

Adani Carmichael Coal Mine Project

Groundwater Quality data

June 2022

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Sample Type:		REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
Sample Date:		23/06/2022	23/06/2022	25/06/2022	25/06/2022	25/06/2022	25/06/2022	25/06/2022	25/06/2022	25/06/2022	25/06/2022	25/06/2022	25/06/2022	25/06/2022	25/06/2022	25/06/2022
Client sample ID (1st):		C14003SP	C14004SP	C14017SP	C180123SP	C9180121SPR	C180120SP	C9180125SPR	Mellaluka Spring	C14031SP	C14032SP	C914108PTR	C14015SP	Duplicate E	C180119SP	C180122SP
Hydro-stratigraphic unit:			Joe Joe Group	Joe Joe Group	Joe Joe Group	Tertiary	Composite Bore (	Joe Joe Group	Spring Discharge	Composite Bore (	Joe Joe Group	Joe Joe Group	Joe Joe Group		Joe Joe Group	Composite Bore (Tertiary / Joe Joe
Analyte grouping/Analyte	Unit															
pH Value	pH Unit	6.53	7.25	7.63	8.36	6.48	6.04	8.36	6.93	6.67	6.81	6.68	7.54	7.81	6.93	6.31
Electrical Conductivity @ 25°C	µS/cm	54200	54600	4970	801	3450	7680	912	731	5510	2060	512	2320	5050	714	6700
Total Dissolved Solids @180°C	mg/L	50700	50200	2880	522	2060	4980	536	462	2060	1180	344	1460	2640	434	3970
Total Alkalinity as CaCO3	mg/L	90	98	253	235	30	14	295	23	29	39	26	122	259	68	19
Sulfate as SO4 - Turbidimetric	mg/L	2290	1950	48	20	81	160	<1	14	103	30	14	55	48	4	72
Chloride	mg/L	21300	21000	1570	106	1110	2880	125	219	1950	676	137	672	1610	195	2600
Calcium	mg/L	2400	2740	104	7	33	97	9	4	80	27	4	17	106	5	108
Magnesium	mg/L	1570	1340	54	4	49	144	4	9	101	31	4	14	56	4	122
Sodium	mg/L	9400	7700	911	176	639	1430	206	126	997	351	91	478	959	130	1290
Potassium	mg/L	30	42	15	3	9	30	4	7	14	12	5	9	15	4	19
Aluminium	mg/L	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic	mg/L	<0.005	<0.005	0.002	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.001	<0.001
Cadmium	mg/L	<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	mg/L	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	mg/L	0.023	<0.005	0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	0.003	0.001	<0.001	0.001	<0.001	0.003
Copper	mg/L	0.006	0.006	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	mg/L	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	mg/L	2.85	7.63	0.762	0.033	0.008	0.014	0.044	0.012	0.008	0.034	0.151	0.042	0.166	0.783	0.263
Molybdenum	mg/L	<0.005	<0.005	0.003	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	<0.001
Nickel	mg/L	0.02	<0.005	0.001	<0.001	<0.001	0.005	<0.001	<0.001	0.001	0.002	0.002	<0.001	<0.001	<0.001	0.002
Selenium	mg/L	<0.05	<0.05	<0.01	<0.0											

Sample Type:	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
Sample Date:	25/06/2022	25/06/2022	25/06/2022	25/06/2022	25/06/2022	25/06/2022	25/06/2022	25/06/2022	25/06/2022	25/06/2022	25/06/2022	25/06/2022	25/06/2022	25/06/2022	27/06/2022	25/06/2022
Client sample ID (1st):	C9180124SPR	C14016SP	C14006SP	C14008SP	C14029SP	C914030SPR	Duplicate G	C034P3	C035P1	C035P2	C032P2	C9845SPR	C19004SP	C19028SP	C19003SP	
Hydro-stratigraphic unit:	Joe Joe Group	Joe Joe Group	Joe Joe Group	Joe Joe Group	Composite Bore	Joe Joe Group		Colinlea Sandstor	Rewan Formation	Bandanna Forma	Bandanna Forma	Tertiary	Colinlea Sandstor	Rewan Formation	Colinlea Sandstone	
Analyte grouping/Analyte	Unit															
pH Value	pH Unit	6.62	8.13	7.27	6.71	7.03	6.73	6.79	7.13	7.61	7.48	8.37	6.99	8.31	7.9	8.2
Electrical Conductivity @ 25°C	µS/cm	493	2660	7640	636	8800	555	560	1620	3480	1480	1280	2010	3000	5900	3020
Total Dissolved Solids @180°C	mg/L	244	1500	4780	368	6120	334	368	1080	2020	848	772	1080	1600	3100	1690
Total Alkalinity as CaCO3	mg/L	30	180	118	32	55	33	32	98	151	107	334	59	241	271	69
Sulfate as SO4 - Turbidimetric	mg/L	6	58	189	12	478	11	10	20	49	18	<1	56	<1	210	<1
Chloride	mg/L	129	755	2890	189	3390	160	157	498	1080	430	218	562	837	1600	923
Calcium	mg/L	2	44	166	7	203	6	6	21	13	10	10	5	39	17	22
Magnesium	mg/L	3	12	81	6	158	5	5	10	13	7	3	14	4	47	9
Sodium	mg/L	86	536	1430	114	1840	102	101	286	666	270	261	345	460	1100	520
Potassium	mg/L	4	8		5	21	5	5	11	4	5	4	7	6	12	10
Aluminium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01
Arsenic	mg/L	<0.001	0.005	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	0.006	<0.001	<0.001	0.005	<0.001
Cadmium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001
Cobalt	mg/L	0.001	<0.001	<0.001	0.01	0.004	0.007	0.007	<0.001	<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	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	mg/L	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	mg/L	0.014	0.186	0.374	0.089	0.067	0.213	0.208	0.225	0.102	0.099	0.042	0.005	0.072	0.162	0.048
Molybdenum	mg/L	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.007	<0.001	<0.001	<0.001	0.004
Nickel	mg/L	0.002	<0.001	<0.001	0.012	0.008	0.011	0.011	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uranium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	mg/L	2.26	0.032	0.048	0.157	0.029	0.049	0.046	0.203	0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005
Boron	mg/L	0.11	0.4	0.51	0.12	1.56	0.11	0.11	0.24	0.72	0.31	0.4	0.27	0.49	1.07	0.4
Iron	mg/L	5.23	0.14	7.36	1.7	0.69	0.72	0.71	2.94	0.2	0.35	0.13	<0.05	0.74	0.51	<0.05
Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Fluoride	mg/L	<0.1	0.8	0.9	0.2	<0.1	0.1	0.2	0.2	0.6	0.2	1.1	0.2	3.4	1.1	2
Ammonia as N	mg/L	<0.01	0.41	0.55	0.03	0.05	<0.01	<0.01	0.08	<0.01	0.02	0.38	<0.01	0.55	<0.01	0.19
Nitrite as N	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	mg/L	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.1	<0.01	<0.01	<0.01
Total Phosphorus as P	mg/L	<0.01	0.04	0.02	<0.01	0.12	<0.01	<0.01	<0.01	<0.01	0.02	0.04	0.02	<0.01	0.09	<0.01
Sulfide as S2-	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.4	<0.1	<0.1	<0.1	<0.1
C6 - C9 Fraction	µg/L	<20	<20	<20	<20	<20	<20	<20	<20	<20	----	<20	<20	<20	<20	<20
C6 - C10 Fraction	µg/L	<20	<20	<20	<20	<20	<20	<20	<20	<20	----	<20	<20	<20	<20	<20
>C10 - C40 Fraction (sum)	µg/L	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Sum of BTEX	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	----	<1	<1	<1	<1	<1

Sample Type:	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG						
Sample Date:	25/06/2022	25/06/2022	25/06/2022	26/06/2022	26/06/2022	26/06/2022	26/06/2022	26/06/2022	25/06/2022	25/06/2022						
Client sample ID (1st):	C847SP	C848SP	C9849SPR	C19012SP	C919013SPR	C18001SP	C918014SPR	C19019SP	Duplicate A							
Hydro-stratigraphic unit:	Bandanna Forma	Colinlea Sandstor	Colinlea Sandstor	Rewan Formation	Rewan Formation	Clematis Sandsto	Joe Joe Group	Bandanna Formation								
Analyte grouping/Analyte	Unit															
pH Value	pH Unit	5.79	6.51	6.72	12.1	11.9	7.04	6.1	6.73	7.11						
Electrical Conductivity @ 25°C	µS/cm	361	2970	3100	6990	3880	681	532	19800	5870						
Total Dissolved Solids @180°C	mg/L	195	1630	1810	2600	2330	400	258	11000	3460						
Total Alkalinity as CaCO3	mg/L	24	209	262	1560	811	106	23	146	269						
Sulfate as SO4 - Turbidimetric	mg/L	7	18	<1	184	62	7	3	946	208						
Chloride	mg/L	89	823	864	632	477	139	154	6850	1580						
Calcium	mg/L	<1	24	77	32	3	3	2	150	18						
Magnesium	mg/L	2	22	16	1	<1	1	10	742	53						
Sodium	mg/L	61	510	522	894	592	115	68	2980	1220						
Potassium	mg/L	2	15	19	156	57	15	9	2	13						
Aluminium	mg/L	<0.01	<0.01	<0.01	2.07	2.53	<0.01	<0.01	0.01	<0.01						
Arsenic	mg/L	<0.001	<0.001	<0.001	0.018	0.007	0.002	<0.001	0.003	0.006						
Cadmium	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0005	<0.0001						
Chromium	mg/L	<0.001	<0.001	<0.001	0.108	<0.001	<0.001	<0.001	0.006	<0.001						
Cobalt	mg/L	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	0.001	0.346	<0.001						
Copper	mg/L	<0.001	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	0.004	<0.001						
Lead	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001						
Manganese	mg/L	0.002	0.28	0.314	0.218	<0.001	0.015	0.01	8.01	0.185						
Molybdenum	mg/L	<0.001	<0.001	<0.001	0.074	0.168	0.008	0.002	<0.001	0.003						
Nickel	mg/L	<0.001	<0.001	<0.001	0.005	0.012	0.001	0.005	0.199	<0.001						
Selenium	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01						
Silver	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001						
Uranium	mg/L	<0.001	<0.001	<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	<0.01	<0.01						
Zinc	mg/L	0.011	<0.005	<0.005	0.033	<0.005	0.06	<0.005	0.028	0.012						
Boron	mg/L	0.14	0.23	0.22	0.13	0.09	0.14	0.16	1.24	1.04						
Iron	mg/L	<0.05	1.54	3.56	2.98	<0.05	1.48	0.11	<0.05	0.56						
Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001						
Fluoride	mg/L	0.1	0.3	0.3	1.4	1.5	0.2	0.2	0.1	1.2						
Ammonia as N	mg/L	<0.01	0.04	0.08	7.4	5.61	0.2	0.02	0.02	<0.01						
Nitrite as N	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01						
Nitrate as N	mg/L	0.12	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	2.37	<0.01						
Total Phosphorus as P	mg/L	<0.01	0.02	0.02	0.1	0.04	0.03	0.01	0.05	0.09						
Sulfide as S2-	mg/L	<0.1	<0.1	<0.1	6.8	0.4	<0.1	<0.1	<0.1	<0.1						
C6 - C9 Fraction	µg/L	<20	<20	<20	<30	30	<20	<20	<20	<20						
C6 - C10 Fraction	µg/L	<20	<20	<20	<20	30	<20	<20	<20	<20						
>C10 - C40 Fraction (sum)	µg/L	<100	<100	<100	580	660	<100	<100	<100	<100						
Sum of BTEX	µg/L	<1	<1	<1	4	1	<1	<1	<1	<1						