

Site SW1 - Karuah River (Mine Entrance)

Date	Category	Comment	ph	EC	Turbidity	Acidity	Alkalinity	TSS	SO4	Mn	Fe (filt)	Zn	Al	Ca	Mg	Cl
				uS/cm	NTU	(as mg/l CaCO ₃)	(as mg/l CaCO ₃)	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
28-Sep-09	Monthly	low-mod flow	7.8	260	3	<1	58	3	3	0.020	0.18	0.009	0.10	11	6	37
26-Oct-09	Event	mod flow	7.0	280	14	<1	49	6	4	0.033	0.13	<0.005	0.24	10	6	35
25-Nov-09	Monthly	mod-low-flow	7.3	175	6	<1	57	4	3	0.043	0.33	<0.005	0.15	9	6	31
27-Dec-09	Event	mod/low flow	7.7	290	19	10	53	10	3	0.051	0.39	0.015	0.17	9	5	31
29-Jan-10	Event	mod-high flow, turbid	7.5	305	77	<1	70	63	5	0.073	0.16	0.011	1.63	12	9	45
24-Feb-10	Monthly	mod flow	7.4	115	6	<1	34	4	2	0.016	0.22	<0.005	0.27	6	3	19
Min			7.0	115	3	<1	34	3	2	0.016	0.13	<0.005	0.10	6	3	19
Avg			7.5	238	21		54	15	3	0.039	0.24		0.43	10	6	33
Max			7.8	305	77	10	70	63	5	0.073	0.39	0.015	1.63	12	9	45
ANZECC*			6.5-8.0	200-300	6-50					1.900	ID	0.008	0.06			

ID: Insufficient Data

*: ANZECC Guidelines for Fresh & Marine Water Quality 2000 (Aquatic Ecosystems) - slightly to moderately disturbed ecosystems.

Bolded indicates exceedance of ANZECC criteria

For monitoring location refer to Figure 4 "Surface and Groundwater Local Monitoring Sites"

Site SW2 - Coal Shaft Creek

Date	Category	Comment	ph	EC uS/cm	Turbidity NTU	Acidity (as mg/l CaCO ₃)	Alkalinity (as mg/l CaCO ₃)	TSS mg/l	SO4 mg/l	Mn mg/l	Fe (filt) mg/l	Zn mg/l	Al mg/l	Ca mg/l	Mg mg/l	Cl mg/l
28-Sep-09	Monthly	no flow	-	-	-											
26-Oct-09	Event	no flow	-	-	-											
25-Nov-09	Monthly	mod flow	7.3	745	3	<1	53	2	151	0.045	0.19	0.025	0.06	36	22	104
27-Dec-09	Event	low flow, turbid	7.2	465	100	5	36	95	100	0.223	0.19	0.063	1.36	20	12	58
29-Jan-10	Event	low flow	7.1	760	64	<1	95	26	3	0.696	0.14	0.018	0.52	35	27	88
24-Feb-10	Monthly	low flow	7.1	705	5	<1	64	2	117	0.298	0.22	0.018	0.07	34	20	85
Min			7.1	465	3	<1	36	2	3	0.045	0.14	0.018	0.06	20	12	58
Avg			7.2	669	43		62	31	93	0.316	0.19	0.031	0.50	31	20	84
Max			7.3	760	100	5	95	95	151	0.696	0.22	0.063	1.36	36	27	104
ANZECC*			6.5-8.0	200-300	6-50					1.9	ID	0.008	0.055			

ID: Insufficient Data

*: ANZECC Guidelines for Fresh & Marine Water Quality 2000 (Aquatic Ecosystems) - slightly to moderately disturbed ecosystems.

Bolded indicates exceedance of ANZECC criteria

For monitoring location refer to Figure 4 "Surface and Groundwater Local Monitoring Sites"

Site SW2 - Coal Shaft Creek Upstream of Workings - Sheet 1

Date	Category	Comment	ph	EC uS/cm	Turbidity NTU	Acidity (as mg/l CaCO ₃)	Alkalinity (as mg/l CaCO ₃)	TSS mg/l	SO4 mg/l	Mn mg/l	Fe (filt) mg/l	Zn mg/l	Al mg/l	Ca mg/l	Mg mg/l	Cl mg/l	TDS mg/l	Bicarb mg/l	N mg/l
07-Sep-09	Weekly	trickle	7.3	1840	-	<1	355	2	16	0.469	<0.05	0.014	0.03	75	70	458			
14-Sep-09	Weekly	No flow	-	-	-														
21-Sep-09	Weekly	No flow	-	-	-														
28-Sep-09	Monthly	No flow	-	-	-														
06-Oct-09	Weekly	minor trickle	7.4	1770	20	5	353	13	15	0.376	<0.05	<0.005	0.3	73	70	452			
12-Oct-09	Weekly	minor trickle	7.4	1790	8	<1	374	4	8	0.158	<0.05	0.006	0.05	72	68	434			
19-Oct-09	Weekly	no flow	-	-	-														
26-Oct-09	Event	mod flow	7.7	1660	13	<1	356	20	8	0.717	<0.05	<0.005	0.46	72	70	438	980	356	0.6
02-Nov-09	Weekly	trickle	7.2	810	11	5	142	6	21	0.983	0.18	0.006	0.3	26	24	169			
09-Nov-09	Weekly	High Flow	7.3	295	49	<1	54	17	11	0.069	0.78	0.012	2.4	9	9	43			
16-Nov-09	Weekly	Trickle	7.1	690	9	<1	148	10	11	1.01	0.13	<0.005	0.27	25	24	124			
25-Nov-09	Monthly	Trickle	7.3	745	3	5	245	14	5	3.79	0.09	0.015	0.05	44	42	205	590	245	1.7
01-Dec-09	Weekly	No Flow	-	-	-														
07-Dec-09	Weekly	No Flow	-	-	-														
14-Dec-09	Weekly	no flow	-	-	-														
21-Dec-09	Weekly	No flow	-	-	-														
29-Dec-09	Event	Low flow	7.2	550	21	<1	72	10	37	0.07	0.35	0.015	1.15	16	15	120	370	72	1.2
04-Jan-10	Weekly	mod flow	7.2	242	35	5	50	16	8	0.058	0.73	<0.005	1.88	8	8	40			
11-Jan-10	Weekly	trickle	7.2	535	9	10	132	12	7	1.33	0.31	<0.005	0.25	22	19	94			
18-Jan-10	Weekly	trickle	7.3	765	4	<1	197	9	1	2.72	0.08	<0.005	0.06	30	27	115			
25-Jan-10	Weekly	No Flow	-	-	-														
29-Jan-10	Event	Trickle	7.4	875	21	<1	208	9	<1	1.75	0.18	<0.005	0.16	40	36	141	500	208	1.2
08-Feb-10	Weekly	Low flow	7.4	420	41	10	79	52	16	0.078	0.7	0.007	1.95	14	14	66			
15-Feb-10	Weekly	trickle	7.3	615	8	<1	148	25	7	1.07	0.5	<0.005	0.26	23	22	99			
22-Feb-10	Monthly	trickle	7.4	770	5	<1	200	4	3	1.03	0.73	0.006	0.04	28	28	123	520	200	1.4
Min			7.1	242	3	<1	50	2	<1	0.058	<0.05	<0.005	0.03	8	8	40	370	72	1
Avg			7.3	898	17		195	14		0.980			0.60	36	34	195	592	216	1
Max			7.7	1840	49	10	374	52	37	3.790	0.8	0.015	2.40	75	70	458	980	356	2
ANZECC*			6.5-8.0	200-300	6-50					1.9	ID	0.008	0.055						

ID: Insufficient Data

*: ANZECC Guidelines for Fresh & Marine Water Quality 2000 (Aquatic Ecosystems) - slightly to moderately disturbed ecosystems.

Bolded indicates exceedance of ANZECC criteria

For monitoring location refer to Figure 4 "Surface and Groundwater Local Monitoring Sites"

Site SW2 - Coal Shaft Creek Upstream of Workings - Sheet 2

Date	Na	P	As	B	Cd	Cu	Pb	Cr	Hg	Ni	Se	Ag	Ba	Mo	U	CO3	F	NO2	NO3	NH3
	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
07-Sep-09																				
14-Sep-09																				
21-Sep-09																				
28-Sep-09																				
06-Oct-09																				
12-Oct-09																				
19-Oct-09																				
26-Oct-09	178	<0.01	0.001	<0.05	<0.0001	0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.101	<0.001	<0.001	<1	0.05	<0.01	0.05	<0.01
02-Nov-09																				
09-Nov-09																				
16-Nov-09																				
25-Nov-09	125	0.025	<0.001	<0.05	0.0016	<0.001	<0.001	<0.001	<0.0001	0.002	<0.01	<0.001	0.104	<0.001	<0.001	<1	0.06	<0.01	0.55	0.02
01-Dec-09																				
07-Dec-09																				
14-Dec-09																				
21-Dec-09																				
29-Dec-09	64	0.05	<0.001	<0.05	<0.0001	0.005	<0.001	<0.001	<0.0001	0.004	<0.01	<0.001	0.047	<0.001	<0.001	<1	0.04	<0.01	0.05	0.02
04-Jan-10																				
11-Jan-10																				
18-Jan-10																				
25-Jan-10																				
29-Jan-10	92	0.04	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	0.002	<0.01	<0.001	0.074	<0.001	<0.001	<1	0.10	<0.01	0.14	0.05
08-Feb-10																				
15-Feb-10																				
22-Feb-10	86	0.04	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	0.001	<0.01	<0.001	0.057	<0.001	<0.001	<1	0.05	<0.01	0.07	0.02
Min	64	<0.01	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.047	<0.001	<0.001	<1	0.04	<0.01	0.05	<0.01
Avg	109			<0.05			<0.001	<0.001	<0.0001		<0.01	<0.001	0.077	<0.001	<0.001	<1	0.06	<0.01	0.17	
Max	178	0.05	0.001	<0.05	0.0016	0.005	<0.001	<0.001	<0.0001	0.004	<0.01	<0.001	0.104	<0.001	<0.001	<1	0.10	<0.01	0.55	0.05
ANZECC*			0.013	0.37	0.0002	0.0014	0.0034	0.001	0.0006	0.011	0.011	5E-05								0.9

ID: Insufficient Data

*: ANZECC Guidelines for Fresh & Marine Water Quality 2000 (Aquatic Ecosystems) - slightly to moderately disturbed ecosystems.

Bolded indicates exceedance of ANZECC criteria

For monitoring location refer to Figure 4 "Surface and Groundwater Local Monitoring Sites"

Site SW3 - Mine Water Dam (Major) - Sheet 1

Date	Category	Storage RL	ph	EC uS/cm	Turbidity NTU	Acidity (as mg/l CaCO ₃)	Alkalinity (as mg/l CaCO ₃)	TSS mg/l	SO4 mg/l	Mn mg/l	Fe (filt) mg/l	Zn mg/l	Al mg/l	Ca mg/l	Mg mg/l	Cl mg/l	As mg/l	B mg/l
28-Sep-09	Monthly	RL 72.19	7.9	1980	3	<1	134	4	835	0.33	<0.05	0.12	0.04	221	50	247	<0.001	<0.05
06-Oct-09	Weekly	RL 72.07	7.5	1955	3													
12-Oct-09	Weekly	RL 72.12	7.9	1950	2													
19-Oct-09	Weekly	RL 72.07	7.8	1960	1													
26-Oct-09	Event	RL 72.02	7.9	1970	2	<1	130	2	779	0.34	0.21	<0.005	0.02	26	14	226	<0.001	<0.05
02-Nov-09	Weekly	RL 72.05m	7.6	1960	3													
09-Nov-09	Weekly	RL 72.21	8.4	1955	4													
16-Nov-09	Weekly	RL 72.30	8.4	1940	4													
25-Nov-09	Monthly	RL 72.11	8.4	1970	6	<1	113	14	720	0.19	<0.05	<0.005	0.02	208	52	212	<0.001	<0.05
01-Dec-09	Weekly	RL 72.00m	8.3	1950	3													
07-Dec-09	Weekly	RL 71.87	8.3	2000	3													
14-Dec-09	Weekly	RL 71.71	8.2	2020	3													
21-Dec-09	Weekly	RL 71.53	8.1	2030	3													
29-Dec-09	Event	RL 71.58m	8.3	1990	3	<1	105	3	844	0.19	<0.05	<0.005	0.01	182	48	241	<0.001	<0.05
04-Jan-10	Weekly	RL 71.90m	8.2	2000	-													
11-Jan-10	Weekly	RL 72.11	8.4	1970	6													
18-Jan-09	Weekly	RL 71.93m	8.3	1975	2													
25-Jan-10	Weekly	RL 71.51	8.6	1980	1													
29-Jan-10	Event	RL 71.52	8.5	1940	3	<1	89	4	469	0.24	<0.05	0.01	0.02	188	49	197	<0.001	<0.05
08-Feb-10	Weekly	RL 71.57	8.2	2000	1													
15-Feb-10	Weekly	RL 71.61	8.3	1980	3													
24-Feb-10	Monthly	RL 71.60m	8.3	1990	2	<1	97	1	633	0.22	<0.05	<0.005	0.01	116	32	226	<0.001	<0.05
Min			7.5	1940	1	<1	89	1	469	0.19	<0.05	<0.005	0.01	26	14	197	<0.001	<0.05
Avg			8.2	1976	3	<1	111	5	713	0.25			0.02	157	41	225	<0.001	<0.05
Max			8.6	2030	6	<1	134	14	844	0.34	0.21	0.12	0.04	221	52	247	<0.001	<0.05
ANZECC*			6.5-8.0	200-300	6-50					1.90	ID	0.01	0.06					

ID: Insufficient Data IS: Insufficient Sample

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Bolded indicates exceedance of ANZECC criteria

For monitoring location refer to Figure 4 "Surface and Groundwater Local Monitoring Sites"

Site SW3 - Mine Water Dam (Major) - Sheet 2

Date	N mg/l	Na mg/l	P mg/l	As mg/l	B mg/l	Cd mg/l	Cu mg/l	Pb mg/l	Cr mg/l	Hg mg/l	Ni mg/l	Se mg/l	Ag mg/l	Ba mg/l	Mo mg/l	CO3 mg/l	F mg/l	NO2 mg/l	NO3 mg/l	NH3 mg/l
07-Sep-09																				
14-Sep-09																				
21-Sep-09																				
28-Sep-09	0.5	186	<0.01	<0.001	<0.05	<0.001	0.0010	<0.001	<0.001	<0.0001	0.004	<0.01	<0.001	<0.05	<0.001	<1	0.18	<0.01	0.02	<0.01
06-Oct-09																				
12-Oct-09																				
19-Oct-09																				
26-Oct-09	0.4	67	<0.01	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	0.002	<0.01	<0.001	<0.05	<0.001	<1	0.1	<0.01	0.07	0.06
02-Nov-09																				
09-Nov-09																				
16-Nov-09																				
25-Nov-09	0.4	211	<0.01	<0.001	<0.05	0.0001	<0.001	<0.001	<0.001	<0.0001	0.004	<0.01	<0.001	<0.05	<0.001	9	0.12	<0.01	<0.01	<0.01
01-Dec-09																				
07-Dec-09																				
14-Dec-09																				
21-Dec-09																				
29-Dec-09	0.4	199	0.02	<0.001	<0.05	<0.0001	0.0010	<0.001	<0.001	<0.0001	0.002	<0.01	<0.001	<0.05	<0.001	<1	0.2	<0.01	<0.01	<0.01
04-Jan-10																				
11-Jan-10																				
18-Jan-09																				
25-Jan-10																				
29-Jan-10	0.4	194	<0.01	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	0.003	<0.01	<0.001	0.04	<0.001	<1	0.2	<0.01	<0.01	0.03
08-Feb-10																				
15-Feb-10																				
24-Feb-10	0.4	125	0.01	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	0.004	<0.01	<0.001	0.044	<0.001	<1	0.13	<0.01	0.02	<0.01
Min	0.4	67	<0.01	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	0.002	<0.01	<0.001	0.04	<0.001	<1	0.1	<0.01	<0.01	<0.01
Avg	0.4	164	<0.01	<0.001	<0.05		<0.001	<0.001	<0.001	<0.0001	0.003	<0.01	<0.001		<0.001		0.2	<0.01		
Max	0.5	211	0.02	<0.001	<0.05	0.0001	0.001	<0.001	<0.001	<0.0001	0.004	<0.01	<0.001	0.044	<0.001	9	0.2	<0.01	0.07	0.06
ANZECC*				0.013	0.04	0.0002	0.0014	0.0034	0.001	0.0006	0.011	0.011	0.00005							0.9

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Bolded indicates exceedance of ANZECC criteria

For monitoring location refer to Figure 4 "Surface and Groundwater Local Monitoring Sites"

Site SW4 - Strips 6-8 Sumps

Date	Category	Comment	ph	EC uS/cm	Turbidity NTU	Acidity CaCO ₃	Alkalinity CaCO ₃	TSS mg/l	SO4 mg/l	Mn mg/l	Fe (filt) mg/l	Zn mg/l	Al mg/l	Ca mg/l	Mg mg/l	Cl mg/l
07-Sep-09	Weekly	Strip 7 sump, small muddy orange.	7.1	3860												
14-Sep-09	Weekly	Sampled pipe SW3 minor	7.9	3900	50											
21-Sep-09	Weekly	Strip 7 sump, small muddy orange.	7.2	3980	55											
28-Sep-09	Monthly	Strip 7. Mod sump, muddy orange.	7.5	4050	51	29	270	24	2710	5.6	2.31	0.164	0.04	682	72	434
06-Oct-09	Weekly	Sampled at pipe SW3 minor	7.3	3710	85											
12-Oct-09	Weekly	Sampled at pipe SW3 minor	7.3	3580	94											
19-Oct-09	Weekly	Sampled at pipe SW3 minor	7.5	3580	3											
26-Oct-09	Event	Sampled at pipe SW3 minor, turbid black	7.2	3060	>1000	10	117	40000	1700	5.3	0.45	0.627	41.4	563	53	252
02-Nov-09	Weekly	Sampled at pipe SW3 minor	7.3	3530	778											
09-Nov-10	Weekly	Low pH, Very Turbid	3.5	3370	>1000											
16-Nov-09	Weekly	Sampled at pipe SW3 minor	7.0	3660	90											
25-Nov-09	Monthly	slightly turbid, big sump	7.5	4100	25	<1	200	8	1600	3.0	<0.5	0.021	0.07	577	61	414
01-Dec-09	Weekly	No Access	-	-	-											
07-Dec-09	Weekly	No Access	-	-	-											
14-Dec-09	Weekly	No Access	-	-	-											
21-Dec-09	Weekly	No Access	-	-	-											
29-Dec-09	Event	Sampled at pipe SW3	-	-	-	<1	106	60	868	0.2	<0.05	<0.005	0.02	190	50	252
04-Jan-10	Weekly	large sump, red in colour	7.1	3100	-											
11-Jan-10	Weekly	Sampled at pipe SW3	6.1	3770	52											
18-Jan-10	Weekly	Sampled at pipe SW3	6.4	4030	56											
25-Jan-10	Weekly	Sampled at pipe SW3	6.3	4040	7											
29-Jan-10	Event	Sampled at pipe SW3	6.4	4080	15	31	253	22	513	5.0	<0.05	0.118	0.06	849	92	334
08-Feb-10	Weekly	Sampled at pipe SW3	6.2	3880	35											
15-Feb-10	Weekly	Sampled at pipe SW3	6.3	3920	11											
24-Feb-10	Monthly	Small sump, slightly orange	6.4	3990	19	41	158	1	1110	2.0	0.94	0.120	0.03	615	61	626
Min			3.5	3060	3	<1	106	1	513	0.2	<0.50	<0.005	0.02	190	50	252
Avg			6.8	3760			184	6686	1417	3.5			6.9	579	65	385
Max			7.9	4100	>1000	41	270	40000	2710	5.6	2.3	0.627	41.4	849	92	626
ANZECC*			6.5-8.0	200-300	6-50					1.9	ID	0.01	0.06			

ID: Insufficient Data

*: ANZECC Guidelines for Fresh & Marine Water Quality 2000 (Aquatic Ecosystems) - slightly to moderately disturbed ecosystems.

Bolded indicates exceedance of ANZECC criteria

For monitoring location refer to Figure 4 "Surface and Groundwater Local Monitoring Sites"

Site SW6

Date	Category	Comment	ph	EC uS/cm	Turbidity NTU	Acidity (as mg/l CaCO ₃)	Alkalinity (as mg/l CaCO ₃)	TSS mg/l	SO4 mg/l	Mn mg/l	Fe (filt) mg/l	Zn mg/l	Al mg/l	Ca mg/l	Mg mg/l	Cl mg/l
28-Sep-09	Monthly	No flow	-	-	-											
26-Oct-09	Event	mod flow turbid	7.9	160	<1000	<1	27	88	36	0.334	0.12	0.061	19.7	9	4	14
25-Nov-09	Monthly	No flow	-	-	-											
29-Dec-09	Event	Low flow	7.5	510	37	5	33	16	455	0.016	0.13	0.007	0.82	27	13	50
29-Jan-10	Event	No flow	-	-	-											
24-Feb-10	Monthly	no flow	-	-	-											
Min			7.5	160	37	<1	27	16	36	0.02	0.12	0.007	0.82	9	4	14
Avg			7.7	335	37		30	52	245	0.18	0.13	0.034	10.26	18	9	32
Max			7.9	510	37	5	33	88	455	0.33	0.13	0.061	19.70	27	13	50
ANZECC*			6.5-8.0	200-300	6-50					1.9	ID	0.008	0.055			

ID: Insufficient Data

*: ANZECC Guidelines for Fresh & Marine Water Quality 2000 (Aquatic Ecosystems) - slightly to moderately disturbed ecosystems.

Bolded indicates exceedance of ANZECC criteria

For monitoring location refer to Figure 4 "Surface and Groundwater Local Monitoring Sites"

GB1 - Mammy Johnsons River - Sheet 1

Date	Category	Comment	ph	EC	Turbidity	Acidity	Alkalinity	TSS	SO4	Mn	Fe (filt)	Zn	Al	Ca	Mg	Cl	TDS	Bicarb
				uS/cm	NTU	(as mg/l CaCO ₃)	(as mg/l CaCO ₃)	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
07-Sep-09	Weekly	low flow	7.3	490		<1	81	2	11	0.048	0.35	<0.005	0.07	19	11	78		
14-Sep-09	Weekly	low flow	8.6	505	2.5	<1	85	2	22	0.043	0.33	<0.005	0.08	20	11	82		
21-Sep-09	Weekly	low flow	7.8	520	2.5	<1	86	1	27	0.050	0.32	<0.005	0.05	20	11	96		
28-Sep-09	Monthly	low flow	7.6	535	2.3	<1	90	3	8	0.063	0.18	<0.005	0.04	22	12	92	260	90
06-Oct-09	Weekly	mod flow	7.5	590	5.1	<1	105	10	14	0.245	0.27	<0.005	0.08	24	14	92		
12-Oct-09	Weekly	mod-low flow	7.1	560	3.6	<1	92	2	10	0.058	0.48	<0.005	0.06	21	12	94		
19-Oct-09	Weekly	low flow	7.2	575	4.0	5	110	4	17	0.050	0.35	<0.005	0.1	20	12	96		
26-Oct-09	Event	mod flow	7.7	525	5.6	5	78	5	9	0.120	0.28	<0.005	0.16	18	10	84	240	78
02-Nov-09	Weekly	mod-low flow	7.3	480	7.2	<1	91	3	8	0.037	0.44	<0.005	0.14	18	11	73		
09-Nov-09	Weekly	high flow, turbid	7.0	102	56	<1	14	17	4	0.036	0.72	0.006	2.2	3	2	20		
16-Nov-09	Weekly	Mod flow	7.1	195	20	<1	33	8	6	0.040	0.47	0.009	0.25	7	5	39		
25-Nov-09	monthly	low-mod flow	7.1	280	7.3	<1	51	7	5	0.126	0.60	<0.005	0.41	11	7	49	170	51
14-Dec-09	Weekly	low flow	7.1	350	3.3	5	64	3	4	0.279	0.32	<0.005	0.04	13	8	60		
21-Dec-09	Weekly	low flow	7.0	355	3.4	10	66	1	3	0.529	0.15	<0.005	0.03	13	8	52		
27-Dec-09	Event	low flow, clear	7.3	352	13	<1	65	4	4	0.456	0.47	<0.005	0.12	13	8	66	200	65
04-Jan-10	Weekly	high flow	7.1	129	34	5	21	18	5	0.026	0.60	<0.005	1.17	4	3	27		
11-Jan-10	Weekly	mod flow	7.2	220	16	<1	36	6	6	0.048	0.75	<0.005	0.77	7	5	38		
18-Jan-10	Weekly	mod-low flow	7.1	250	7	<1	48	3	1	0.073	0.75	<0.005	0.29	10	6	36		
25-Jan-10	Weekly	low flow	7.1	230	6	<1	54	6	2	0.116	0.53	<0.005	0.17	11	6	42		
29-Jan-10	Event	mod-high flow, turbid	7.3	320	65	<1	45	42	7	0.192	0.72	0.006	1.39	13	7	56	190	45
08-Feb-10	Weekly	high flow, turbid	7.1	125	60	5	25	74	4	0.054	0.87	0.007	2.44	5	3	22		
15-Feb-10	Weekly	mod flow	7.1	170	23	<1	45	14	5	0.068	0.82	<0.005	1.25	8	5	36		
22-Feb-10	Monthly	low-mod flow	7.2	255	12	<1	48	4	5	0.075	0.76	<0.005	0.41	9	6	43	270	48
Min			7.0	102	2	<1	14	1	1	0.026	0.15	<0.005	0.03	3	2	20	170	45
Avg			7.3	350	15		62	10	8	0.126	0.50		0.48	13	8	59	222	63
Max			8.6	590	65	10	110	74	27	0.529	0.87	0.009	2.44	24	14	96	270	90
ANZECC*			6.5-8.0	200-300	6-50					1.90	ID	0.01	0.06					

ID: Insufficient Data IS: Insufficient Sample

*: ANZECC Guidelines for Fresh & Marine Water Quality 2000 (Aquatic Ecosystems) - slightly to moderately disturbed ecosystems.

Bolded indicates exceedance of ANZECC criteria

For monitoring location refer to Figure 4 "Surface and Groundwater Local Monitoring Sites"

GB1 - Mammy Johnsons River - Sheet 2

Date	N mg/l	Na mg/l	P mg/l	As mg/l	B mg/l	Cd mg/l	Cu mg/l	Pb mg/l	Cr mg/l	Hg mg/l	Ni mg/l	Se mg/l	Ag mg/l	Ba mg/l	Mo mg/l	U mg/l	CO3 mg/l	F mg/l	NO2 mg/l	NO3 mg/l	NH3 mg/l
07-Sep-09																					
14-Sep-09																					
21-Sep-09																					
28-Sep-09	0.4	46	0.02	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.056	<0.001	<0.001	<1	0.02	<0.01	<0.01	<0.01
06-Oct-09																					
12-Oct-09																					
19-Oct-09																					
26-Oct-09	0.5	50	<0.01	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.056	<0.001	<0.001	<1	0.06	<0.01	0.06	<0.01
02-Nov-09																					
09-Nov-09																					
16-Nov-09																					
25-Nov-09	0.5	29	0.074	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.047	<0.001	<0.001	<1	0.04	<0.01	0.06	0.03
01-Dec-09																					
07-Dec-09																					
14-Dec-09																					
21-Dec-09																					
27-Dec-09	0.4	35	0.12	0.002	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.055	<0.001	<0.001	<1	0.06	<0.01	0.03	0.01
04-Jan-10																					
11-Jan-10																					
18-Jan-10																					
25-Jan-10																					
29-Jan-10	1.1	36	0.32	0.001	<0.05	<0.0001	<0.001	0.001	<0.001	<0.001	<0.001	<0.01	<0.001	0.071	<0.001	<0.001	<1	0.10	0.02	0.12	0.04
08-Feb-10																					
15-Feb-10																					
22-Feb-10	0.8	26	0.08	<0.001	<0.05	<0.0001	<0.001	0.001	<0.001	<0.001	<0.001	<0.01	<0.001	0.039	<0.001	<0.001	<1	0.06	<0.01	0.15	0.06
Min	0.4	26	<0.01	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.039	<0.001	<0.001	<1	0.02	<0.01	<0.01	<0.01
Avg	0.6	37			<0.05	<0.0001	<0.001		<0.001	<0.0001	<0.001	<0.01	<0.001	0.054	<0.001	<0.001	<1	0.06			
Max	1.1	50	0.32	0.002	<0.05	<0.0001	<0.001	0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.071	<0.001	<0.001	<1	0.10	0.02	0.15	0.06
ANZECC*			0.013	0.04	0.0002	0.0014	0.0034	0.001	0.0006	0.011	0.011	5E-05									0.9

ID: Insufficient Data IS: Insufficient Sampl *: ANZECC Guidelines for Fresh & Marine Water Quality 2000 (Aquatic Ecosystems) - slightly to moderately disturbed ecosystems.

Bolded indicates exceedance of ANZECC For monitoring location refer to Figure 4 "Surface and Groundwater Local Monitoring Sites"

Site 9 - Karuah River (Near Stroud Road Village) - Sheet 1

Date	Category	Comment	ph	EC	Turbidity	Acidity	Alkalinity	TSS	SO4	Mn	Fe (dis)	Zn	Al	Ca	Mg	Cl	TDS	Bicarb
				uS/cm	NTU	(as mg/l CaCO ₃)	(as mg/l CaCO ₃)	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
28-Sep-09	Monthly	low-mod flow	7.5	255	3	<1	54	2	3	0.01	0.18	<0.005	0.07	12	6	38	120	54
26-Oct-09	Event	mod flow	7.1	195	4	<1	46	2	4	0.03	0.12	<0.005	0.09	10	5	32	130	46
25-Nov-09	Monthly	mod-low flow	7.5	160	5	<1	46	6	3	0.02	0.25	<0.005	0.18	9	5	26	110	46
29-Dec-09	Event	High flow	7.3	125	30	<1	25	38	4	0.05	0.24	<0.005	1.50	5	3	23	94	25
29-Jan-10	Event	mod-high flow	7.5	135	10	<1	27	5	<1	0.38	0.17	<0.005	0.36	9	4	21	87	27
24-Feb-10	Monthly	mod flow	7.5	115	8	<1	32	4	2	0.02	0.24	<0.005	0.14	5	3	19	180	32
Min			7.1	115	3	<1	25	2	<1	0.01	0.12	<0.005	0.07	5	3	19	87	25
Avg			7.4	164	10	<1	38	10		0.08	0.20	<0.005	0.39	8	4	27	120	38
Max			7.5	255	30	<1	54	38	4	0.38	0.25	<0.005	1.50	12	6	38	180	54
ANZECC*			6.5-8.0	200-300	6-50					1.9	ID	0.008	0.055					

*: ANZECC Guidelines for Fresh & Marine Water Quality 2000 (Aquatic Ecosystems) - slightly to moderately disturbed ecosystems.

Bolded indicates exceedance of ANZECC criteria

For monitoring location refer to Figure 1 "Surface and Groundwater Local Monitoring Sites"

Site 9 - Karuah River (Near Stroud Road Village) - Sheet 2

Date	N mg/l	Na mg/l	P mg/l	As mg/l	B mg/l	Cd mg/l	Cu mg/l	Pb mg/l	Cr mg/l	Hg mg/l	Ni mg/l	Se mg/l	Ag mg/l	Ba mg/l	Mo mg/l	U mg/l	CO3 mg/l	F mg/l	NO2 mg/l	NO3 mg/l	NH3 mg/l
28-Sep-09	0.3	16	0.02	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.019	<0.001	<0.001	<1	0.04	<0.01	0.04	<0.01
26-Oct-09	0.5	17	0.05	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.022	<0.001	<0.001	<1	0.04	<0.01	1.1	<0.01
25-Nov-09	0.4	16	0.01	<0.001	<0.05	0.0002	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.024	<0.001	<0.001	<1	0.05	<0.01	0.09	0.03
29-Dec-09	0.5	13	0.06	<0.001	<0.05	<0.0001	0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.024	<0.001	<0.001	<1	0.05	<0.01	0.09	<0.01
29-Jan-10	0.5	15	0.05	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.200	<0.001	<0.001	<1	0.1	<0.01	0.1	0.03
24-Feb-10	0.4	12	0.02	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.016	<0.001	<0.001	<1	0.05	<0.01	0.09	<0.01
Min	0.3	12	0.01	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.016	<0.001	<0.001	<1	0.04	<0.01	0.04	<0.01
Avg	0.4	15	0.04	<0.001	<0.05			<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.051	<0.001	<0.001	<1	0.06	<0.01	0.25	
Max	0.5	17	0.06	<0.001	<0.05	0.0002	0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.200	<0.001	<0.001	<1	0.10	<0.01	1.10	0.03
ANZECC*				0.013	0.37	0.0002	0.0014	0.0034	0.001	0.0006	0.011	0.011	0.00005								0.9

ID: Insufficient Data

*: ANZECC Guidelines for Fresh & Marine Water Quality 2000 (Aquatic Ecosystems) - slightly to moderately disturbed ecosystems.

Bolded indicates exceedance of ANZECC criteria

For monitoring location refer to Figure 1 "Surface and Groundwater Local Monitoring Sites"

Site 11 - Mammy Johnsons - Downstream of High Noon - Sheet 1

Date	Category	Comment	ph	EC uS/cm	Turbidity NTU	Acidity (as mg/l)	Alkalinity (as mg/l)	TSS mg/l	SO4 mg/l	Mn mg/l	Fe (dis) mg/l	Zn mg/l	Al mg/l	Ca mg/l	Mg mg/l	Cl mg/l	TDS mg/l	Bicarb mg/l
07-Sep-09	Weekly	low flow	7.4	490		10	84	2	10	0.042	0.36	<0.005	0.05	18	11	78		
14-Sep-09	Weekly	low flow	8.3	515	2	<1	89	2	22	0.032	0.25	<0.005	0.05	19	12	85		
21-Sep-09	Weekly	low flow	7.9	535	1	<1	89	1	27	0.056	0.23	<0.005	0.04	21	13	86		
28-Sep-09	Monthly	low flow	7.6	565	1	<1	96	1	8	0.038	0.27	<0.005	0.04	22	16	97	250	96
06-Oct-09	Weekly	low/mod flow	7.5	560	2	<1	117	2	15	0.035	0.27	<0.005	0.04	22	13	90		
12-Oct-09	Weekly	low/mod flow	7.0	580	2	<1	98	1	10	0.076	0.35	<0.005	0.05	22	13	94		
19-Oct-09	Weekly	low flow	7.2	585	2	5	117	2	17	0.038	0.26	<0.005	0.03	23	14	94		
26-Oct-09	Event	mod/low 0.05m(low)	7.2	595	2	<1	96	2	9	0.115	0.19	<0.005	0.06	23	14	99	330	96
02-Nov-09	Weekly	mod/low 0.07m(low)	7.1	560	6	<1	96	<1	12	0.042	0.64	<0.005	0.08	20	12	88		
09-Nov-09	Weekly	high flow 0.03(mid), turbid	7.0	102	56	<1	16	17	4	0.042	0.74	0.006	2.27	3	2	20		
16-Nov-09	Weekly	mod flow 0.12m(low)	7.3	265	19	<1	35	8	9	0.036	0.47	<0.005	1.42	8	5	41		
25-Nov-09	Monthly	low-mod flow 0.07 (low)	7.2	330	8	<1	49	16	19	0.067	0.65	<0.005	0.36	14	8	54	210	49
01-Dec-09	Weekly	low-mod flow 0.05 (low)	7.3	370	5	<1	53	2	24	0.077	0.48	<0.005	0.15	15	9	61		
07-Dec-09	Weekly	low flow 0.04 (low)	7.2	400	3	5	66	2	25	0.08	0.34	<0.005	0.10	17	10	60		
14-Dec-09	Weekly	low flow 0.03m	7.3	410	2	5	65	2	18	0.071	0.18	<0.005	0.05	15	10	69		
21-Dec-09	Weekly	low flow 0.01m	7.2	425	2	10	74	1	13	0.263	0.1	0.006	0.03	17	10	60		
29-Dec-09	Event	mod flow 0.10m(low)	7.2	360	5	<1	67	4	9	0.077	0.27	<0.005	0.20	14	8	73	220	67
04-Jan-10	Weekly	0.67m bottom board	6.9	144	43	5	26	28	9	0.033	0.66	0.023	2.37	6	3	29		
11-Jan-10	Weekly	mod flow 0.12m(low)	7.1	295	16	<1	43	3	26	0.038	0.67	<0.005	0.56	12	7	49		
18-Jan-10	Weekly	mod-low flow 0.08m(low)	7.1	280	7	<1	48	4	<1	0.071	0.78	<0.005	0.57	12	6	38		
25-Jan-10	Weekly	low flow 0.04 (low)	7.0	225	5	<1	53	3	1	0.117	0.74	<0.005	0.17	12	7	44		
29-Jan-10	Event	mod flow 0.28(low)	7.1	275	11	<1	46	19	15	0.371	0.5	<0.005	0.40	13	7	45	170	46
08-Feb-10	Weekly	high flow 0.65(low)	7.1	120	75	10	23	51	3	0.061	0.84	0.013	2.19	6	4	21		
15-Feb-10	Weekly	mod flow 0.11 (low)	7.2	170	24	<1	35	14	5	0.051	0.78	0.007	1.80	8	5	35		
22-Feb-10	Monthly	low-mod flow 0.07 (low)	7.1	290	12	<1	49	7	15	0.082	0.67	<0.005	0.60	11	7	46	280	49
Min			6.9	102	1	<1	16	<1	<1	0.032	0.10	<0.005	0.03	3	2	20	170	46
Avg			7.3	378	13		65			0.080	0.47		0.55	15	9	62	243	67
Max			8.3	595	75	10	117	51	27	0.371	0.84	0.023	2.37	23	16	99	330	96
ANZECC*			6.5-8.0	200-300	6-50					1.9	ID	0.008	0.055					

ID: Insufficient Data

*: ANZECC Guidelines for Fresh & Marine Water Quality 2000 (Aquatic Ecosystems) - slightly to moderately disturbed ecosystems.

Bolded indicates exceedance of ANZECC criteria

For monitoring location refer to Figure 1 "Surface and Groundwater Local Monitoring Sites"

Site 11 - Mammy Johnsons - Downstream of High Noon - Sheet 2

Date	N mg/l	Na mg/l	P mg/l	As mg/l	B mg/l	Cd mg/l	Cu mg/l	Pb mg/l	Cr mg/l	Hg mg/l	Ni mg/l	Se mg/l	Ag mg/l	Ba mg/l	Mo mg/l	U mg/l	CO3 mg/l	F mg/l	NO2 mg/l	NO3 mg/l	NH3 mg/l
07-Sep-09																					
14-Sep-09																					
21-Sep-09																					
28-Sep-09	0.3	58	0.02	<0.001	<0.05	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.055	<0.001	<0.001	<1	0.03	<0.01	<0.01	<0.01
06-Oct-09																					
12-Oct-09																					
19-Oct-09																					
26-Oct-09	0.3	52	<0.01	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.061	<0.001	<0.001	<1	0.06	<0.01	0.05	<0.01
02-Nov-09																					
09-Nov-09																					
16-Nov-09																					
25-Nov-09	0.4	34	0.01	<0.001	<0.05	<0.0001	0.005	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.049	<0.001	<0.001	<1	0.04	<0.01	0.06	0.06
01-Dec-09																					
07-Dec-09																					
14-Dec-09																					
21-Dec-09																					
29-Dec-09	0.4	40	0.05	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.049	<0.001	<0.001	<1	0.06	<0.01	0.36	<0.01
04-Jan-10																					
11-Jan-10																					
18-Jan-10																					
25-Jan-10																					
29-Jan-10	0.6	29	0.08	0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.048	<0.001	<0.001	<1	<0.1	<0.01	0.03	0.07
08-Feb-10																					
15-Feb-10																					
22-Feb-10	0.7	28	0.32	0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.041	<0.001	<0.001	<1	0.06	<0.01	0.13	0.03
Min	0.3	28	<0.01	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.041	<0.001	<0.001	<1	<0.1	<0.01	<0.01	<0.01
Avg	0.5	40			<0.05	<0.0001		<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.051	<0.001	<0.001	<1		<0.01		
Max	0.7	58	0.320	0.001	<0.05	<0.0001	0.005	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.061	<0.001	<0.001	<1	0.06	<0.01	0.36	0.07
ANZECC*				0.013	0.37	0.0002	0.0014	0.0034	0.001	0.0006	0.011	0.011	5E-05								0.9

ID: Insufficient Data

*: ANZECC Guidelines for Fresh & Marine Water Quality 2000 (Aquatic Ecosystems) - slightly to moderately disturbed ecosystems.

Bolded indicates exceedance of ANZECC criteria

For monitoring location refer to Figure 1 "Surface and Groundwater Local Monitoring Sites"

Site 12 - Mammy Johnsons - Relton Property - Sheet 1

Date	Category	Comment	ph	EC uS/cm	Turbidity NTU	Acidity (as mg/l CaCO ₃)	Alkalinity (as mg/l CaCO ₃)	TSS mg/l	SO4 mg/l	Mn mg/l	Fe (dis) mg/l	Zn mg/l	Al mg/l	Ca mg/l	Mg mg/l	Cl mg/l	TDS mg/l	Bicarb mg/l
28-Sep-09	Monthly	low flow	7.8	500	2	<1	90	2	7	0.061	0.37	<0.005	0.04	22	12	83	230	90
26-Oct-09	Event	mod flow	7.6	470	7	<1	108	6	8	0.123	0.29	<0.005	0.24	19	10	69	250	108
25-Nov-09	Monthly	low-mod flow	7.1	280	8	5	50	2	5	0.076	0.65	<0.005	0.43	11	7	49	170	50
29-Dec-09	Event	mod flow	7.1	375	29	<1	64	18	6	0.159	0.43	0.007	0.89	14	8	81	240	64
29-Jan-10	Event	turbid, mod flo	7.1	145	166	<1	40	86	13	0.058	0.60	0.012	3.84	8	4	28	150	40
24-Feb-10	Monthly	low-mod flow	7.2	270	9	<1	52	6	4	0.095	0.81	<0.005	0.25	10	6	44	200	52
Min			7.1	145	2	<1	40	2	4	0.058	0.29	<0.005	0.04	8	4	28	150	40
Avg			7.3	340	37		67	20	7	0.095	0.53		0.95	14	8	59	207	67
Max			7.8	500	166	5	108	86	13	0.159	0.81	0.012	3.84	22	12	83	250	108
ANZECC*			6.5-8.0	200-300	6-50					1.9	ID	0.008	0.055					

ID: Insufficient Data

*: ANZECC Guidelines for Fresh & Marine Water Quality 2000 (Aquatic Ecosystems) - slightly to moderately disturbed ecosystems.

Bolded indicates exceedance of ANZECC criteria

For monitoring location refer to Figure 1 "Surface and Groundwater Local Monitoring Sites"

Site 12 - Mammy Johnsons - Relton Property - Sheet 2

Date	N mg/l	Na mg/l	P mg/l	As mg/l	B mg/l	Cd mg/l	Cu mg/l	Pb mg/l	Cr mg/l	Hg mg/l	Ni mg/l	Se mg/l	Ag mg/l	Ba mg/l	Mo mg/l	U mg/l	CO3 mg/l	F mg/l	NO2 mg/l	NO3 mg/l	NH3 mg/l	
28-Sep-09	0.3	40	0.02	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.056	<0.001	<0.001	<1	0.03	<0.01	<0.01	<0.01	
26-Oct-09	0.5	37	<0.01	0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.058	<0.001	<0.001	<1	0.05	<0.01	0.06	<0.01	
25-Nov-09	0.5	30	0.02	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.047	<0.001	<0.001	<1	0.04	<0.01	0.1	0.02	
29-Dec-09	0.7	42	0.08	0.002	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.061	<0.001	<0.001	<1	0.08	<0.01	0.09	0.04	
29-Jan-10	1.2	21	0.19	0.002	<0.05	<0.0001	0.004	0.003	0.002	<0.0001	0.002	<0.01	<0.001	0.066	<0.001	<0.001	<1	0.10	0.03	0.10	0.03	
24-Feb-10	0.7	26	0.12	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.040	<0.001	<0.001	<1	0.06	<0.01	0.18	0.05	
Min			<0.01	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.040	<0.001	<0.001	<1	0.03	<0.01	<0.01	<0.01	
Avg					<0.05	<0.0001				<0.0001		<0.01	<0.001	0.0547	<0.001	<0.001	<1	0.06				
Max			0.19	0.002	<0.05	<0.0001	0.004	0.003	0.002	<0.0001	0.002	<0.01	<0.001	0.066	<0.001	<0.001	<1	0.10	0.03	0.18	0.05	
ANZECC*				0.013	0.37	0.0002	0.001	0.0034	0.001	0.0006	0.011	0.011	5E-05									0.9

ID: Insufficient Data

*: ANZECC Guidelines for Fresh & Marine Water Quality 2000 (Aquatic Ecosystems) - slightly to moderately disturbed ecosystems.

Bolded indicates exceedance of ANZECC criteria

For monitoring location refer to Figure 1 "Surface and Groundwater Local Monitoring Sites"

Site 15 - Mammy Johnsons - Tereel - Sheet 1

Date	Category	Comment	ph	EC	Turbidity	Acidity	Alkalinity	TSS	SO4	Mn	Fe (dis)	Zn	Al	Ca	Mg	Cl	TDS	Bicarb	N
				uS/cm	NTU	(as mg/l CaCO ₃)	(as mg/l CaCO ₃)	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
28-Sep-09	Monthly	low flow	7.7	355	2	<1	38	2	6	0.040	0.28	<0.005	0.05	13	8	68	170	38	0.4
26-Oct-09	Event	mod flow	7.6	345		<1	41	8	6	0.054	0.28	0.023	0.29	12	7	64	190	41	0.3
25-Nov-09	Monthly	ow-mod flow	7.3	185	7	<1	30	4	5	0.034	0.5	0.006	0.43	9	5	40	140	30	0.4
29-Dec-09	Event	mod flow	7.3	195	6	<1	34	4	5	0.065	0.3	<0.005	0.25	8	5	46	140	34	0.4
29-Jan-10	Event	mod flow	7.2	160	12	<1	176	4	<1	0.062	0.39	0.016	0.44	10	5	35	130	176	0.3
24-Feb-10	Monthly	ow-mod flow	7.3	165	6	<1	30	7	4	0.042	0.5	<0.005	0.22	7	4	38	250	30	0.6
Min			7.2	160	2	<1	30	2	<1	0.034	0.28	<0.005	0.05	7	4	35	130	30	0.3
Avg			7.4	234	7	<1	58	5		0.050	0.38		0.28	10	6	48	170	58	0.4
Max			7.7	355	12	<1	176	8	6	0.065	0.50	0.023	0.44	13	8	68	250	176	0.6
ANZECC*			6.5-8.0	200-300	6-50					1.9	ID	0.008	0.055						

ID: Insufficient Data

*: ANZECC Guidelines for Fresh & Marine Water Quality 2000 (Aquatic Ecosystems) - slightly to moderately disturbed ecosystems.

Bolded indicates exceedance of ANZECC criteria

For monitoring location refer to Figure 1 "Surface and Groundwater Local Monitoring Sites"

Site 15 - Mammy Johnsons - Tereel - Sheet 2

Date	Na mg/l	P mg/l	As mg/l	B mg/l	Cd mg/l	Cu mg/l	Pb mg/l	Cr mg/l	Hg mg/l	Ni mg/l	Se mg/l	Ag mg/l	Ba mg/l	Mo mg/l	U mg/l	CO3 mg/l	F mg/l	NO2 mg/l	NO3 mg/l	NH3 mg/l
28-Sep-09	25	0.02	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.044	<0.001	<0.001	<1	0.02	<0.01	<0.01	0.02
26-Oct-09	25	<0.01	<0.001	<0.05	<0.0001	0.002	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.048	<0.001	<0.001	<1	0.04	<0.01	0.04	<0.01
25-Nov-09	21	<0.01	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.037	<0.001	<0.001	<1	0.04	<0.01	0.02	0.02
29-Dec-09	21	0.06	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.042	<0.001	<0.001	<1	0.04	<0.01	<0.01	<0.01
29-Jan-10	21	0.01	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.034	<0.001	<0.001	<1	0.10	<0.01	0.03	0.02
24-Feb-10	20	0.02	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.031	<0.001	<0.001	<1	0.05	<0.01	0.06	0.05
Min	20	<0.01	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.031	<0.001	<0.001	<1	0.02	<0.01	<0.01	<0.01
Avg	22		<0.001	<0.05	<0.0001		<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.039	<0.001	<0.001	<1	0.05	<0.01		
Max	25	0.06	<0.001	<0.05	<0.0001	0.002	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.048	<0.001	<0.001	<1	0.10	<0.01	0.06	0.05
ANZECC*				0.37	0.0002	0.0014	0.0034	0.001	0.0006	0.011	0.011	0.00005								0.9

ID: Insufficient Data

*: ANZECC Guidelines for Fresh & Marine Water Quality 2000 (Aquatic Ecosystems) - slightly to moderately disturbed ecosystems.

Bolded indicates exceedance of ANZECC criteria

For monitoring location refer to Figure 1 "Surface and Groundwater Local Monitoring Sites"

Site 19 - Karuah River (Washpool Turnoff) - Sheet 1

Date	Category	Comment	ph	EC uS/cm	Turbidity NTU	Acidity (as mg/l CaCO ₃)	Alkalinity (as mg/l CaCO ₃)	TSS mg/l	SO4 mg/l	Mn mg/l	Fe (dis) mg/l	Zn mg/l	Al mg/l	Ca mg/l	Mg mg/l	Cl mg/l	TDS mg/l	Bicarb mg/l	N mg/l	Na mg/l
07-Sep-09	Weekly	mod-low flow	7.7	295		<1	54	3	5	0.014	0.12	<0.005	0.09	11	6	38				
14-Sep-09	Weekly	low-mod flow	7.8	290	2.5	<1	79	2	10	0.013	0.13	<0.005	0.1	12	7	39				
21-Sep-09	Weekly	low-mod flow	7.6	300	2.4	<1	57	2	13	0.018	0.12	<0.005	0.07	12	7	42				
02-Nov-09	Weekly	mod flow	7.1	270	10	<1	44	2	6	0.022	0.32	<0.005	0.35	10	6	41				
09-Nov-09	Weekly	high flow, turb	7.2	115	85	<1	20	19	4	0.037	0.74	0.012	2.41	4	3	19				
16-Nov-09	Weekly	mod flow	7.5	195	15	<1	35	7	13	0.031	0.40	<0.005	0.30	8	5	33				
25-Nov-09	Monthly	mod-low flow	7.4	225	6	<1	47	4	8	0.033	0.26	<0.005	0.28	10	6	34	140	47	0.4	21
01-Dec-09	Weekly	mod-low flow	7.4	250	4	<1	49	4	5	0.035	0.31	<0.005	0.15	9	5	33				
07-Dec-09	Weekly	low-mod flow	7.4	230	4	<1	49	2	4	0.026	0.22	<0.005	0.13	11	6	30				
14-Dec-09	Weekly	low-mod flow	7.4	235	4	5	50	4	4	0.043	0.17	<0.005	0.05	12	8	32				
21-Dec-09	Weekly	low-mod flow	7.4	230	4	<1	54	1	3	0.037	0.17	<0.005	0.04	10	6	27				
29-Dec-09	Event	High flow	7.3	130	31	<1	31	36	5	0.059	0.26	<0.005	1.25	6	3	26	100	31	0.6	15
04-Jan-10	Weekly	very high flow	7.1	150	40	<1	28	20	6	0.029	0.65	0.007	1.85	5	3	27				
11-Jan-10	Weekly	mod-high flow	7.2	220	11	<1	38	5	9	0.024	0.42	<0.005	0.51	7	4	29				
18-Jan-10	Weekly	mod flow	7.2	170	6	<1	38	4	1	0.031	0.36	<0.005	0.08	8	4	23				
25-Jan-10	Weekly	mod-low flow	7.1	165	5	<1	42	4	1	0.037	0.33	<0.005	0.13	9	4	24				
29-Jan-10	Event	mod-high flow	7.3	165	13	<1	109	15	1	0.087	0.24	<0.005	0.38	12	6	30	120	109	0.4	20
08-Feb-10	Weekly	high flow, turb	7.3	125	56	5	24	43	3	0.031	0.90	0.008	2.15	5	3	21				
15-Feb-10	Weekly	mod-high flow	7.2	140	16	<1	31	16	3	0.030	0.44	<0.005	0.96	6	4	24				
22-Feb-10	Monthly	mod flow	7.2	125	9	<1	38	54	3	0.026	0.32	<0.005	0.33	6	4	23	110	38	0.5	14
Min			6.9	115	2	<1	20	1	1	0.013	0.11	<0.005	0.04	4	3	19	100	31	0.3	14
Avg			7.3	222	14		49	10	5	0.030	0.30		0.48	9	5	32	127	60	0.5	19
Max			7.8	310	85	5	109	54	13	0.087	0.90	0.012	2.41	14	8	46	150	109	0.6	23
ANZECC*			6.5-8.0	200-300	6-50					1.9	ID	0.008	0.055							

ID: Insufficient Data

*: ANZECC Guidelines for Fresh & Marine Water Quality 2000 (Aquatic Ecosystems) - slightly to moderately disturbed ecosystems.

Bolded indicates exceedance of ANZECC criteria

For monitoring location refer to Figure 1 "Surface and Groundwater Local Monitoring Sites"

Site 19 - Karuah River (Washpool Turnoff) - Sheet 2

Date	P mg/l	As mg/l	B mg/l	Cd mg/l	Cu mg/l	Pb mg/l	Cr mg/l	Hg mg/l	Ni mg/l	Se mg/l	Ag mg/l	Ba mg/l	Mo mg/l	U mg/l	CO3 mg/l	F mg/l	NO2 mg/l	NO3 mg/l	NH3 mg/l
07-Sep-09																			
14-Sep-09																			
21-Sep-09																			
28-Sep-09	<0.01	<0.001	<0.05	0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	<0.026	<0.001	<0.001	<1	0.04	<0.01	<0.01	<0.01
06-Oct-09																			
12-Oct-09																			
19-Oct-09																			
26-Oct-09	<0.01	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.028	<0.001	<0.001	<1	0.04	<0.01	0.05	0.04
02-Nov-09																			
09-Nov-09																			
16-Nov-09																			
25-Nov-09	<0.01	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.03	<0.001	<0.001	<1	0.05	<0.01	0.08	0.04
01-Dec-09																			
07-Dec-09																			
14-Dec-09																			
21-Dec-09																			
29-Dec-09	0.05	<0.001	<0.05	<0.0001	0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.025	<0.001	<0.001	<1	0.06	<0.01	0.05	<0.01
04-Jan-10																			
11-Jan-10																			
18-Jan-10																			
25-Jan-10																			
29-Jan-10	0.07	0.001	<0.05	<0.0001	0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.021	<0.001	<0.001	<1	0.10	<0.01	0.15	0.04
08-Feb-10																			
15-Feb-10																			
22-Feb-10	0.04	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.021	<0.001	<0.001	<1	0.06	<0.01	0.13	0.01
Min	<0.01	<0.001	<0.05	<0.0001	<0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	<0.026	<0.001	<0.001	<1	0.04	<0.01	<0.01	<0.01
Avg		<0.001	<0.05			<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001		<0.001	<0.001	<1	0.06	<0.01		
Max	0.07	<0.001	<0.05	0.0001	0.001	<0.001	<0.001	<0.0001	<0.001	<0.01	<0.001	0.030	<0.001	<0.001	<1	0.10	<0.01	0.15	0.04
ANZECC*			0.37	0.0002	0.0014	0.0034	0.001	0.0006	0.011	0.011	0.00005								0.9

ID: Insufficient Data

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Bolded indicates exceedance of ANZECC criteria

For monitoring location refer to Figure 1 "Surface and Groundwater Local Monitoring Sites"