Water quality objectives to protect the aquatic ecosystem environmental values for Main GAB Aquitard groundwater aquifer zones in the Queensland Murray-Darling Basin.

Zone	Percentile	Notes: **1.** The ANZECC Guidelines (ANZECC/ARMCANZ, 2000) recommend that the highest level of protection should be provided to underground aquatic ecosystems, given their high conservation value. The management intent is to maintain the existing water quality distribution (20th, 50th and 80th percentiles). **2.** ID: Insufficient data.																										
		Na		Ca		Mg		HCO_3		Cl		SO_4		NO_3		Electrical Conductivity (µS/cm)	Hardness (mg/L)	pH	Alkalinity (mg/L)	SiO_2 (mg/L)	F (mg/L)	Fe (mg/L)	Mn (mg/L)	Zn (mg/L)	Cu (mg/L)	SAR (meq/L)	Total Nitrogen mg/L	Total Phosphorous mg/L
		mg/L	%	mg/L	%	mg/L	%	mg/L	%	mg/L	%	mg/L	%	mg/L	%												
S5. Main GAB Aquitard																											
1. Eastern Wallumbilla Outcrop	20th	440	73	3	1	1	0	53	2	158	23	0.0	0	0.00	0	877	9	7.1	144.9	13.0	0.19	0.000	0.000	0.006	0.000	26.72	0.000	ID
	50th	660	96	14	2	6	2	506	31	650	59	9.0	1	0.00	0	2399	53	8.1	567.0	17.0	0.98	0.020	0.040	0.020	0.015	41.59	0.000	ID
	80th	3365	99	493	12	344	15	859	75	6238	89	766.2	7	2.25	0	10000	2580	8.5	763.1	50.4	1.73	0.434	1.800	0.107	0.156	62.61	0.489	ID
2. Wallumbilla Doncaster Outcrop	20th	157	42	10	5	1	2	0	3	197	42	40.7	4	0.00	0	0	34	7.4	106.0	12.0	0.10	0.000	0.000	ID	ID	4.88	0.000	ID
	50th	279	70	74	19	16	8	82	17	360	56	140.0	17	0.00	0	960	271	7.6	155.0	17.0	0.20	0.000	0.000	ID	ID	12.79	0.000	ID
	80th	781	93	318	30	173	22	245	31	1631	80	1003.7	34	2.02	0	2200	1471	8.2	230.6	26.0	0.50	0.020	0.365	ID	ID	22.76	0.439	ID
3. Central Surat Mid Cretaceous	20th	454	66	29	6	14	6	90	1	351	47	44.2	5	0.00	0	3151	146	6.8	100.2	35.5	0.08	0.000	0.000	0.005	0.001	15.85	0.000	0.000
	50th	2010	76	256	10	169	13	253	4	3282	84	464.8	10	1.25	0	24000	1322	7.5	221.5	56.0	0.21	0.005	0.020	0.030	0.015	26.05	0.272	0.000
	80th	6065	88	1108	14	1007	20	453	41	12646	90	1879.0	13	12.50	0	50690	6833	8.0	372.9	78.5	0.44	0.030	1.753	0.129	0.050	36.54	2.717	0.000
4. Wallum Nebine Unproductive Area	20th	292	73	7	3	2	1	124	6	180	38	34.0	4	0.00	0	1110	23	7.6	138.8	14.7	0.20	0.000	0.000	ID	ID	11.59	0.000	0.000
	50th	333	92	18	5	7	4	247	25	291	52	175.5	16	0.50	0	1500	69	8.2	218.5	17.0	0.36	0.010	0.010	ID	ID	19.51	0.109	0.000
	80th	691	97	143	15	68	11	383	49	978	74	289.5	31	1.65	0	3165	618	8.4	328.8	22.0	0.69	0.030	0.020	ID	ID	29.38	0.359	0.000
5. Coreena and	20th	270	87	5	2	1	1	161	8	112	34	0.0	0	0.00	0	998	19	7.8	169.8	17.0	0.39	0.000	0.000	0.005	0.000	22.57	0.000	ID

Zone	Percentile	**Notes:** **1.** The ANZECC Guidelines (ANZECC/ARMCANZ, 2000) recommend that the highest level of protection should be provided to underground aquatic ecosystems, given their high conservation value. The management intent is to maintain the existing water quality distribution (20th, 50th and 80th percentiles). **2.** ID: Insufficient data.																										
		Na		Ca		Mg		HCO_3		Cl		SO_4		NO_3		Electrical Conductivity (µS/cm)	Hardness (mg/L)	pH	Alkalinity (mg/L)	SiO_2 (mg/L)	F (mg/L)	Fe (mg/L)	Mn (mg/L)	Zn (mg/L)	Cu (mg/L)	SAR (meq/L)	Total Nitrogen mg/L	Total Phosphorous mg/L
		mg/L	%	mg/L	%	mg/L	%	mg/L	%	mg/L	%	mg/L	%	mg/L	%												
Doncaster Nebine Ridge	50th	485	94	18	3	7	2	325	24	617	72	2.0	0	0.63	0	1950	72	8.2	300.0	19.0	0.55	0.010	0.010	0.010	0.010	28.84	0.136	ID
	80th	997	97	76	7	45	6	495	65	1553	91	25.9	2	2.59	0	4300	346	8.5	430.0	20.0	0.92	0.050	0.020	0.020	0.015	34.32	0.563	ID
6. Southern Wallumbilla Fresh Zone	20th	203	95	2	1	0	0	264	40	57	16	0.0	0	0.00	0	760	9	8.0	304.5	17.0	0.51	0.000	0.000	0.000	0.000	23.10	0.000	0.000
	50th	230	97	4	2	1	1	432	76	80	23	0.0	0	0.00	0	900	14	8.3	371.0	20.0	0.84	0.020	0.010	0.000	0.000	28.20	0.000	0.000
	80th	402	98	14	3	4	2	506	83	372	53	2.0	0	1.00	0	1362	70	8.5	440.0	23.9	2.08	0.091	0.020	0.010	0.015	38.75	0.217	0.002
7. South Western Eromanga Saline Zone	20th	375	75	23	4	6	1	0	2	400	63	30.5	2	0.00	0	0	107	7.0	98.0	19.0	0.30	0.000	0.016	ID	ID	11.64	0.000	ID
	50th	713	88	57	8	14	3	98	10	958	74	164.5	12	2.10	0	0	208	7.6	156.5	22.0	0.60	0.005	0.050	ID	ID	22.82	0.457	ID
	80th	1270	94	152	15	40	10	253	23	2233	90	383.8	20	8.50	0	4400	579	8.0	288.9	31.5	0.93	0.105	0.069	ID	ID	33.65	1.848	ID
8. Northern Eromanga Allaru and Toolebuc	20th	309	72	2	1	0	0	0	15	225	34	0.3	0	0.00	0	0	6	7.4	208.1	ID	0.37	ID	ID	ID	ID	9.85	0.000	ID
	50th	339	96	10	2	4	2	383	41	242	48	30.0	3	0.38	0	1435	42	7.9	350.5	ID	1.35	ID	ID	ID	ID	34.36	0.082	ID
	80th	586	99	71	17	24	5	450	59	891	79	119.2	12	1.80	0	2725	276	8.1	489.1	ID	2.80	ID	ID	ID	ID	55.34	0.391	ID
9. North Central Coreena	20th	177	67	11	5	4	2	0	3	156	42	28.6	7	0.41	0	0	49	7.2	83.1	19.0	0.20	0.000	0.002	0.015	0.005	6.33	0.089	ID
	50th	441	78	54	12	24	9	124	13	615	72	93.0	12	1.40	0	1100	259	7.8	129.0	55.0	0.25	0.010	0.020	0.055	0.015	15.98	0.304	ID
	80th	1639	92	202	16	83	18	296	43	2511	85	542.3	18	5.90	0	3366	779	8.1	272.7	63.5	0.54	0.043	0.040	0.175	0.035	30.65	1.283	ID

References:

McNeil, V.H., Raymond, M.A.A., Bennett, L. & McGregor, G.B. (2018), *Regional groundwater chemistry zones: Queensland Murray-Darling Basin,* Department of Environment and Science, Queensland Government.