

Carmichael Coal Mine Project

Groundwater Quality data

April/May 2025

Sample Type:	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG		
Sample Date:	28/04/2025	29/04/2025	29/04/2025	29/04/2025	29/04/2025	29/04/2025	29/04/2025	29/04/2025	29/04/2025	29/04/2025	29/04/2025	29/04/2025	29/04/2025	22/05/2025	22/05/2025	22/05/2025
Client sample ID (1st):	C024P3	C025P2	C027P1	C027P2	C029P1	C029P2	C19001SP	C555P1	Joshua Spring	DUPLICATE A	DUPLICATE B	TRIP BLANK A	C18001SP	C18002SP	C18003SP	
Hydro-stratigraphic unit:	Colinlea Sandstone	Tertiary	Alluvium	Dunda Beds	Alluvium	Tertiary	Alluvium	Rewan Formation	Spring Discharge Clematis SSt				Clematis Sandstone	Clematis Sandstone	Moolayember	
Analyte grouping/Analyte	Unit															
pH Value	pH Unit	6.54	6.97	6.51	6.45	7.47	6.89	7.29	7.38	7.50	7.50	6.55	----	7.06	7.77	7.01
Electrical Conductivity @ 25°C	µS/cm	1410	14400	155	474	27600	15000	26100	774	530	540	482	----	649	366	443
Total Dissolved Solids @180°C	mg/L	392	7750	104	3910	17900	12000	17100	394	292	296	366	----	360	212	262
Total Alkalinity as CaCO3	mg/L	122	437	19	47	2050	316	888	146	127	127	47	----	112	151	161
Sulfate as SO4 - Turbidimetric	mg/L	26	383	11	10	745	331	830	<1	8	8	9	----	8	<1	7
Chloride	mg/L	390	4770	25	120	8670	5020	8650	176	92	89	118	----	147	33	46
Calcium	mg/L	13	122	5	2	38	118	278	6	12	12	2	----	4	1	3
Magnesium	mg/L	27	115	3	3	254	160	336	8	4	4	3	----	1	<1	2
Sodium	mg/L	238	2770	19	97	6000	2900	5420	156	92	94	95	----	120	74	84
Potassium	mg/L	10	59	4	5	181	79	94	7	20	20	5	----	15	11	14
Aluminium	mg/L	<0.01	<0.01	0.10	0.12	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.13	----	<0.01	<0.01	<0.01
Arsenic	mg/L	0.002	<0.001	<0.001	0.002	0.002	0.004	0.011	0.003	<0.001	<0.001	0.002	----	0.002	<0.001	0.002
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
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	----	<0.001	<0.001	<0.001
Cobalt	mg/L	<0.001	<0.001	0.003	0.001	<0.001	<0.001	0.002	0.001	<0.001	<0.001	0.001	----	<0.001	<0.001	<0.001
Copper	mg/L	<0.001	<0.001	0.011	0.002	<0.001	0.003	0.005	<0.001	<0.001	<0.001	0.002	----	<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
Manganese	mg/L	0.198	1.29	0.548	0.069	0.048	0.186	0.098	0.162	0.026	0.026	0.068	----	0.014	0.125	0.513
Molybdenum	mg/L	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001	<0.001
Nickel	mg/L	0.007	<0.001	0.003	0.001	<0.001	<0.001	0.004	<0.001	<0.001	<0.001	0.001	----	0.002	<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
Silver	mg/L	<0.001	0.004	<0.001	<0.001	0.011	0.001	0.052	<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	0.030	<0.001	0.092	<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	0.02	<0.01	<0.01	<0.01	<0.01	----	<0.01	<0.01	<0.01
Zinc	mg/L	0.029	0.008	0.019	0.008	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	0.007	----	0.055	<0.005	0.007
Boron	mg/L	0.35	1.63	<0.05	0.18	4.16	1.49	2.18	0.29	0.10	0.10	0.18	----	0.12	0.07	0.12
Iron	mg/L	11.4	4.40	0.37	2.66	0.20	0.18	<0.05	1.79	<0.05	<0.05	2.61	----	1.55	<0.05	0.48
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
Fluoride	mg/L	0.4	0.5	<0.1	0.2	1.1	0.4	0.4	0.5	0.5	0.5	0.2	----	0.2	0.4	0.5
Ammonia as N	mg/L	0.31	0.20	0.08	0.12	0.17	0.16	0.02	0.08	0.03	0.04	0.12	----	0.22	0.11	0.40
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
Nitrate as N	mg/L	<0.01	<0.01	0.06	<0.01	<0.01	<0.01	0.35	<0.01	<0.01	<0.01	<0.01	----	<0.01	<0.01	<0.01
Total Phosphorus as P	mg/L	0.08	0.08	<0.01	0.08	<0.01	0.08	0.09	0.10	<0.01	<0.01	0.10	----	0.03	0.16	0.05
Sulfide as S2-	mg/L	0.3	0.1	<0.1	0.1	0.9	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	----	<0.10	<0.10	<0.10
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
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	REG	REG	REG	REG	REG		
Sample Date:	22/05/2025	22/05/2025	22/05/2025	22/05/2025	22/05/2025	22/05/2025	22/05/2025	22/05/2025	22/05/2025	22/05/2025	22/05/2025	22/05/2025	22/05/2025	20/05/2025	20/05/2025		
Client sample ID (1st):	C18010SP	C18012SP	C18013SP	C19014SP	C19015SP	C919016SPR	HD02	Joshua Spring	Duplicate H	Field Blank A	Trip Blank 6	C18011SP	C18014SP	C014P2	C14003SP		
Hydro-stratigraphic unit:	Spring Discharge Clematis SSst	Spring Discharge Clematis SSst	Spring Discharge Clematis SSst	Clematis Sandstone	Dunda Beds	Rewan Formation	Clematis Sandstone	Spring Discharge Clematis SSst				Spring Discharge Clematis SSst	Spring Discharge Clematis SSst	Bandanna Formation	Joe Joe Group		
Analyte grouping/Analyte	Unit																
pH Value	pH Unit	9.71	7.41	7.42	8.12	7.93	8.63	7.15	7.22	8.22	5.59	---	---	7.29	7.32	8.07	5.85
Electrical Conductivity @ 25°C	µS/cm	712	382	388	633	688	748	135	535	647	<1	---	---	620	636	1880	53000
Total Dissolved Solids @180°C	mg/L	392	222	256	350	382	414	134	300	362	<10	---	---	344	334	1060	45300
Total Alkalinity as CaCO3	mg/L	290	161	162	160	157	218	50	129	162	8	---	---	137	114	356	67
Sulfate as SO4 - Turbidimetric	mg/L	<1	<1	<1	2	<1	<1	1	7	<1	<1	---	---	3	7	<1	2440
Chloride	mg/L	60	29	30	119	140	126	12	95	120	<1	---	---	125	139	476	19400
Calcium	mg/L	2	1	1	2	3	4	3	12	2	<1	---	---	2	4	19	2640
Magnesium	mg/L	<1	<1	<1	<1	<1	<1	2	3	<1	<1	---	---	<1	22	4	1560
Sodium	mg/L	146	79	82	135	147	158	20	88	137	<1	---	---	125	82	412	8960
Potassium	mg/L	17	12	12	8	5	3	4	19	8	<1	---	---	11	12	8	30
Aluminium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.22	<0.01	<0.01	<0.01	---	---	<0.01	<0.01	0.01	<0.05
Arsenic	mg/L	0.002	<0.001	<0.001	<0.001	<0.001	0.001	0.005	<0.001	<0.001	<0.001	---	---	0.002	<0.001	<0.001	<0.005
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	<0.0005
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	<0.001	<0.001	<0.005
Cobalt	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	<0.001	<0.001	<0.001	---	---	<0.001	0.010	<0.001	0.025
Copper	mg/L	0.011	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	---	---	<0.001	0.001	<0.001	<0.005
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	<0.005
Manganese	mg/L	0.003	0.019	0.015	0.010	0.037	0.019	0.405	0.149	0.010	<0.001	---	---	0.003	0.024	0.007	2.86
Molybdenum	mg/L	0.002	<0.001	0.001	<0.001	<0.001	0.007	<0.001	<0.001	<0.001	<0.001	---	---	<0.001	0.002	0.003	<0.005
Nickel	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	---	---	<0.001	0.029	<0.001	0.030
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	<0.05
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	<0.005
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	<0.005
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	<0.05
Zinc	mg/L	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	---	---	<0.005	0.010	<0.005	0.054
Boron	mg/L	0.11	0.09	0.10	0.09	0.10	<0.05	0.06	0.09	0.09	<0.05	---	---	0.10	0.12	0.38	2.86
Iron	mg/L	1.02	0.07	0.10	0.11	0.06	<0.05	1.40	<0.05	0.16	<0.05	---	---	0.34	<0.05	0.13	25.9
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
Fluoride	mg/L	0.2	0.5	0.5	0.4	0.3	0.3	0.1	0.5	0.4	<0.1	---	---	0.2	<0.1	1.0	0.1
Ammonia as N	mg/L	<0.01	0.13	0.30	0.17	0.18	0.29	0.21	0.04	0.16	<0.01	---	---	0.07	0.02	0.76	0.33
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
Nitrate as N	mg/L	0.03	<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
Total Phosphorus as P	mg/L	0.18	0.46	0.14	0.16	0.02	0.01	0.10	<0.01	0.22	<0.01	---	---	0.28	0.09	0.13	0.09
Sulfide as S2-	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.20	<0.10	<0.10	<0.10	<0.10	---	---	<0.10	<0.10	0.35	<0.10
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
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	REG	REG	REG	REG	REG	
Sample Date:	20/05/2025	20/05/2025	20/05/2025	20/05/2025	20/05/2025	20/05/2025	20/05/2025	20/05/2025	20/05/2025	20/05/2025	20/05/2025	20/05/2025	20/05/2025	20/05/2025	20/05/2025	
Client sample ID (1st):	C14011SP	C14012SP	C14013SP	C14020SP	C14033SP	C18009SP	C19002SP	C19007SP	C19008SP	C19010SP	C19012SP	C19019SP	C19022SP	C19027SP	Duplicate E	
Hydro-stratigraphic unit:	Clematis Sandstone	Clematis Sandstone	Clematis Sandstone	Moolayember	Clematis Sandstone	Weathered Tertiary	Clematis Sandstone	Dunda Beds	Rewan Formation	Clematis Sandstone	Rewan Formation	Alluvium	Weathered Tertiary	Bandanna Formation		
Analyte grouping/Analyte	Unit															
pH Value	pH Unit	6.79	7.32	5.39	6.10	5.57	7.22	6.17	8.12	8.55	8.29	11.4	6.58	6.71	11.1	6.20
Electrical Conductivity @ 25°C	µS/cm	316	484	399	1460	362	24800	341	833	922	602	2440	12400	50900	1970	1510
Total Dissolved Solids @180°C	mg/L	188	271	222	852	211	14000	190	442	530	383	1370	7900	51700	972	844
Total Alkalinity as CaCO3	mg/L	61	162	12	38	14	169	28	146	180	181	379	78	273	195	40
Sulfate as SO4 - Turbidimetric	mg/L	6	5	10	54	3	939	6	11	<1	<1	85	902	2380	22	52
Chloride	mg/L	58	70	111	439	104	8820	80	196	226	100	486	4120	17900	485	440
Calcium	mg/L	14	3	1	6	2	1340	8	4	6	2	32	85	2520	19	7
Magnesium	mg/L	6	2	10	44	9	532	5	<1	<1	<1	430	1350	<1	44	
Sodium	mg/L	38	104	59	220	46	3060	46	170	201	130	434	2050	8360	352	219
Potassium	mg/L	3	8	8	26	10	20	4	5	5	6	20	4	26	10	26
Aluminium	mg/L	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.02	<0.01	0.60	<0.01	<0.05	0.07	<0.01
Arsenic	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	0.018	0.001	0.013	<0.001	<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	<0.0005	<0.0001	<0.0001
Chromium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	0.008	0.002	<0.001	<0.001	<0.001	0.003	<0.005	<0.001	<0.001	<0.001
Cobalt	mg/L	0.001	<0.001	0.004	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.233	<0.005	<0.001	0.001
Copper	mg/L	0.012	<0.001	0.018	<0.001	0.012	0.008	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<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	<0.005	<0.001	<0.001
Manganese	mg/L	0.007	<0.001	0.017	<0.001	0.003	0.001	0.004	0.039	0.023	0.003	<0.001	4.61	2.66	<0.001	<0.001
Molybdenum	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	0.012	<0.001	0.012	0.004	<0.001	0.052	<0.001	<0.005	0.008	<0.001
Nickel	mg/L	0.003	<0.001	0.009	0.006	0.002	0.024	<0.001	<0.001	<0.001	<0.001	0.001	0.150	<0.005	<0.001	0.006
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	<0.05	<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	<0.005	<0.001	<0.001
Uranium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	0.038	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.007	<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	<0.05	<0.01	<0.01
Zinc	mg/L	0.010	<0.005	0.028	0.026	0.031	0.059	0.020	<0.005	<0.005	<0.005	<0.005	0.019	0.048	<0.005	0.024
Boron	mg/L	0.11	0.14	0.14	0.37	0.08	1.43	0.10	0.06	0.07	0.07	0.14	1.32	3.80	0.42	0.34
Iron	mg/L	<0.05	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	<0.05	15.5	<0.05	0.07
Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0006	<0.0001	<0.0001	<0.0001	<0.0001
Fluoride	mg/L	<0.1	0.4	<0.1	0.2	<0.1	0.7	<0.1	0.4	0.2	0.4	0.9	0.1	0.3	0.4	0.2
Ammonia as N	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.13	0.25	0.12	7.48	<0.01	0.01	1.17	<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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	mg/L	0.43	<0.01	0.68	<0.01	0.39	0.26	0.15	<0.01	<0.01	<0.01	<0.01	6.06	0.04	<0.01	<0.01
Total Phosphorus as P	mg/L	0.02	0.10	<0.01	<0.01	<0.01	<0.05	0.06	0.06	0.07	0.24	0.08	0.22	<0.05	<0.01	<0.01
Sulfide as S2-	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	1.09	<0.10	0.17	24.9	<0.10	<0.10	2.12	<0.10
C6 - C9 Fraction	µg/L	<20	<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	<20
>C10 - C40 Fraction (sum)	µg/L	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	210	<100	<100	<100	<100
Sum of BTEX	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3	<1

