

Mackenzie North Groundwater Quality Monitoring  
pH, EC, TDS, Major Ions, Hydrocarbon Data

Bore ID	Sample Date	pH		Electrical Conductivity		TDS	Major Ions										Total Petroleum Hydrocarbons									
		Field	Lab	Field	Lab	Total Dissolved Solids (TDS)	Calcium	Magnesium	Sodium	Potassium	Chloride	Sulfate	Hydroxide Alkalinity	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	C6 - C9 Fraction	C10 - C14 Fraction	C15 - C28 Fraction	C29 - C36 Fraction	C10 - C36 Fraction (sum)	C10 - C14 Fraction (SVSG)	C15 - C28 Fraction (SVSG)	C29 - C36 Fraction (SVSG)	C10 - C36 Fraction (sum) (SVSG)	
		pH	pH	µS/cm	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
JMR22WP	16-Feb-2023	12.41	12.1	10748	10400	5770	371	<1	1320	35	1960	68	1000	101	<1	1100	<20	70	150	<50	220					
JMR22WP	16-May-2023	7.84	8.07	16551	17400	10800	108	68	3660	10	6000	1	<1	<1	144	144	<20	<50	<100	<50	<50	<50	<50	<100	<50	<50
JMR22WP	14-Aug-2023	8.36	8.24	16842	19400	11200	166	75	3760	11	5150	1	<1	<1	139	139	<20	<50	<100	<50	<50	<50	<50	<100	<50	<50
JMR22WP	21-Nov-2023	11.67	12	9453	8670	4160	320	<1	1160	70	1630	63	699	57	<1	756	<20	140	600	<50	740	<50	<100	<50	<50	<50
JMR22WP	08-Feb-2024	11.6	12.2	8547	9010	4410	326	<1	1120	59	1720	67	882	64	<1	946	<20	50	340	<50	390	<50	<100	<50	<50	<50
JMR22WP	08-May-2024	11.79	12.2	8651	8970	3930	385	<1	1120	44	1590	56	831	67	<1	899	<20	70	240	<50	310	<50	<100	<50	<50	<50
JMR22WP	04-Sep-2024	11.64	12.2	9497	8410	3880	331	<1	1020	29	1660	58	780	78	<1	859	<20	60	130	<50	190	<50	<100	<50	<50	<50
JMR22WP	27-May-2025	11.62	12.1	9691	8770	3920	354	<1	1030	29	1630	58	675	73	<1	748	<20	90	200	<50	290	<50	<100	<50	<50	<50
JMR22WP	06-Aug-2025	7.86	8.13	16979	17400	10700	200	68	3330	10	6110	1	<1	<1	184	184	<20	<50	<100	<50	<50	<50	<100	<50	<50	<50
JMR22WP	24-Nov-2025	7.86	8.2	19633	16500	11200	160	73	3520	12	6180	1	<1	73	<1	192	<20	<50	<100	<50	<50	<50	<100	<50	<50	<50
JMR22WP	25-Feb-2026	11.97	11.5	10219	6340	4360	362	<1	1240	32	1960	48	207	142	<1	349	<20	100	240	<50	340	<50	<100	<50	<50	<50
JMR23WA	16-Feb-2023	7.23	6.97	944	899	632	48	32	103	3	90	24	<1	<1	326	326	<20	<50	<100	<50	<50					
JMR23WA	16-May-2023	6.8	7.87	822	753	445	44	26	80	3	73	10	<1	<1	270	270	<20	<50	<100	<50	<50	<50	<100	<50	<50	<50
JMR23WA	14-Aug-2023	6.76	7.33	837	787	484	50	29	87	3	76	5	<1	<1	289	289	<20	<50	<100	<50	<50	<50	<100	<50	<50	<50
JMR24WP	12-Nov-2019	7.56	8.14	9490	9570	6530	224	131	1590	8	3270	8	<1	<1	222	222	<20	<50	<100	<50	<50					
JMR24WP	20-Apr-2020	7.53	7.97	7950	8250	5190	202	152	1220	8	2670	<1	<1	<1	198	198	<20	<50	<100	<50	<50					
JMR24WP	16-Nov-2020	7.61	7.98	8269	7860	5570	203	147	1300	9	2800	4	<1	<1	215	215	<20	<50	<100	<50	<50					
JMR24WP	26-Jan-2021	7.33	7.98	8308	8020	5210	191	144	1200	7	2850	12	<1	<1	204	204	<20	<50	<100	<50	<50					
JMR24WP	19-May-2021	7.32	7.94	7966	7810	4510	180	124	1170	7	2740	2	<1	<1	203	203	<20	<50	<100	<50	<50					
JMR24WP	24-Jan-2022	7.58	8.04	7752	7790	5140	189	137	1300	8	2720	1	<1	<1	212	212	<20	<50	<100	<50	<50					
JMR24WP	08-Jun-2022	7.6	8.09	7670	7830	5260	181	132	1300	8	2680	1	<1	<1	204	204	<20	<50	<100	<50	<50					
JMR24WP	05-Oct-2022	7.24	7.77	7875	8230	4630	168	126	1290	7	2630	2	<1	<1	221	221	<20	<50	<100	<50	<50					
JMR24WP2	20-Apr-2020	7.38	7.96	8587	8870	5500	182	125	1420	8	2910	2	<1	<1	204	204	<20	<50	<100	<50	<50					
JMR24WP2	17-Nov-2020	7.4	7.86	8036	7730	5190	172	111	1370	7	2750	<1	<1	<1	214	214	<20	<50	<100	<50	<50					
JMR24WP2	27-Jan-2021	6.79	7.8	11491	11200	6420	281	171	1910	8	3430	404	<1	<1	992	992	70	<50	960	610	1570					
JMR24WP2	19-May-2021	7.34	7.96	7553	7400	4250	139	90	1150	7	2550	<1	<1	<1	233	233	<20	<50	<100	<50	<50					
JMR24WP2	24-Jan-2022	7.54	8.07	7059	7110	4550	144	97	1290	7	2350	<1	<1	97	282	282	<20	50	150	120	320					
JMR24WP2	08-Jun-2022	7.62	8.2	6912	7060	4460	134	93	1270	6	2260	<1	<1	<1	266	266	<20	<50	<100	80	80					
JMR24WP2	05-Oct-2022	7.31	7.89	7116	7460	4410	120	90	1280	6	2280	6	<1	<1	298	298	<20	<50	<100	<50	<50					
JMR24WP2	16-Feb-2023	7.8	7.47	6912	6390	4030	122	82	1160	7	2100	1	<1	<1	311	311	<20	<50	<100	<50	<50					
JMR24WP2	08-May-2023	7.25	8.12	7397	8060	4560	157	122	1230	8	2540	1	<1	<1	207	207	<20	<50	<100	<50	<50	<50	<100	<50	<50	<50
JMR24WP2	14-Aug-2023	7.25	7.9	7487	8830	4960	191	135	1270	8	2700	2	<1	<1	202	202	<20	<50	<100	<50	<50	<50	<100	<50	<50	<50
JMR24WP2	21-Nov-2023	7.22	7.92	7671	7890	5380	170	127	1220	8	2620	<1	<1	127	197	197	<20	<50	<100	<50	<50	<50	<100	<50	<50	<50
JMR24WP2	08-Feb-2024	7.3	7.78	7591	7690	4890	175	126	1190	8	2590	<1	<1	<1	217	217	<20	<50	<100	<50	<50	<50	<100	<50	<50	<50
JMR24WP2	08-May-2024	7.27	7.78	7257	7420	4940	174	120	1130	7	2490	2	<1	<1	213	213	<20	<50	<100	<50	<50	<50	<100	<50	<50	<50
JMR24WP2	06-Aug-2024	7.03	7.91	7560	7580	4860	169	128	1220	8	2560	<1	<1	<1	241	241	<20	<50	<100	<50	<50	<50	<100	<50	<50	<50
JMR24WP2	24-Feb-2025	7	7.72	6959	7010	4780	173	125	1160	8	2480	4	<1	<1	218	218	<20	<50	150	<50	150	<50	<100	<50	<50	<50
JMR24WP2	27-May-2025	7.19	8.01	7573	7900	4940	165	106	1100	7	2440	6	<1	<1	218	218	<20	<50	170	<50	170	<50	<100	<50	<50	<50
JMR24WP2	06-Aug-2025	7.24	8.17	6141	6170	3570	114	72	1030	6	1880	2	<1	<1	307	307	<20	<50	<100	<50	<50	<50	<100	<50	<50	<50
JMR24WP2	24-Nov-2025	7.22	8.16	6851	6030	3460	102	72	1040	6	1780	<1	<1	<1	302	302	<20	<50	<100	<50	<50	<50	<100	<50	<50	<50
JMR24WP2	25-Feb-2026	7.17	8.38	6249	5290	3600	106	69	1010	6	1880	12	<1	16	270	285	<20	<50	<100	<50	<50	<50	<100	<50	<50	<50
JMR25WA	11-Sep-2018	6.45	7.01	1171	1190	905	67	43	66	5	282	14	<1	<1	161	161	<20	<50	100	50	150					
JMR25WA	29-Nov-2018	6.45	6.93	1299	1200	738	81	44	80	5	298	17	<1	<1	153	153	<20	<50	<100	<50	<50					
JMR25WA	24-Jan-2019	6.5	6.99	1273	1200	1010	82	44	83	5	302	15	<1	<1	171	171	<20	<50	<100	<50	<50					
JMR25WA	27-Mar-2019	6.66	7.51	1292	1260	909	93	49	97	6	297	16	<1	<1	163	163	<20	<50	<100	<50	<50					
JMR25WA	15-May-2019	6.47	7.14	1374	1220	919	96	50	96	5	334	16	<1	<1	166	166	<20	<50	<100	<50	<50					
JMR25WA	25-Jul-2019	6.78	7.03	1272	1280	815	82	43	87	5	316	14	<1	<1	184	184	<20	<50	<100	<50	<50					
JMR25WA	12-Nov-2019	6.44	7.32	1285	1280	942	90	45	99	5	327	8	<1	<1	189	189	<20	<50	<100	<50	<50					
JMR25WA	20-Apr-2020	6.54	7.44	1561	1560	1040	99	60	122	3	401	6	<1	<1	197	197	<20	<50	<100	<50	<50					
JMR25WA	16-Nov-2020	6.54	7.16	1904	1870	1430	120	74	159	4	522	5	<1	<1	242	242	<20	<50	<100	<50	<50					
JMR25WA	26-Jan-2021	6.56	7.55	2029	1920	1460	113	74	153	2	545	6	<1	<1	235	235	<20	<50	<100	<50	<50					
JMR25WA	19-May-2021	6.74	7.71	2358	2220	1510	124	77	178	2	656	2	<1	<1	276	276	<20	<50	<100							

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Bore ID	Sample Date	pH		Electrical Conductivity		TDS	Major Ions										Total Petroleum Hydrocarbons								
		Field	Lab	Field	Lab	Total Dissolved Solids (TDS)	Calcium	Magnesium	Sodium	Potassium	Chloride	Sulfate	Hydroxide Alkalinity	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	C6 - C9 Fraction	C10 - C14 Fraction	C15 - C28 Fraction	C29 - C36 Fraction	C10 - C36 Fraction (sum)	C10 - C14 Fraction (SVSG)	C15 - C28 Fraction (SVSG)	C29 - C36 Fraction (SVSG)	C10 - C36 (sum) Fraction (SVSG)
		pH	pH	µS/cm	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L				
JMR4WA	24-Nov-2025	6.68	7.83	5151	4330	2810	181	177	490	7	1200	74	<1	<1	462	462	<20	<50	<100	<50	<50	<50	<100	<50	<50
JMR4WA	26-Feb-2026	6.63	8.05	4678	4450	2940	194	168	486	8	1350	63	<1	<1	414	414	<20	<50	120	<50	120	<50	<100	<50	<50
JMR4WP	09-Sep-2018	7.07	7.65	7450	6870	4050	140	110	1070	5	1860	38	<1	<1	458	458	<20	<50	<100	<50	<50				
JMR4WP	18-Nov-2018	7.08	7.44	8921	8600	5010	252	143	1490	7	2710	22	<1	<1	428	428	<20	<50	<100	<50	<50				
JMR4WP	24-Jan-2019	6.91	7.54	9883	9500	5620	263	153	1570	6	3160	22	<1	<1	432	432	<20	<50	<100	<50	<50				
JMR4WP	27-Mar-2019	7.29	8.01	9096	9070	5620	280	146	1610	7	2830	18	<1	<1	428	428	<20	<50	<100	<50	<50				
JMR4WP	15-May-2019	7.06	7.68	9235	8620	5650	345	149	1650	7	3060	22	<1	<1	419	419	<20	<50	<100	<50	<50				
JMR4WP	25-Jul-2019	6.9	7.59	8725	8760	5250	254	128	1380	6	2800	18	<1	<1	480	480	<20	<50	<100	<50	<50				
JMR4WP	16-Nov-2020	6.62	7.28	6190	5920	4270	267	241	710	8	1640	98	<1	<1	696	696	<20	<50	160	<50	160				
JMR4WP	26-Jan-2021	7.21	8.13	4099	3980	2170	62	65	695	4	1060	64	<1	<1	473	473	20	<50	<100	<50	<50				
JMR4WP	19-May-2021	7.33	8.11	4046	3930	2170	61	53	621	4	1070	56	<1	<1	476	476	20	<50	<100	<50	<50				
JMR4WP	24-Jan-2022	7.34	8.05	4207	4220	2330	63	56	670	4	1140	48	<1	<1	503	503	<20	<50	<100	<50	<50				
JMR4WP	08-Jun-2022	7.13	8.14	3803	3930	2170	68	66	723	4	1040	43	<1	<1	457	457	<20	<50	<100	<50	<50				
JMR4WP	05-Oct-2022	7.31	7.89	3952	3990	2180	66	57	733	5	1010	42	<1	<1	486	486	<20	<50	<100	<50	<50				
JMR4WP2	16-May-2023	7.2	8.29	3946	3510	2170	67	58	726	5	1040	40	<1	<1	462	462	<20	<50	<100	<50	<50	<50	<100	<50	<50
JMR4WP2	22-Nov-2023	7.26	8.07	3624	4320	2390	71	64	722	5	1050	41	<1	<1	457	457	<20	<50	<100	<50	<50	<50	<100	<50	<50
JMR4WP2	08-Feb-2024	7.3	7.86	3448	3790	2100	65	56	614	7	964	39	<1	<1	469	469	<20	<50	<100	<50	<50	<50	<100	<50	<50
JMR4WP2	08-May-2024	7.21	8.11	3894	4150	2340	79	66	707	5	1090	39	<1	<1	477	477	<20	<50	<100	<50	<50	<50	<100	<50	<50
JMR4WP2	06-Aug-2024	7.08	8.09	4269	4290	2340	75	67	761	5	1080	35	<1	<1	526	526	<20	<50	<100	<50	<50	<50	<100	<50	<50
JMR4WP2	13-Nov-2024	7.15	7.72	4345	4200	2330	72	60	714	4	1080	38	<1	<1	477	477	<20	<50	<100	<50	<50	<50	<100	<50	<50
JMR4WP2	25-Feb-2025	7.03	7.83	3976	4190	2350	75	63	699	4	1110	37	<1	<1	473	473	<20	<50	<100	<50	<50	<50	<100	<50	<50
JMR4WP2	27-May-2025	7.25	8	4306	4300	2440	78	60	661	4	1180	40	<1	<1	440	440	<20	<50	<100	<50	<50	<50	<100	<50	<50
JMR4WP2	06-Aug-2025	7.18	8.21	4206	4300	2300	76	60	681	4	1180	36	<1	<1	482	482	<20	<50	<100	<50	<50	<50	<100	<50	<50
JMR4WP2	24-Nov-2025	7.23	8.26	5071	4240	2300	73	66	783	5	1160	24	<1	<1	507	507	<20	<50	<100	<50	<50	<50	<100	<50	<50
JMR4WP2	26-Feb-2026	7.52	8.54	3803	3690	2060	67	56	625	6	1060	29	<1	33	384	417	<20	<50	<100	<50	<50	<50	<100	<50	<50
JN1119E	13-Nov-2019	8.6	8.35	17353	18000	11400	98	99	3550	10	6300	3	<1	5	119	124	<20	<50	<100	80	80				
JN1119E	20-Apr-2020	11.97	11.6	13343	13100	7670	90	<1	2550	17	3860	11	396	113	<1	509	<20	50	170	<50	220				
JN1119E	16-Nov-2020	11.88	11.6	13958	12800	6880	81	<1	2680	18	4060	10	468	109	<1	578	<20	50	280	<50	330				
JN1119E	26-Jan-2021	11.97	11.4	12691	11400	5310	7	<1	2240	12	3520	16	349	308	<1	657	<20	<50	240	<50	240				
JN1119E	19-May-2021	11.98	11.6	11974	11100	6360	<1	<1	2240	12	3290	16	433	294	<1	727	<20	<50	210	<50	210				
JN1119E	24-Jan-2022	12.08	12	11791	11300	6340	22	<1	2250	12	2870	18	712	253	<1	964	<20	70	200	<50	270				
JN1119E	08-Jun-2022	12.01	11.6	10851	10300	5770	5	<1	2300	11	3100	14	379	394	<1	773	<20	50	130	<50	180				
JN1119E	05-Oct-2022	12.03	11.8	12838	12700	5910	15	<1	2470	11	3140	12	733	340	<1	1070	<20	50	110	<50	160				
JN1119E	16-May-2023	12.04	12	12822	11800	5390	94	<1	2240	11	2580	16	805	414	<1	1220	<20	80	140	<50	220	<50	<100	<50	<50
JN1119E	14-Aug-2023	12.01	12.1	14181	14400	6300	172	<1	2530	11	3160	13	1030	268	<1	1300	<20	<50	<100	<50	<50	<50	<100	<50	<50
JN1119E	21-Nov-2023	11.73	12	13844	12700	6060	151	<1	2190	10	2980	16	850	309	<1	1160	<20	70	110	<50	180	<50	<100	<50	<50
JN1119E	08-Feb-2024	11.71	12.3	13348	13300	6590	230	<1	1940	10	2510	16	1400	295	<1	1700	<20	<50	<100	<50	<50	<50	<100	<50	<50
JN1119E	08-May-2024	11.73	12.3	12848	12700	5200	267	<1	1870	10	2260	16	1410	140	<1	1550	<20	80	<100	<50	80	<50	<100	<50	<50
JN1119E	04-Sep-2024	11.62	12.2	13870	13400	5350	228	<1	1840	10	2320	15	1430	161	<1	1590	<20	50	<100	<50	50	<50	<100	<50	<50
JN1119E	06-Aug-2025	11.88	11.3	9284	7880	4270	32	<1	1490	8	2090	22	160	508	<1	669	<20	170	160	<50	330	<50	<100	<50	<50