

## 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

**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	LWWTDM1	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	2/06/2021
		Sample Method	in situ	in situ	in situ	No sample - dry	in situ	in situ 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		26	27	28	37	38	39	40	41
		Location		BWDMW12S	BWDMW12D	BWDMW12I	LWDMW1D	LWDMW1S	LWDMW1I	LWDMW2S	LWDMW2D
		Date		4/06/2021	4/06/2021	4/06/2021	5/06/2021	5/06/2021	5/06/2021	5/06/2021	5/06/2021
		Sample Method	No sample - dry	Grab Sample	No sample - Insufficient liquid	Grab Sample	No sample - dry	No sample - dry	No sample - dry	Grab Sample	
Parameter	Units	LOR	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT	
Aluminium	mg/L	0.01	-	<0.01	-	<0.01	-	-	-	<0.01	
Ammonia as N	mg/L	0.01	-	0.05	-	<0.01	-	-	-	0.03	
Arsenic	mg/L	0.001	-	<0.001	-	<0.001	-	-	-	<0.001	
Barium	mg/L	0.001	-	1.18	-	0.417	-	-	-	0.578	
Beryllium	mg/L	0.001	-	<0.001	-	<0.001	-	-	-	<0.001	
Bicarbonate Alkalinity as CaCO3	mg/L	1	-	1970	-	194	-	-	-	448	
Boron	mg/L	0.05	-	<0.05	-	0.14	-	-	-	0.12	
Bromide	mg/L	0.01	-	3.81	-	1.63	-	-	-	1.1	
Cadmium	mg/L	0.0001	-	<0.0001	-	<0.0001	-	-	-	<0.0001	
Calcium	mg/L	1	-	15	-	6	-	-	-	17	
Carbonate Alkalinity as CaCO3	mg/L	1	-	<1	-	<1	-	-	-	<1	
Chloride	mg/L	1	-	794	-	633	-	-	-	438	
Chromium	mg/L	0.001	-	<0.001	-	<0.001	-	-	-	<0.001	
Cobalt	mg/L	0.001	-	<0.001	-	<0.001	-	-	-	<0.001	
Copper	mg/L	0.001	-	<0.001	-	<0.001	-	-	-	<0.001	
Dissolved Oxygen	mg/L	-	-	3.72	5.77	2.71	-	-	-	0.98	
Electrical Conductivity	µS/cm	-	-	5084	9655	2141	-	-	-	1960	
Fluoride	mg/L	0.1	-	0.6	-	0.3	-	-	-	0.4	
Iron	mg/L	0.05	-	0.34	-	<0.05	-	-	-	0.17	
Lead	mg/L	0.001	-	<0.001	-	<0.001	-	-	-	<0.001	
Magnesium	mg/L	1	-	171	-	13	-	-	-	26	
Manganese	mg/L	0.001	-	0.008	-	0.004	-	-	-	0.044	
Mercury	mg/L	0.0001	-	<0.0001	-	<0.0001	-	-	-	<0.0001	
Methane	mg/L	0.01	-	<0.01	-	<0.01	-	-	-	<0.01	
Molybdenum	mg/L	0.001	-	0.001	-	<0.001	-	-	-	0.002	
Nickel	mg/L	0.001	-	0.002	-	0.002	-	-	-	0.002	
Nitrate as N	mg/L	0.01	-	0.18	-	0.08	-	-	-	<0.01	
Nitrite as N	mg/L	0.01	-	<0.01	-	<0.01	-	-	-	<0.01	
pH	pH Unit	-	-	6.83	7.18	6.31	-	-	-	6.73	
Potassium	mg/L	1	-	37	-	13	-	-	-	26	
Reactive Phosphorus	mg/L	0.01	-	-	-	-	-	-	-	-	
Redox Potential	mV	-	-	-12.4	-66.6	27.7	-	-	-	-86.6	
Selenium	mg/L	0.01	-	<0.01	-	<0.01	-	-	-	<0.01	
Sodium	mg/L	1	-	1050	-	420	-	-	-	374	
Standing Water Level	mbTOC	-	-	30.665	21.965	29.935	-	-	-	25.935	
Strontium	mg/L	0.001	-	0.488	-	0.116	-	-	-	0.235	
Sulfate as SO4 2-	mg/L	1	-	66	-	16	-	-	-	13	
Total Dissolved Solids @180°C	mg/L	10	-	3290	-	1270	-	-	-	1350	
Uranium	mg/L	0.001	-	0.011	-	<0.001	-	-	-	0.001	
Vanadium	mg/L	0.01	-	<0.01	-	<0.01	-	-	-	<0.01	
Zinc	mg/L	0.005	-	<0.005	-	<0.005	-	-	-	<0.005	

		EPA Identification No		42	43	56	57	59	60	61	62
		Location		LWDMW3D	LWDMW3S	WPKMW9D	WPKMW9S	WPKMW13I	WPKMW13S	WPKMW14D	WPKMW14S
		Date		5/06/2021	5/06/2021	7/06/2021	7/06/2021	6/06/2021	6/06/2021	7/06/2021	7/06/2021
		Sample Method		Grab Sample	No sample - dry	Grab Sample	Grab Sample	Grab Sample	Grab Sample	Grab Sample	No sample - dry
Parameter	Units	LOR	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT
Aluminium	mg/L	0.01	<0.01	-	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	-
Ammonia as N	mg/L	0.01	2.75	-	0.05	0.99	0.2	0.11	0.06	-	
Arsenic	mg/L	0.001	0.001	-	0.004	0.002	0.002	0.001	0.002	-	
Barium	mg/L	0.001	0.08	-	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	<0.001	-	
Bicarbonate Alkalinity as CaCO3	mg/L	1	119	-	616	1550	561	1240	541	-	
Boron	mg/L	0.05	0.09	-	0.21	0.34	0.24	0.37	0.19	-	
Bromide	mg/L	0.01	0.797	-	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	<0.0001	-	
Calcium	mg/L	1	2	-	2	8	4	5	6	-	
Carbonate Alkalinity as CaCO3	mg/L	1	<1	-	<1	<1	<1	<1	<1	-	
Chloride	mg/L	1	246	-	59	357	83	456	59	-	
Chromium	mg/L	0.001	<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	<0.001	-	
Copper	mg/L	0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	-	
Dissolved Oxygen	mg/L	-	1.24	-	1.84	1.29	1.17	1.48	2.39	-	
Electrical Conductivity	µS/cm	-	955	-	1181	3673	1305	3183	1148	-	
Fluoride	mg/L	0.1	0.2	-	0.8	0.8	0.7	0.6	0.7	-	
Iron	mg/L	0.05	0.92	-	<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	<0.001	-	
Magnesium	mg/L	1	4	-	<1	3	<1	2	1	-	
Manganese	mg/L	0.001	0.019	-	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	<0.0001	-	
Methane	mg/L	0.01	0.858	-	0.054	0.267	0.036	0.013	<0.01	-	
Molybdenum	mg/L	0.001	<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	<0.001	-	
Nitrate as N	mg/L	0.01	<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	<0.01	-	
pH	pH Unit	-	6.36	-	8.25	7.85	8.06	7.45	8.14	-	
Potassium	mg/L	1	10	-	3	8	4	10	4	-	
Reactive Phosphorus	mg/L	0.01	-	-	0.24	0.49	-	0.19	-	-	
Redox Potential	mV	-	-180.3	-	-12.6	-159.3	-43	-52.6	-19.7	-	
Selenium	mg/L	0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	-	
Sodium	mg/L	1	179	-	291	878	328	792	270	-	
Standing Water Level	mbTOC	-	21.06	-	15.575	15.815	16.84	17.01	20.95	-	
Strontium	mg/L	0.001	0.022	-	0.026	0.102	0.023	0.042	0.042	-	
Sulfate as SO4 2-	mg/L	1	2	-	<1	51	2	<1	<1	-	
Total Dissolved Solids @180°C	mg/L	10	666	-	736	2570	1000	2050	680	-	
Uranium	mg/L	0.001	<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	<0.01	-	
Zinc	mg/L	0.005	<0.005	-	<0.005	<0.005	<0.005	<0.005	<0.005	-	

		EPA Identification No	63	64	65	66	78	79	80	81	82
		Location	WPKMW15D	WPKMW15S	WPKMW16D	WPKMW16S	WPKMW18S	WPKMW18I	LWDMW4	LWDMW5	LWDMW6
		Date	6/06/2021	6/06/2021	6/06/2021	6/06/2021	6/06/2021	6/06/2021	6/06/2021		
		Sample Method	Grab Sample	No sample - Insufficient liquid	Grab Sample	No sample - dry	No sample - dry	Grab Sample	No sample - no irrigation	No sample - no irrigation	No sample - no irrigation
Parameter	Units	LOR	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT	RESULT
Aluminium	mg/L	0.01	0.91	-	<0.01	-	-	<0.01	-	-	-
Ammonia as N	mg/L	0.01	0.07	-	0.04	-	-	<0.01	-	-	-
Arsenic	mg/L	0.001	0.002	-	0.003	-	-	<0.001	-	-	-
Barium	mg/L	0.001	0.632	-	0.205	-	-	0.106	-	-	-
Beryllium	mg/L	0.001	<0.001	-	<0.001	-	-	<0.001	-	-	-
Bicarbonate Alkalinity as CaCO3	mg/L	1	616	-	578	-	-	509	-	-	-
Boron	mg/L	0.05	0.18	-	0.07	-	-	0.23	-	-	-
Bromide	mg/L	0.01	0.541	-	0.551	-	-	0.578	-	-	-
Cadmium	mg/L	0.0001	<0.0001	-	<0.0001	-	-	<0.0001	-	-	-
Calcium	mg/L	1	9	-	7	-	-	2	-	-	-
Carbonate Alkalinity as CaCO3	mg/L	1	<1	-	<1	-	-	<1	-	-	-
Chloride	mg/L	1	57	-	65	-	-	73	-	-	-
Chromium	mg/L	0.001	0.003	-	<0.001	-	-	<0.001	-	-	-
Cobalt	mg/L	0.001	<0.001	-	<0.001	-	-	<0.001	-	-	-
Copper	mg/L	0.001	0.001	-	<0.001	-	-	<0.001	-	-	-
Dissolved Oxygen	mg/L	-	1.73	3.16	3.7	-	-	2.01	-	-	-
Electrical Conductivity	µS/cm	-	1189	8399	1221	-	-	1191	-	-	-
Fluoride	mg/L	0.1	0.4	-	0.5	-	-	0.6	-	-	-
Iron	mg/L	0.05	1.21	-	<0.05	-	-	<0.05	-	-	-
Lead	mg/L	0.001	0.003	-	<0.001	-	-	<0.001	-	-	-
Magnesium	mg/L	1	3	-	2	-	-	<1	-	-	-
Manganese	mg/L	0.001	0.131	-	0.03	-	-	0.006	-	-	-
Mercury	mg/L	0.0001	<0.0001	-	<0.0001	-	-	<0.0001	-	-	-
Methane	mg/L	0.01	0.206	-	<0.01	-	-	<0.01	-	-	-
Molybdenum	mg/L	0.001	0.004	-	0.005	-	-	0.001	-	-	-
Nickel	mg/L	0.001	0.004	-	0.002	-	-	0.002	-	-	-
Nitrate as N	mg/L	0.01	<0.01	-	<0.01	-	-	0.86	-	-	-
Nitrite as N	mg/L	0.01	<0.01	-	<0.01	-	-	<0.01	-	-	-
pH	pH Unit	-	7.95	7.87	7.93	-	-	8.06	-	-	-
Potassium	mg/L	1	9	-	12	-	-	5	-	-	-
Reactive Phosphorus	mg/L	0.01	-	-	-	-	-	-	-	-	-
Redox Potential	mV	-	-66.2	9.9	-18.5	-	-	18.1	-	-	-
Selenium	mg/L	0.01	<0.01	-	<0.01	-	-	<0.01	-	-	-
Sodium	mg/L	1	305	-	296	-	-	298	-	-	-
Standing Water Level	mbTOC	-	22.23	22.555	16.585	-	16.955	16.325	-	-	-
Strontium	mg/L	0.001	0.059	-	0.048	-	-	0.017	-	-	-
Sulfate as SO4 2-	mg/L	1	12	-	8	-	-	<1	-	-	-
Total Dissolved Solids @180°C	mg/L	10	1030	-	938	-	-	822	-	-	-
Uranium	mg/L	0.001	0.001	-	0.003	-	-	<0.001	-	-	-
Vanadium	mg/L	0.01	<0.01	-	<0.01	-	-	<0.01	-	-	-
Zinc	mg/L	0.005	0.012	-	<0.005	-	-	<0.005	-	-	-

**TABLE 3: TREATED WATER QUALITY MONITORING**

		EPA Identification No			
		Location			
		Date			
		Sample Method			
Parameter	Units	LOR	77 LWWTPDM1 May-21 No sample - plant not operating	77 LWWTPDM1 Jun-21 No sample - plant not operating	77 LWWTPDM1 Jul-21 No sample - plant not operating
			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	BWDPD2	BWDPD3	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