	mg/L	0.01	-	-	-	<0.01	<0.01	-
Sodium	mg/L	1	-	-	-	374	179	-
Standing Water Level	mbTOC	-	-	-	-	25.935	21.06	-
Strontium	mg/L	0.001	-	-	-	0.235	0.022	-
Sulfate as SO4 2-	mg/L	1	-	-	-	13	2	-
Total Dissolved Solids @180°C	mg/L	10	-	-	-	1350	666	-
Uranium	mg/L	0.001	-	-	-	0.001	<0.001	-
Vanadium	mg/L	0.01	-	-	-	<0.01	<0.01	-
Zinc	mg/L	0.005	-	-	-	<0.005	<0.005	-

		EPA Identification No Location Date	56 WPKMW9D 7/06/2021	57 WPKMW9S 7/06/2021	59 WPKMW13I 6/06/2021	60 WPKMW13S 6/06/2021	61 WPKMW14D 7/06/2021	62 WPKMW14S 7/06/2021
		Sample Method	Grab Sample	Grab Sample	Grab Sample	Grab Sample	Grab Sample	No sample - Insufficient liquid
Parameter	Units	LOR	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT
Aluminium	mg/L	0.01	<0.01	<0.01	0.01	<0.01	<0.01	-
Ammonia as N	mg/L	0.01	0.05	0.99	0.2	0.11	0.06	-
Arsenic	mg/L	0.001	0.004	0.002	0.002	0.001	0.002	-
Barium	mg/L	0.001	0.034	0.197	0.052	0.106	0.296	-
Beryllium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
Bicarbonate Alkalinity as CaCO3	mg/L	1	616	1550	561	1240	541	-
Boron	mg/L	0.05	0.21	0.34	0.24	0.37	0.19	-
Bromide	mg/L	0.01	0.206	1.16	0.594	1.67	0.207	-
Cadmium	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
Calcium	mg/L	1	2	8	4	5	6	-
Carbonate Alkalinity as CaCO3	mg/L	1	<1	<1	<1	<1	<1	-
Chloride	mg/L	1	59	357	83	456	59	-
Chromium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
Cobalt	mg/L	0.001	<0.001	<0.001	<0.001	0.001	<0.001	-
Copper	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
Dissolved Oxygen	mg/L	-	1.84	1.29	1.17	1.48	2.39	-
Electrical Conductivity	µS/cm	-	1181	3673	1305	3183	1148	-
Fluoride	mg/L	0.1	0.8	0.8	0.7	0.6	0.7	-
Iron	mg/L	0.05	<0.05	<0.05	0.07	0.11	<0.05	-
Lead	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
Magnesium	mg/L	1	<1	3	<1	2	1	-
Manganese	mg/L	0.001	0.013	0.057	0.073	0.084	0.017	-
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
Methane	mg/L	0.01	0.054	0.267	0.036	0.013	<0.01	-
Molybdenum	mg/L	0.001	0.003	0.002	0.001	0.002	<0.001	-
Nickel	mg/L	0.001	<0.001	0.001	<0.001	<0.001	<0.001	-
Nitrate as N	mg/L	0.01	<0.01	<0.01	<0.01	0.01	<0.01	-
Nitrite as N	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
pH	pH Unit	-	8.25	7.85	8.06	7.45	8.14	-
Potassium	mg/L	1	3	8	4	10	4	-
Reactive Phosphorus	mg/L	0.01	0.24	0.49			0.19	-
Redox Potential	mV	-	-12.6	-159.3	-43	-52.6	-19.7	-
Selenium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Sodium	mg/L	1	291	878	328	792	270	-
Standing Water Level	mbTOC	-	15.575	15.815	16.84	17.01	20.95	-
Strontium	mg/L	0.001	0.026	0.102	0.023	0.042	0.042	-
Sulfate as SO4 2-	mg/L	1	<1	51	2	<1	<1	-
Total Dissolved Solids @180°C	mg/L	10	736	2570	1000	2050	680	-
Uranium	mg/L	0.001	<0.001	0.004	<0.001	0.001	<0.001	-
Vanadium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Zinc	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-

		EPA Identification No Location Date	63 WPKMW15D 6/06/2021	64 WPKMW15S 6/06/2021	65 WPKMW16D 6/06/2021	66 WPKMW16S 6/06/2021
		Sample Method	Grab Sample	No sample - Insufficient liquid	Grab Sample	No sample - dry
Parameter	Units	LOR	RESULT	RESULT	RESULT	RESULT
Aluminium	mg/L	0.01	0.91	-	<0.01	-
Ammonia as N	mg/L	0.01	0.07	-	0.04	-
Arsenic	mg/L	0.001	0.002	-	0.003	-
Barium	mg/L	0.001	0.632	-	0.205	-
Beryllium	mg/L	0.001	<0.001	-	<0.001	-
Bicarbonate Alkalinity as CaCO3	mg/L	1	616	-	578	-
Boron	mg/L	0.05	0.18	-	0.07	-
Bromide	mg/L	0.01	0.541	-	0.551	-
Cadmium	mg/L	0.0001	<0.0001	-	<0.0001	-
Calcium	mg/L	1	9	-	7	-
Carbonate Alkalinity as CaCO3	mg/L	1	<1	-	<1	-
Chloride	mg/L	1	57	-	65	-
Chromium	mg/L	0.001	0.003	-	<0.001	-
Cobalt	mg/L	0.001	<0.001	-	<0.001	-
Copper	mg/L	0.001	0.001	-	<0.001	-
Dissolved Oxygen	mg/L	-	1.73	3.16	3.7	-
Electrical Conductivity	µS/cm	-	1189	8399	1221	-
Fluoride	mg/L	0.1	0.4	-	0.5	-
Iron	mg/L	0.05	1.21	-	<0.05	-
Lead	mg/L	0.001	0.003	-	<0.001	-
Magnesium	mg/L	1	3	-	2	-
Manganese	mg/L	0.001	0.131	-	0.03	-
Mercury	mg/L	0.0001	<0.0001	-	<0.0001	-
Methane	mg/L	0.01	0.206	-	<0.01	-
Molybdenum	mg/L	0.001	0.004	-	0.005	-
Nickel	mg/L	0.001	0.004	-	0.002	-
Nitrate as N	mg/L	0.01	<0.01	-	<0.01	-
Nitrite as N	mg/L	0.01	<0.01	-	<0.01	-
pH	pH Unit	-	7.95	7.87	7.93	-
Potassium	mg/L	1	9	-	12	-
Reactive Phosphorus	mg/L	0.01	-	-	-	-
Redox Potential	mV	-	-66.2	9.9	-18.5	-
Selenium	mg/L	0.01	<0.01	-	<0.01	-
Sodium	mg/L	1	305	-	296	-
Standing Water Level	mbTOC	-	22.23	22.555	16.585	-
Strontium	mg/L	0.001	0.059	-	0.048	-
Sulfate as SO4 2-	mg/L	1	12	-	8	-
Total Dissolved Solids @180°C	mg/L	10	1030	-	938	-
Uranium	mg/L	0.001	0.001	-	0.003	-
Vanadium	mg/L	0.01	<0.01	-	<0.01	-
Zinc	mg/L	0.005	0.012	-	<0.005	-

TABLE 3: TREATED WATER QUALITY MONITORING

		EPA Identification No	77	77	77
		Location	LWWTPDM1	LWWTPDM1	LWWTPDM1
		Date	May-21	Jun-21	Jul-21
		Sample Method	No sample - plant not operating	No sample - plant not operating	No sample - plant not operating
Parameter	Units	LOR	RESULT	RESULT	RESULT
Ammonia as N	mg/L	0.01			
Bicarbonate Alkalinity as CaCO3	mg/L	1			
Boron	mg/L	0.05			
Calcium	mg/L	1			
Carbonate Alkalinity as CaCO3	mg/L	1			
Chloride	mg/L	1			
Electrical Conductivity	µS/cm	-			
Fluoride	mg/L	0.1			
Magnesium	mg/L	1			
Nitrate as N	mg/L	0.01			
Nitrite as N	mg/L	0.01			
pH	pH Unit	-			
Potassium	mg/L	1			
Reactive Silica	mg/L	1			
Sodium Adsorption Ratio	-	0.01			
Sodium	mg/L	1			
Sulfate as SO4 2-	mg/L	1			
Total Alkalinity (as CaCO3)	mg/L	1			
Total Dissolved Solids @180°C	mg/L	10			
Total Hardness (as CaCO3)	mg/L	1			
Total Nitrogen (as N)	mg/L	0.5			
Total Phosphorus (as P)	mg/L	0.01			
Total Residual Chlorine	mg/L				
Turbidity	NTU	0.1			

TABLE 4: PRODUCED WATER STORAGE QUALITY MONITORING

		EPA Identification No	69	70	71	72	73	74	75
		Location	BWDP2	BWDP3	LWDPD1CELL4	LWDPD1CELL3	LWDPD1CELL2	LWDPD1CELL1	TFDPD1
		Date			9/06/2021	9/06/2021	9/06/2021	9/06/2021	7/06/2021
		Sample Method	No produced water	No produced water	Grab Sample	Grab Sample	Grab Sample	Grab Sample	Grab Sample
Parameter	Units	LOR	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT
Aluminium	mg/L	0.1			<0.1	<0.1	<0.1	<0.1	0.02*
Ammonia as N	mg/L	0.1			<0.1	0.75	<0.1	<0.1	0.02*
Arsenic	mg/L	0.01			<0.01	<0.01	<0.01	<0.01	<0.001*
Barium	mg/L	0.01			0.299	3.24	6.72	1.53	2.02
Beryllium	mg/L	0.01			<0.01	<0.01	<0.01	<0.01	<0.001*
Bicarbonate Alkalinity as CaCO3	mg/L	1			3760	5130	8190	9440	259
Boron	mg/L	0.1			2.54	1.1	1.47	5.22	<0.05*
Bromide	mg/L	0.01			26.1	4.23	6.54	31.4	0.244
Cadmium	mg/L	0.001			<0.001	<0.001	<0.001	<0.001	<0.0001*
Calcium	mg/L	1			2	<10*	11	9	12
Carbonate Alkalinity as CaCO3	mg/L	1			23000	7920	9240	27600	157
Chloride	mg/L	1			6420	1590	2380	6510	74
Chromium	mg/L	0.01			<0.01	<0.01	<0.01	<0.01	<0.001*
Cobalt	mg/L	0.01			<0.01	<0.01	<0.01	<0.01	<0.001*
Copper	mg/L	0.01			<0.01	<0.01	<0.01	<0.01	<0.001*
Dissolved Oxygen	mg/L	-			6.5	10.36	9.14	8.67	10.26
Electrical Conductivity	µS/cm	-			47557	23008	28925	53130	912
Iron	mg/L	0.1			<0.1	<0.5*	0.44	0.5	<0.05*
Lead	mg/L	0.01			<0.01	<0.01	<0.01	<0.01	<0.001*
Magnesium	mg/L	1			6	<10*	12	14	<1
Manganese	mg/L	0.01			<0.01	<0.01	<0.01	0.032	0.002*
Mercury	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005	<0.0001*
Molybdenum	mg/L	0.01			<0.01	<0.01	<0.01	<0.01	<0.001*
Nickel	mg/L	0.01			<0.01	<0.01	<0.01	<0.01	<0.001*
Nitrate as N	mg/L	0.1			<0.1	<0.1	<0.1	<0.1	0.06*
Nitrite as N	mg/L	0.01			<0.01	<0.01	<0.01	<0.01	<0.01
pH	pH Unit	-			10.43	9.93	9.78	10.11	9.93
Potassium	mg/L	1			414	73	105	548	3
Redox	mV	-			1.8	13.3	13.8	4.2	-25.4
Selenium	mg/L	0.1			<0.1	<0.1	<0.1	<0.1	<0.01*
Sodium Adsorption Ratio	-	0.1			1290	2000	473	1070	15.8
Sodium	mg/L	1			16200	8340	9530	22100	206
Strontium	mg/L	0.01			0.347	1.12	1.94	1.02	1.2
Sulfate as SO4 2-	mg/L	1			<500*	<20*	45	<50*	<1
Total Dissolved Solids @180°C	mg/L	10			46500	18400	24800	45400	550
Total Organic Carbon	mg/L	1			392	129	480	402	27
Total Phosphorus as P	mg/L	0.1			2.94	0.34	0.47	1.91	0.2
Uranium	mg/L	0.01			<0.01	<0.01	<0.01	<0.01	<0.001*
Vanadium	mg/L	0.1			<0.1	<0.1	<0.1	<0.1	<0.01*
Zinc	mg/L	0.05			<0.05	<0.05	<0.05	<0.05	0.005*

Note: *Limit of reporting (LOR) has been adjusted due to matrix interference as per Australian Laboratory Services (ALS) certificate of analysis (COA) ES2121690

TABLE 6: GROUNDWATER LEVEL MONITORING

EPA Identification No	44	45	46	47	48	49
Location	Dewhurst 8A-1 (DWH8AQGDGY01)	Dewhurst 8A-2 (DWH8AQGARK02)	Dewhurst 8A-3 (DWH8AQGPOR03)	Bibbiewindi 28A (BWD28QGUPS01)	Bibbiewindi 28B (BWD28QGLPS01)	Bibbiewindi 28C (BWD28QGPUR01)
Start Date	1/05/2021	1/05/2021	1/05/2021	1/05/2021	1/05/2021	1/05/2021
End Date	31/07/2021	31/07/2021	31/07/2021	31/07/2021	31/07/2021	31/07/2021
Sample Obtained	Standing Water Level	Standing Water Level	Standing Water Level	Standing Water Level	Standing Water Level	Standing Water Level
Number of Samples Required	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous
Lowest sample value	-37.168	15.803	-67.1	-	-	-
Mean of sample	-37.115	15.879	-64.894	-	-	-
Highest sample value	-37.046	15.946	-62.708	-	-	-

Note: Monitoring points 47,48 and 49: Sensor is faulty and data not available since 21 April 2021