Hanson Bass Point Quarry
Environmental Monitoring Report

Groundwater monitoring

The quarry monitors a series of groundwater boreholes on site and on the neighbouring premises. Monitoring requirements for these boreholes stem from the Groundwater Management Plan, and the Killalea Lagoon Management Plan, which together form part of the Water Management Plan required under *Schedule 3, Condition 24* of Project Approval MP 08_0143.

The scope of this report is groundwater monitoring data sampled, analysed, and reported by an external laboratory. Other required groundwater monitoring data, which is collected by Hanson, is outside of the scope of this report and is instead included in the Annual Review.

Killalea lagoon groundwater management and monitoring plan		
Sampling requirement	**Location**	**Frequency**
Temperature Electrical Conductivity (EC)	BT1201 BT1202	Monthly

Groundwater management and monitoring plan		
Sampling requirement	**Frequency**	**Location**
Temperature Electrical Conductivity (EC)	Monthly	BT703 BH1 (destroyed November 2017) BT0702 BT1201 (destroyed 2016) BT1202
pH Electrical Conductivity (EC) Total Dissolved Solids (TDS) Total Phosphorus (TP) (dissolved and recoverable) Total Kjeldahl Nitrogen (TKN) Nitrate + nitrite (dissolved) (NOx) Major Anions (Cl, SO4, Alkalinity) Mg	Quarterly	BT703 BH1 (destroyed November 2017) BT0702

Notes
The extensive quarterly groundwater monitoring programme commenced in August 2015.
Cross-shaded cells indicate destroyed and/or inaccessible boreholes

Parameter	**unit**	**Sampling location**				
		BH1	***BT0702***	***BT0703***	***BT1201***	***BT1202***
2024						
January 2024						
Electrical Conductivity (non compensated)	*uS/cm*		2470	1680		1770
Temperature	*°C*		19.9	20.4		19.3
Depth	*m*		25.8	8.08		19.2
February 2024						
pH	*pH Unit*		7.2	5.4		7.8
Electrical Conductivity (non-compensated)	*µS/cm*		2110	1430		1480
Total Dissolved Solids @180*C	*mg/L*		1630	989		----
Temperature	*°C*		18.4	18.3		18.7
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		----
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		----
Bicarbonate Alkalinity as CaCO3	*mg/L*		168	33		----
Total Alkalinity as CaCO3	*mg/L*		168	33		----
Sulfate as SO4 - Turbidimetric	*mg/L*		120	109		----
Chloride	*mg/L*		620	447		----
Calcium	*mg/L*		57	15		----
Magnesium	*mg/L*		69	27		----
Sodium	*mg/L*		266	270		----
Potassium	*mg/L*		4	4		----
Nitrite + Nitrate as N	*mg/L*		----	----		----
Total Kjeldahl Nitrogen as N	*mg/L*		0.5	0.3		----
^ Total Nitrogen as N	*mg/L*		----	----		----
Total Phosphorus as P	*mg/L*		0.24	0.13		----
Total Anions	*meq/L*		23.3	15.5		----
Total Cations	*meq/L*		20.2	14.8		----
Ionic Balance	*%*		7.23	2.37		----
Depth	*m*		26.25	7.74		19.70
March 2024						
Electrical Conductivity (non compensated)	*uS/cm*		2400	1710		1750
Temperature	*°C*		22.0	21.4		20.6
Depth	*m*		26.42	7.44		19.79
April 2024						
Electrical Conductivity (non compensated)	*uS/cm*		2240	1670		1660
Temperature	*°C*		17.9	18.0		16.8
Depth	*m*		24.92	6.93		19.25
2023						
January 2023						
Electrical Conductivity (non compensated)	*uS/cm*		2560	1850		1680

Parameter	unit	Sampling location				
		BH1	*BT0702*	*BT0703*	*BT1201*	*BT1202*
Temperature	*°C*		18.3	17.9		18.1
Depth	*m*		26.48	5.58		20.30
February 2023						
pH	*pH Unit*		7.0	5.7		7.7
Electrical Conductivity (non-compensated)	*µS/cm*		2170	1780		1620
Total Dissolved Solids @180*C	*mg/L*		1490	968		----
Temperature	*°C*		20.5	20.4		20
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		----
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		----
Bicarbonate Alkalinity as CaCO3	*mg/L*		160	32		----
Total Alkalinity as CaCO3	*mg/L*		160	32		----
Sulfate as SO4 - Turbidimetric	*mg/L*		95	82		----
Chloride	*mg/L*		628	520		----
Calcium	*mg/L*		57	20		----
Magnesium	*mg/L*		64	26		----
Sodium	*mg/L*		280	266		----
Potassium	*mg/L*		3	3		----
Nitrite + Nitrate as N	*mg/L*		----	----		----
Total Kjeldahl Nitrogen as N	*mg/L*		0.5	0.3		----
^ Total Nitrogen as N	*mg/L*		----	----		----
Total Phosphorus as P	*mg/L*		0.12	0.02		----
Total Anions	*meq/L*		22.9	17		----
Total Cations	*meq/L*		20.4	14.8		----
Ionic Balance	*%*		5.83	7.01		----
Depth	*m*		24.4	6.37		19.5
March 2023						
Electrical Conductivity (non compensated)	*uS/cm*		2720	1860		1710
Temperature	*°C*		19.0	18.3		18.0
Depth	*m*		26.52	6.74		20.24
April 2023						
Electrical Conductivity (non compensated)	*uS/cm*		2530			1580
Temperature	*°C*		18.2			17.9
Depth	*m*		26.11			19.81
May 2023						
pH	*pH Unit*		7.2	6.0		8.0
Electrical Conductivity (non compensated)	*µS/cm*		2550	1850		1710
Total Dissolved Solids @180*C	*mg/L*		1400	954		----
Temperature	*°C*		17.5	18.0		18.4
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		----
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		----
Bicarbonate Alkalinity as CaCO3	*mg/L*		174	68		----
Total Alkalinity as CaCO3	*mg/L*		174	68		----
Sulfate as SO4 - Turbidimetric	*mg/L*		100	79		----
Chloride	*mg/L*		627	453		----
Calcium	*mg/L*		60	26		----
Magnesium	*mg/L*		74	26		----
Sodium	*mg/L*		292	267		----
Potassium	*mg/L*		2	3		----
Nitrite + Nitrate as N	*mg/L*		----	----		----
Total Kjeldahl Nitrogen as N	*mg/L*		0.2	0.5		----
^ Total Nitrogen as N	*mg/L*		----	----		----
Total Phosphorus as P	*mg/L*		0.22	0.58		----
Depth	*m*		26.25	8.59		19.96
June 2023						
Electrical Conductivity (non compensated)	*uS/cm*		2100	1580		1440
Temperature	*°C*		17.6	18.0		18.0
Depth	*m*		26.35	8.35		----
July 2023						
Electrical Conductivity (non compensated)	*uS/cm*		2610	1690		1700
Temperature	*°C*		17.0	17.7		17.1
Depth	*m*		27.1	9.11		20.4
August 2023						
pH	*pH Unit*		7.4	5.6		7.9
Electrical Conductivity (non compensated)	*µS/cm*		2500	1730		1760
Total Dissolved Solids @180*C	*mg/L*		1700	1020		----
Temperature	*°C*		16.4	17.4		17.1
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		----
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		----
Bicarbonate Alkalinity as CaCO3	*mg/L*		184	33		----

Parameter	unit	Sampling location				
		BH1	*BT0702*	*BT0703*	*BT1201*	*BT1202*
Total Alkalinity as CaCO3	*mg/L*		184	33		----
Sulfate as SO4 - Turbidimetric	*mg/L*		122	92		----
Chloride	*mg/L*		646	456		----
Calcium	*mg/L*		74	18		----
Magnesium	*mg/L*		92	28		----
Sodium	*mg/L*		339	282		----
Potassium	*mg/L*		2	4		----
Nitrite + Nitrate as N	*mg/L*		----	----		----
Total Kjeldahl Nitrogen as N	*mg/L*		0.2	0.5		----
^ Total Nitrogen as N	*mg/L*		----	----		----
Total Phosphorus as P	*mg/L*		0.11	0.14		----
Total Anions	*meq/L*		24.40	15.4		----
Total Cations	*meq/L*		26.10	15.6		----
Total Balance	*%*		3.21	0.43		----
Depth	*m*		26.7	8.18		20.4
September 2023						
Electrical Conductivity (non compensated)	*uS/cm*		2510	1660		1660
Temperature	*°C*		17.8	18.3		17.8
Depth	*m*		26.7	7.66		20.4
October 2023						
Electrical Conductivity (non compensated)	*uS/cm*		2670	1740		1780
Temperature	*°C*		18.8	18.6		18.8
Depth	*m*		26.91	8.06		20.41
November 2023						
pH	*pH Unit*		7.2	5.3		7.6
Electrical Conductivity (non compensated)	*µS/cm*		2220	1430		1460
Total Dissolved Solids @180*C	*mg/L*		1790	986		----
Temperature	*°C*		17.8	17.9		17.8
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		----
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		----
Bicarbonate Alkalinity as CaCO3	*mg/L*		153	17		----
Total Alkalinity as CaCO3	*mg/L*		153	17		----
Sulfate as SO4 - Turbidimetric	*mg/L*		115	97		----
Chloride	*mg/L*		718	481		----
Calcium	*mg/L*		65	16		----
Magnesium	*mg/L*		79	24		----
Sodium	*mg/L*		295	251		----
Potassium	*mg/L*		2	4		----
Nitrite + Nitrate as N	*mg/L*		----	----		----
Total Kjeldahl Nitrogen as N	*mg/L*		0.1	0.4		----
^ Total Nitrogen as N	*mg/L*		----	----		----
Total Phosphorus as P	*mg/L*		0.09	0.08		----
Total Anions	*meq/L*		25.7	15.9		----
Total Cations	*meq/L*		22.6	13.8		----
Ionic Balance	*%*		6.36	7.18		----
Depth	*m*		26.08	7.63		19.54
December 2023						
Electrical Conductivity (non compensated)	*uS/cm*		1600	1420		1500
Temperature	*°C*		18.7	18.8		18.7
Depth	*m*		26.0	8.90		19.4
2022						
January 2022						
Electrical Conductivity (non compensated)	*uS/cm*		2500	1800		1680
Temperature	*°C*		20.0	18.4		20.1
Depth	*m*		24.48	4.70		19.27
February 2022						
pH	*pH Unit*		7.2	5.8		7.9
Electrical Conductivity (non-compensated)	*µS/cm*		2650	1730		1610
Total Dissolved Solids @180*C	*mg/L*		1760	997		----
Temperature	*°C*		28.0	19.8		21.3
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		----
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		----
Bicarbonate Alkalinity as CaCO3	*mg/L*		178	47		----
Total Alkalinity as CaCO3	*mg/L*		178	47		----
Sulfate as SO4 - Turbidimetric	*mg/L*		115	98		----
Chloride	*mg/L*		756	495		----
Calcium	*mg/L*		80	30		----
Magnesium	*mg/L*		90	35		----
Sodium	*mg/L*		325	260		----

Parameter	unit	Sampling location				
		BH1	*BT0702*	*BT0703*	*BT1201*	*BT1202*
Potassium	*mg/L*		3	3		----
Nitrite + Nitrate as N	*mg/L*		----	----		----
Total Kjeldahl Nitrogen as N	*mg/L*		<0.1	0.2		----
^ Total Nitrogen as N	*mg/L*		----	----		----
Total Phosphorus as P	*mg/L*		0.10	0.02		----
Depth	*m*		26.44	6.24		20.56
March 2022						
Electrical Conductivity (non compensated)	*uS/cm*		1160	396		----
Temperature	*°C*		17.8	18.4		----
Depth	*m*		23.3	3.93		----
April 2022						
Electrical Conductivity (non compensated)	*uS/cm*		1110	1820		1720
Temperature	*°C*		17.3	17.3		17.1
Depth	*m*		22.58	3.94		18.2
May 2022						
pH	*pH Unit*		6.6	5.9		7.9
Electrical Conductivity (non compensated)	*µS/cm*		1360	1830		1700
Total Dissolved Solids @180*C	*mg/L*		682	960		----
Temperature	*°C*		17.3	17.4		17.2
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		----
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		----
Bicarbonate Alkalinity as CaCO3	*mg/L*		126	44		----
Total Alkalinity as CaCO3	*mg/L*		126	44		----
Sulfate as SO4 - Turbidimetric	*mg/L*		76	96		----
Chloride	*mg/L*		298	468		----
Calcium	*mg/L*		16	23		----
Magnesium	*mg/L*		20	31		----
Sodium	*mg/L*		204	262		----
Potassium	*mg/L*		6	4		----
Nitrite + Nitrate as N	*mg/L*		----	----		----
Total Kjeldahl Nitrogen as N	*mg/L*		0.4	0.5		----
^ Total Nitrogen as N	*mg/L*		----	----		----
Total Phosphorus as P	*mg/L*		0.30	0.07		----
Depth	*m*		22.10	4.30		17.81
June 2022						
Electrical Conductivity (non compensated)	*uS/cm*		1120	1840		1760
Temperature	*°C*		17.2	17.8		17.0
Depth	*m*		23.9	4.85		17.7
July 2022						
Electrical Conductivity (non compensated)	*uS/cm*		1800	1960		1590
Temperature	*°C*		17.8	18.1		16.8
Depth	*m*		22.02	4.42		17.48
August 2022						
pH	*pH Unit*		7.0	5.7		8.1
Electrical Conductivity (non compensated)	*µS/cm*		2020	1980		1650
Total Dissolved Solids @180*C	*mg/L*		1120	1080		----
Temperature	*°C*		17.3	17.3		16.8
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		----
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		----
Bicarbonate Alkalinity as CaCO3	*mg/L*		150	32		----
Total Alkalinity as CaCO3	*mg/L*		150	32		----
Sulfate as SO4 - Turbidimetric	*mg/L*		91	85		----
Chloride	*mg/L*		542	581		----
Calcium	*mg/L*		45	27		----
Magnesium	*mg/L*		53	35		----
Sodium	*mg/L*		256	286		----
Potassium	*mg/L*		4	4		----
Nitrite + Nitrate as N	*mg/L*		----	----		----
Total Kjeldahl Nitrogen as N	*mg/L*		0.2	0.4		----
^ Total Nitrogen as N	*mg/L*		----	----		----
Total Phosphorus as P	*mg/L*		0.20	0.02		----
Total Anions	*meq/L*		20.20	18.8		----
Total Cations	*meq/L*		17.80	16.8		----
Total Balance	*%*		6.14	5.70		----
Depth	*m*		23.84	4.07		17.83
September 2022						
Electrical Conductivity (non compensated)	*uS/cm*		2230	1950		1650
Temperature	*°C*		17.5	17.8		17.6
Depth	*m*		24.59	4.61		18.12

Parameter	unit	Sampling location				
		BH1	*BT0702*	*BT0703*	*BT1201*	*BT1202*
October 2022						
Electrical Conductivity (non compensated)	*uS/cm*		1490	1910		1620
Temperature	*°C*		17.0	17.5		17.3
Depth	*m*		22.22	5.46		18.25
November 2022						
pH	*pH Unit*		7.0	5.9		7.7
Electrical Conductivity (non compensated)	*µS/cm*		1130	1860		1660
Total Dissolved Solids @180*C	*mg/L*		566	969		----
Temperature	*°C*		24.8	19.7		19.3
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		----
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		----
Bicarbonate Alkalinity as CaCO3	*mg/L*		124	41		----
Total Alkalinity as CaCO3	*mg/L*		124	41		----
Sulfate as SO4 - Turbidimetric	*mg/L*		61	85		----
Chloride	*mg/L*		256	523		----
Calcium	*mg/L*		13	21		----
Magnesium	*mg/L*		18	30		----
Sodium	*mg/L*		180	278		----
Potassium	*mg/L*		5	4		----
Nitrite + Nitrate as N	*mg/L*		----	----		----
Total Kjeldahl Nitrogen as N	*mg/L*		0.7	0.3		----
^ Total Nitrogen as N	*mg/L*		----	----		----
Total Phosphorus as P	*mg/L*		0.51	0.04		----
Total Anions	*meq/L*		11.0	17.3		----
Total Cations	*meq/L*		10.1	15.7		----
Total Balance	*%*		4.19	4.93		----
Depth	*m*		25.0	4.17		18.5
December 2022						
Electrical Conductivity (non compensated)	*uS/cm*		1660	1900		1700
Temperature	*°C*		18.3	17.8		17.8
Depth	*m*		26.15	5.08		19.9
2021						
January 2021						
Electrical Conductivity (non compensated)	*uS/cm*		1720	1540		1570
Temperature	*°C*		20.1	21		19.8
Depth	*m*		24.4	4.58		19.3
February 2021						
pH	*pH Unit*		6.3	5.8		7.8
Electrical Conductivity (non-compensated)	*µS/cm*		1950	1580		1600
Total Dissolved Solids @180*C	*mg/L*		1040	902		----
Temperature	*°C*		19.9	19.7		19.3
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		----
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		----
Bicarbonate Alkalinity as CaCO3	*mg/L*		99	40		----
Total Alkalinity as CaCO3	*mg/L*		99	40		----
Sulfate as SO4 - Turbidimetric	*mg/L*		90	122		----
Chloride	*mg/L*		529	424		----
Calcium	*mg/L*		20	22		----
Magnesium	*mg/L*		34	28		----
Sodium	*mg/L*		318	249		----
Potassium	*mg/L*		5	4		----
Nitrite + Nitrate as N	*mg/L*		----	----		----
Total Kjeldahl Nitrogen as N	*mg/L*		0.8	0.4		----
^ Total Nitrogen as N	*mg/L*		----	----		----
Total Phosphorus as P	*mg/L*		0.64	0.03		----
Depth	*m*		25.9	4.46		19
March 2021						
Electrical Conductivity (non compensated)	*uS/cm*		2320	1580		1580
Temperature	*°C*		18.4	18.3		18.8
Depth	*m*		25.3	4.83		18.2
April 2021						
Electrical Conductivity (non compensated)	*uS/cm*		2110	1520		1600
Temperature	*°C*		18.6	18.5		18.5
Depth	*m*		26.1	5.75		19.9
May 2021						
pH	*pH Unit*		6.9	5.8		8.1
Electrical Conductivity (non compensated)	*µS/cm*		2380	1550		1620
Total Dissolved Solids @180*C	*mg/L*		1420	916		----
Temperature	*°C*		17.2	18.5		17.7

Parameter	unit	Sampling location				
		BH1	*BT0702*	*BT0703*	*BT1201*	*BT1202*
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		----
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		----
Bicarbonate Alkalinity as CaCO3	*mg/L*		174	50		----
Total Alkalinity as CaCO3	*mg/L*		174	50		----
Sulfate as SO4 - Turbidimetric	*mg/L*		94	113		----
Chloride	*mg/L*		593	410		----
Calcium	*mg/L*		64	22		----
Magnesium	*mg/L*		71	26		----
Sodium	*mg/L*		273	224		----
Potassium	*mg/L*		5	5		----
Nitrite + Nitrate as N	*mg/L*		----	----		----
Total Kjeldahl Nitrogen as N	*mg/L*		0.8	0.4		----
^ Total Nitrogen as N	*mg/L*		----	----		----
Total Phosphorus as P	*mg/L*		0.29	0.04		----
Depth	*m*		26.16	6.41		19.99
June 2021						
Electrical Conductivity (non compensated)	*uS/cm*		2650	1710		1590
Temperature	*°C*		18	18.4		17.9
Depth	*m*		27.53	7.08		21.53
July 2021						
Electrical Conductivity (non compensated)	*uS/cm*		2690	1750		1600
Temperature	*°C*		18	18.3		18.4
Depth	*m*		28	6.67		22
August 2021						
pH	*pH Unit*		6.9	5.7		8.1
Electrical Conductivity (non compensated)	*µS/cm*		2690	1800		1610
Total Dissolved Solids @180*C	*mg/L*		1600	1100		----
Temperature	*°C*		18.2	18.4		18
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		----
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		----
Bicarbonate Alkalinity as CaCO3	*mg/L*		171	40		----
Total Alkalinity as CaCO3	*mg/L*		171	40		----
Sulfate as SO4 - Turbidimetric	*mg/L*		117	106		----
Chloride	*mg/L*		670	457		----
Calcium	*mg/L*		70	24		----
Magnesium	*mg/L*		83	32		----
Sodium	*mg/L*		334	282		----
Potassium	*mg/L*		3	4		----
Nitrite + Nitrate as N	*mg/L*		----	----		----
Total Kjeldahl Nitrogen as N	*mg/L*		0.1	0.2		----
^ Total Nitrogen as N	*mg/L*		----	----		----
Total Phosphorus as P	*mg/L*		0.22	0.01		----
Depth	*m*		26.68	4.94		20.29
September 2021						
Electrical Conductivity (non compensated)	*uS/cm*		2770	1830		1620
Temperature	*°C*		17.8	20		17.4
Depth	*m*		27.76	6.85		21.69
October 2021						
Electrical Conductivity (non compensated)	*uS/cm*		2720	2160		1610
Temperature	*°C*		17.4	16.9		17.1
Depth	*m*		25.19	5.68		19.78
November 2021						
pH	*pH Unit*		6.4	5.7		8.1
Electrical Conductivity (non compensated)	*µS/cm*		2160	1880		1420
Total Dissolved Solids @180*C	*mg/L*		1340	1320		----
Temperature	*°C*		17.9	18.4		17.8
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		----
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		----
Bicarbonate Alkalinity as CaCO3	*mg/L*		96	55		----
Total Alkalinity as CaCO3	*mg/L*		96	55		----
Sulfate as SO4 - Turbidimetric	*mg/L*		100	99		----
Chloride	*mg/L*		695	609		----
Calcium	*mg/L*		40	43		----
Magnesium	*mg/L*		55	45		----
Sodium	*mg/L*		343	290		----
Potassium	*mg/L*		4	3		----
Nitrite + Nitrate as N	*mg/L*		----	----		----
Total Kjeldahl Nitrogen as N	*mg/L*		0.6	0.2		----
^ Total Nitrogen as N	*mg/L*		----	----		----

Parameter	unit	Sampling location				
		BH1	*BT0702*	*BT0703*	*BT1201*	*BT1202*
Total Phosphorus as P	*mg/L*		0.56	0.03		----
Depth	*m*		26.19	5.48		19.79
December 2021						
Electrical Conductivity (non compensated)	*uS/cm*		2670	3040		1640
Temperature	*°C*		18.7	19.7		18.4
Depth	*m*		25.6	6.16		19.4
2020						
January 2020						
Electrical Conductivity (non compensated)	*uS/cm*		2840	1780		1540
Temperature	*°C*		18.9	19.8		20.3
Depth	*m*		26.5	5.3		20.3
February 2020						
pH	*pH Unit*		7	5.6		9.7
Electrical Conductivity (non-compensated)	*µS/cm*		2000	1790		1480
Total Dissolved Solids @180*C	*mg/L*		1290	1080		----
Temperature	*°C*		20.7	19.2		19.9
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		----
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		----
Bicarbonate Alkalinity as CaCO3	*mg/L*		167	29		----
Total Alkalinity as CaCO3	*mg/L*		167	29		----
Sulfate as SO4 - Turbidimetric	*mg/L*		108	130		----
Chloride	*mg/L*		576	554		----
Calcium	*mg/L*		55	26		----
Magnesium	*mg/L*		59	30		----
Sodium	*mg/L*		244	274		----
Potassium	*mg/L*		3	3		----
Nitrite + Nitrate as N	*mg/L*		----	----		----
Total Kjeldahl Nitrogen as N	*mg/L*		1.4	0.3		----
^ Total Nitrogen as N	*mg/L*		----	----		----
Total Phosphorus as P	*mg/L*		0.15	1.12		----
Depth	*m*		25.15	5.17		19.66
March 2020						
Electrical Conductivity (non compensated)	*uS/cm*		2740	1800		1560
Temperature	*°C*		18.8	18.7		18.7
Depth	*m*		26.2	5.4		20.1
April 2020						
Electrical Conductivity (non compensated)	*uS/cm*		2910	1690		1610
Temperature	*°C*		18.3	18.9		18.4
Depth	*m*		25.27	5.03		20.22
May 2020						
pH	*pH Unit*		6.9	5.8		9
Electrical Conductivity (non compensated)	*µS/cm*		2750	1560		1550
Total Dissolved Solids @180*C	*mg/L*		1700	938		----
Temperature	*°C*		17.7	18.2		18
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		----
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		----
Bicarbonate Alkalinity as CaCO3	*mg/L*		148	35		----
Total Alkalinity as CaCO3	*mg/L*		148	35		----
Sulfate as SO4 - Turbidimetric	*mg/L*		137	156		----
Chloride	*mg/L*		819	454		----
Calcium	*mg/L*		62	17		----
Magnesium	*mg/L*		78	26		----
Sodium	*mg/L*		334	240		----
Potassium	*mg/L*		3	3		----
Nitrite + Nitrate as N	*mg/L*		----	----		----
Total Kjeldahl Nitrogen as N	*mg/L*		0.4	0.4		----
^ Total Nitrogen as N	*mg/L*		----	----		----
Total Phosphorus as P	*mg/L*		0.34	0.02		----
Depth	*m*		25.9	5.12		20.2
June 2020						
Electrical Conductivity (non compensated)	*uS/cm*		2840	1510		1560
Temperature	*°C*		17.7	17.7		17.8
Depth	*m*		26.5	4.89		20.2
July 2020						
Electrical Conductivity (non compensated)	*uS/cm*		2830	1350		1570
Temperature	*°C*		16.9	17.5		17.2
Depth	*m*		25.7	5.42		20.3
August 2020						
pH	*pH Unit*		6.5	5.7		8.8

Parameter	unit	Sampling location				
		BH1	*BT0702*	*BT0703*	*BT1201*	*BT1202*
Electrical Conductivity (non compensated)	*µS/cm*		1300	1360		1560
Total Dissolved Solids @180*C	*mg/L*		559	686		----
Temperature	*°C*		18.5	18.8		18.1
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		----
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		----
Bicarbonate Alkalinity as CaCO3	*mg/L*		122	35		----
Total Alkalinity as CaCO3	*mg/L*		122	35		----
Sulfate as SO4 - Turbidimetric	*mg/L*		86	153		----
Chloride	*mg/L*		298	322		----
Calcium	*mg/L*		17	16		----
Magnesium	*mg/L*		17	21		----
Sodium	*mg/L*		211	214		----
Potassium	*mg/L*		5	3		----
Nitrite + Nitrate as N	*mg/L*		----	----		----
Total Kjeldahl Nitrogen as N	*mg/L*		0.3	0.4		----
^ Total Nitrogen as N	*mg/L*		----	----		----
Total Phosphorus as P	*mg/L*		0.17	0.04		----
Depth	*m*		23.8	4.82		19.4
September 2020						
Electrical Conductivity (non compensated)	*uS/cm*		2690	1310		1540
Temperature	*°C*		18.3	19.3		18.2
Depth	*m*		25.3	5.19		19.5
October 2020						
Electrical Conductivity (non compensated)	*uS/cm*		2280	1360		1520
Temperature	*°C*		19.1	20		20.5
Depth	*m*		25.7	5.55		19.6
November 2020						
pH	*pH Unit*		6.4	6.1		8.4
Electrical Conductivity (non compensated)	*µS/cm*		1800	1400		1590
Total Dissolved Solids @180*C	*mg/L*		998	812		----
Temperature	*°C*		19.5	20.3		19.4
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		----
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		----
Bicarbonate Alkalinity as CaCO3	*mg/L*		123	42		----
Total Alkalinity as CaCO3	*mg/L*		123	42		----
Sulfate as SO4 - Turbidimetric	*mg/L*		86	140		----
Chloride	*mg/L*		486	357		----
Calcium	*mg/L*		23	17		----
Magnesium	*mg/L*		33	22		----
Sodium	*mg/L*		284	221		----
Potassium	*mg/L*		5	3		----
Nitrite + Nitrate as N	*mg/L*		----	----		----
Total Kjeldahl Nitrogen as N	*mg/L*		<0.1	0.2		----
^ Total Nitrogen as N	*mg/L*		----	----		----
Total Phosphorus as P	*mg/L*		0.27	0.01		----
Depth	*m*		26.2	5.06		19.6
December 2020						
Electrical Conductivity (non compensated)	*uS/cm*		2330	1550		1580
Temperature	*°C*		18.2	18.6		18.9
Depth	*m*		24.7	4.82		19.5
2019						
January 2019						
Electrical Conductivity (non compensated)	*uS/cm*		1980	1670		
Temperature	*°C*		18.1	18.6		
Depth	*m*		24.2	6.5		
February 2019						
pH	*pH Unit*		6	5.4		
Electrical Conductivity (non-compensated)	*µS/cm*		1920	1650		
Total Dissolved Solids @180*C	*mg/L*		1040	875		
Temperature	*°C*		22.6	21.7		
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		
Bicarbonate Alkalinity as CaCO3	*mg/L*		100	23		
Total Alkalinity as CaCO3	*mg/L*		100	23		
Sulfate as SO4 - Turbidimetric	*mg/L*		88	113		
Chloride	*mg/L*		500	442		
Calcium	*mg/L*		22	18		
Magnesium	*mg/L*		36	27		
Sodium	*mg/L*		304	260		

Parameter	unit	Sampling location				
		BH1	*BT0702*	*BT0703*	*BT1201*	*BT1202*
Potassium	*mg/L*		4	4		
Nitrite + Nitrate as N	*mg/L*		----	----		
Total Kjeldahl Nitrogen as N	*mg/L*		0.1	0.2		
^ Total Nitrogen as N	*mg/L*		----	----		
Total Phosphorus as P	*mg/L*		0.36	0.04		
Depth	*m*		25.2	6.5		
March 2019						
Electrical Conductivity (non compensated)	*uS/cm*		2240	1710		
Temperature	*°C*		18.2	18.4		
Depth	*m*		25.07	6.53		
April 2019						
Electrical Conductivity (non compensated)	*uS/cm*		2060	1640		
Temperature	*°C*		19.6	19.2		
Depth	*m*		24.9	5.67		
May 2019						
pH	*pH Unit*		6.1	5.6		
Electrical Conductivity (non compensated)	*µS/cm*		2270	1760		
Total Dissolved Solids @180*C	*mg/L*		1180	887		
Temperature	*°C*		16.4	17.9		
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		
Bicarbonate Alkalinity as CaCO3	*mg/L*		55	18		
Total Alkalinity as CaCO3	*mg/L*		55	18		
Sulfate as SO4 - Turbidimetric	*mg/L*		102	110		
Chloride	*mg/L*		504	399		
Calcium	*mg/L*		24	19		
Magnesium	*mg/L*		39	26		
Sodium	*mg/L*		334	250		
Potassium	*mg/L*		5	4		
Nitrite + Nitrate as N	*mg/L*		----	----		
Total Kjeldahl Nitrogen as N	*mg/L*		0.5	0.4		
^ Total Nitrogen as N	*mg/L*		----	----		
Total Phosphorus as P	*mg/L*		0.49	<0.01		
Depth	*m*		24.5	5.43		
June 2019						
Electrical Conductivity (non compensated)	*uS/cm*		2410	1720		
Temperature	*°C*		17.7	18.3		
Depth	*m*		25.4	5.25		
July 2019						
Electrical Conductivity (non compensated)	*uS/cm*		2310	1740		
Temperature	*°C*		17.4	18.1		
Depth	*m*		24.4	5.08		
August 2019						
pH	*pH Unit*		7.3	5.6		
Electrical Conductivity (non compensated)	*µS/cm*		2830	1770		
Total Dissolved Solids @180*C	*mg/L*		1570	921		
Temperature	*°C*		18.3	18.3		
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		
Bicarbonate Alkalinity as CaCO3	*mg/L*		151	30		
Total Alkalinity as CaCO3	*mg/L*		151	30		
Sulfate as SO4 - Turbidimetric	*mg/L*		121	109		
Chloride	*mg/L*		641	425		
Calcium	*mg/L*		75	18		
Magnesium	*mg/L*		90	28		
Sodium	*mg/L*		320	260		
Potassium	*mg/L*		2	3		
Nitrite + Nitrate as N	*mg/L*		----	----		
Total Kjeldahl Nitrogen as N	*mg/L*		<0.1	0.1		
^ Total Nitrogen as N	*mg/L*		----	----		
Total Phosphorus as P	*mg/L*		0.06	0.03		
Depth	*m*		25.5	5.31		
September 2019						
Electrical Conductivity (non compensated)	*uS/cm*			1670		
Temperature	*°C*			19.7		
Depth	*m*			5.19		
October 2019						
Electrical Conductivity (non compensated)	*uS/cm*		2080	1710		
Temperature	*°C*		19.8	18.7		

Parameter	unit	Sampling location				
		BH1	*BT0702*	*BT0703*	*BT1201*	*BT1202*
Depth	*m*		25.6	5.29		
November 2019						
pH	*pH Unit*		7	6		9.6
Electrical Conductivity (non compensated)	*µS/cm*		2750	1770		1570
Total Dissolved Solids @180*C	*mg/L*		1550	997		----
Temperature	*°C*		20.1	22.3		22.6
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		----
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		----
Bicarbonate Alkalinity as CaCO3	*mg/L*		151	29		----
Total Alkalinity as CaCO3	*mg/L*		151	29		----
Sulfate as SO4 - Turbidimetric	*mg/L*		122	117		----
Chloride	*mg/L*		796	536		----
Calcium	*mg/L*		68	18		----
Magnesium	*mg/L*		89	32		----
Sodium	*mg/L*		345	275		----
Potassium	*mg/L*		3	4		----
Nitrite + Nitrate as N	*mg/L*		----	----		----
Total Kjeldahl Nitrogen as N	*mg/L*		<0.1	0.2		----
^ Total Nitrogen as N	*mg/L*		----	----		----
Total Phosphorus as P	*mg/L*		0.1	<0.01		----
Depth	*m*		24.4	5.24		20.4
December 2019						
Electrical Conductivity (non compensated)	*uS/cm*		2560	1790		1570
Temperature	*°C*		18.7	18.6		17.9
Depth	*m*		26.2	5.47		20.3
2018						
January 2018						
Electrical Conductivity (non compensated)	*uS/cm*		2190	1540		1770
Temperature	*°C*		19.3	19.3		18.7
Depth	*m*		25.4	9.81		19.4
February 2018						
pH	*pH Unit*		6.5	5.4		9
Electrical Conductivity (non-compensated)	*µS/cm*		2610	1610		1790
Temperature	*°C*		21.8	20		19.6
Depth	*m*		25.64	10.05		19.32
March 2018						
pH	*pH Unit*		6.3	5.6		----
Electrical Conductivity (non-compensated)	*µS/cm*		1750	1640		1810
Total Dissolved Solids @180*C	*mg/L*		870	857		----
Temperature	*°C*		18.5	18.7		18.7
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		----
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		----
Bicarbonate Alkalinity as CaCO3	*mg/L*		140	25		----
Total Alkalinity as CaCO3	*mg/L*		140	25		----
Sulfate as SO4 - Turbidimetric	*mg/L*		86	107		----
Chloride	*mg/L*		407	432		----
Calcium	*mg/L*		32	17		----
Magnesium	*mg/L*		40	23		----
Sodium	*mg/L*		216	231		----
Potassium	*mg/L*		5	3		----
Nitrite + Nitrate as N	*mg/L*		----	----		----
Total Kjeldahl Nitrogen as N	*mg/L*		0.4	0.6		----
^ Total Nitrogen as N	*mg/L*		----	----		----
Total Phosphorus as P	*mg/L*		0.2	0.1		----
Depth	*m*		25.18	9.46		19.16
April 2018						
Electrical Conductivity (non compensated)	*uS/cm*		2200	1630		
Temperature	*°C*		19.4	19.4		
Depth	*m*		24.9	8.98		
May 2018						
pH	*pH Unit*		6.3	5.4		
Electrical Conductivity (non compensated)	*µS/cm*		2570	1620		
Total Dissolved Solids @180*C	*mg/L*		1460	870		
Temperature	*°C*		17.4	18.4		
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		
Bicarbonate Alkalinity as CaCO3	*mg/L*		165	25		
Total Alkalinity as CaCO3	*mg/L*		165	25		
Sulfate as SO4 - Turbidimetric	*mg/L*		110	96		

Parameter	unit	Sampling location				
		BH1	*BT0702*	*BT0703*	*BT1201*	*BT1202*
Chloride	*mg/L*		683	473		
Calcium	*mg/L*		58	16		
Magnesium	*mg/L*		77	21		
Sodium	*mg/L*		327	269		
Potassium	*mg/L*		2	3		
Nitrite + Nitrate as N	*mg/L*		----	----		
Total Kjeldahl Nitrogen as N	*mg/L*		0.5	0.3		
^ Total Nitrogen as N	*mg/L*		----	----		
Total Phosphorus as P	*mg/L*		0.07	0.03		
Depth	*m*		25.2	9.06		
June 2018						
Electrical Conductivity (non compensated)	*uS/cm*		1780	1670		
Temperature	*°C*		17.3	18		
Depth	*m*		25.5	8.65		
July 2018						
Electrical Conductivity (non compensated)	*uS/cm*		1600	1700		
Temperature	*°C*		17.3	18		
Depth	*m*		25	8.15		
August 2018						
pH	*pH Unit*		6.6	5.5		
Electrical Conductivity (non compensated)	*µS/cm*		2250	1560		
Total Dissolved Solids @180*C	*mg/L*		1190	686		
Temperature	*°C*		17.9	17.5		
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		
Bicarbonate Alkalinity as CaCO3	*mg/L*		158	26		
Total Alkalinity as CaCO3	*mg/L*		158	26		
Sulfate as SO4 - Turbidimetric	*mg/L*		105	101		
Chloride	*mg/L*		613	445		
Calcium	*mg/L*		50	15		
Magnesium	*mg/L*		61	21		
Sodium	*mg/L*		281	228		
Potassium	*mg/L*		4	3		
Nitrite + Nitrate as N	*mg/L*		----	----		
Total Kjeldahl Nitrogen as N	*mg/L*		0.8	0.5		
^ Total Nitrogen as N	*mg/L*		----	----		
Total Phosphorus as P	*mg/L*		0.22	0.04		
Depth	*m*		25	8.15		
September 2018						
Electrical Conductivity (non compensated)	*uS/cm*		2340	1670		
Temperature	*°C*		18.3	18.7		
Depth	*m*		25	7.82		
October 2018						
Electrical Conductivity (non compensated)	*uS/cm*		1160	1620		
Temperature	*°C*		17.2	17.5		
Depth	*m*		24.2	7.53		
November 2018						
pH	*pH Unit*		7.1	5.6		
Electrical Conductivity (non compensated)	*µS/cm*		2260	1620		
Total Dissolved Solids @180*C	*mg/L*		1580	872		
Temperature	*°C*		19.4	18.7		
Hydroxide Alkalinity as CaCO3	*mg/L*		<1	<1		
Carbonate Alkalinity as CaCO3	*mg/L*		<1	<1		
Bicarbonate Alkalinity as CaCO3	*mg/L*		123	22		
Total Alkalinity as CaCO3	*mg/L*		123	22		
Sulfate as SO4 - Turbidimetric	*mg/L*		119	105		
Chloride	*mg/L*		725	477		
Calcium	*mg/L*		66	18		
Magnesium	*mg/L*		78	27		
Sodium	*mg/L*		322	269		
Potassium	*mg/L*		3	4		
Nitrite + Nitrate as N	*mg/L*		----	----		
Total Kjeldahl Nitrogen as N	*mg/L*		<0.1	0.2		
^ Total Nitrogen as N	*mg/L*		----	----		
Total Phosphorus as P	*mg/L*		0.12	0.02		
Depth	*m*		26.4	7.16		
December 2018						
Electrical Conductivity (non compensated)	*uS/cm*		2130	1640		
Temperature	*°C*		19.0	18.7		

Parameter	unit	Sampling location				
		BH1	*BT0702*	*BT0703*	*BT1201*	*BT1202*
Depth	*m*		24.9	6.97		
2017						
January 2017						
Electrical Conductivity (non compensated)	*uS/cm*	1140	2520	1550		1600
Temperature	*°C*	19.5	19.1	18.7		18.5
Depth	*m*	6.56	25.83	4.97		19.43
February 2017						
pH	*pH Unit*	----	----	----		
Total Dissolved Solids @180*C	*µS/cm*	----	----	----		
Total Phosphorus (dissolved & recoverable)	*mg/L*	----	----	----		
Total Kjeldahl Nitrogen as N	*mg/L*	----	----	----		
Major Anions - SO4	*mg/L*	----	----	----		
Major Anions - Cl	*mg/L*	----	----	----		
Major Anions - Na	*mg/L*	----	----	----		
Major Cations - K	*mg/L*	----	----	----		
Major Cations - Ca	*mg/L*	----	----	----		
Major Cations - Mg	*mg/L*	----	----	----		
Electrical Conductivity (non compensated)	*µS/cm*	----	----	----		
Temperature	*°C*	----	----	----		
Depth	*m*	----	----	----		
March 2017						
Electrical Conductivity (non compensated)	*uS/cm*	1050	1930	1400		1620
Temperature	*°C*	21	18.1	18.7		17.7
Depth	*m*	1.45	24.79	4.69		18.97
April 2017						
Electrical Conductivity (non compensated)	*uS/cm*	986	1330	1450		1590
Temperature	*°C*	20.2	18.3	18.3		18.1
Depth	*m*	1.1	23.34	4.13		18.66
May 2017						
pH	*pH Unit*	8	5.4	6.6		----
Total Dissolved Solids @180*C	*µS/cm*	504	874	1550		----
Total Phosphorus (dissolved & recoverable)	*mg/L*	0.06	0.61	0.02		----
Total Kjeldahl Nitrogen as N	*mg/L*	0.6	0.5	0.4		----
Major Anions - SO4	*mg/L*	151	89	81		----
Major Anions - Cl	*mg/L*	101	552	400		----
Major Anions - Na	*mg/L*	151	350	262		----
Major Cations - K	*mg/L*	2	5	3		----
Major Cations - Ca	*mg/L*	17	20	15		----
Major Cations - Mg	*mg/L*	19	27	27		----
Electrical Conductivity (non compensated)	*µS/cm*	830	1440	2430		1710
Temperature	*°C*	20	18.1	17.6		17.2
Depth	*m*	1.68	4.28	23.2		18.7
June 2017						
Electrical Conductivity (non compensated)	*uS/cm*	984	1380	1510		1760
Temperature	*°C*	19.1	17.3	17.8		17.3
Depth	*m*	1.22	27.8	4.07		17.5
July 2017						
Electrical Conductivity (non compensated)	*uS/cm*	971	1560	2410		1750
Temperature	*°C*	18.6	17.3	17.2		17.8
Depth	*m*	1.73	4.07	25.38		18.75
August 2017						
pH	*pH Unit*	8.1	6.2	5.6		----
Total Dissolved Solids @180*C	*µS/cm*	438	947	680		----
Total Phosphorus (dissolved & recoverable)	*mg/L*	0.06	0.61	0.02		----
Total Kjeldahl Nitrogen as N	*mg/L*	0.6	0.5	0.4		----
Major Anions - SO4	*mg/L*	151	89	81		----
Major Anions - Cl	*mg/L*	101	552	400		----
Major Anions - Na	*mg/L*	151	350	262		----
Major Cations - K	*mg/L*	2	5	3		----
Major Cations - Ca	*mg/L*	17	20	15		----
Major Cations - Mg	*mg/L*	19	27	27		----
Electrical Conductivity (non compensated)	*µS/cm*	946	2170	1560		1780
Temperature	*°C*	18.5	17.5	17.4		17.3
Depth	*m*	2.31	25	4.21		18.8
September 2017						
Electrical Conductivity (non compensated)	*uS/cm*	890	1600	2440		1730
Temperature	*°C*	19.5	18.5	24.1		18.3
Depth	*m*	7.54	4.59	25.4		19
October 2017						

Parameter	unit	Sampling location				
		BH1	***BT0702***	***BT0703***	***BT1201***	***BT1202***
Electrical Conductivity (non compensated)	*uS/cm*	882	2230	1550		1720
Temperature	*°C*	20.1	18.6	19.2		18
Depth	*m*	8.57	24	6.79		19
November 2017						
pH	*pH Unit*		----	----		----
Total Dissolved Solids @180*C	*µS/cm*		----	----		----
Total Phosphorus (dissolved & recoverable)	*mg/L*		----	----		----
Total Kjeldahl Nitrogen as N	*mg/L*		----	----		----
Major Anions - SO4	*mg/L*		----	----		----
Major Anions - Cl	*mg/L*		----	----		----
Major Anions - Na	*mg/L*		----	----		----
Major Cations - K	*mg/L*		----	----		----
Major Cations - Ca	*mg/L*		----	----		----
Major Cations - Mg	*mg/L*		----	----		----
Electrical Conductivity (non compensated)	*µS/cm*		2250	1560		1700
Temperature	*°C*		19.1	19.3		19.8
Depth	*m*		25.7	7.86		19.6
December 2017						
Electrical Conductivity (non compensated)	*uS/cm*		2120	1550		1730
Temperature	*°C*		18.3	19.1		18.6
Depth	*m*		25.0	8.35		19.0
2016						
January 2016						
Electrical Conductivity (non compensated)	*uS/cm*	985	1240	1350	610	1270
Temperature	*°C*	21.4	18.7	18.6	18.0	18.0
Depth	*m*	1.05	25.3	4.19	9.12	19.4
February 2016						
pH	*pH Unit*	8.0	7.4	6.2		----
Total Dissolved Solids @180*C	*µS/cm*	584	778	607		----
Total Phosphorus (dissolved & recoverable)	*mg/L*	0.07	0.98	<0.01		----
Total Kjeldahl Nitrogen as N	*mg/L*	----	4.0	0.1		----
NOx	*mg/L*	----	----	----		----
Major Anions - SO4	*mg/L*	141	79	92		----
Major Anions - Cl	*mg/L*	108	340	348		----
Major Anions - Na	*mg/L*	158	265	233		----
Major Cations - K	*mg/L*	2	7	3		----
Major Cations - Ca	*mg/L*	20	21	16		----
Major Cations - Mg	*mg/L*	18	25	20		----
Electrical Conductivity (non compensated)	*µS/cm*	934	1550	1360		1300
Temperature	*°C*	21.7	21.2	20.5		20.1
Depth	*m*	3.18	25.45	4.47		19.21
March 2016						
Electrical Conductivity (non compensated)	*uS/cm*	950	2660	1360		1360
Temperature	*°C*	20.2	18.7	18.8		19.5
Depth	*m*	3.22	25.5	4.88		19.6
April 2016						
Electrical Conductivity (non compensated)	*uS/cm*	936	1380	2760		1460
Temperature	*°C*	21.0	20.6	19.4		19.7
Depth	*m*	3.25	25.7	4.7		19.4
May 2016						
pH	*pH Unit*	7.7	7.2	5.2		----
Total Dissolved Solids @180*C	*µS/cm*	549	1650	816		----
Total Phosphorus (dissolved & recoverable)	*mg/L*	0.02	0.03	<0.01		----
Total Kjeldahl Nitrogen as N	*mg/L*	----	0.2	0.2		----
NOx	*mg/L*	----	----	----		----
Major Anions - SO4	*mg/L*	140	115	90		----
Major Anions - Cl	*mg/L*	105	664	345		----
Major Anions - Na	*mg/L*	157	328	223		----
Major Cations - K	*mg/L*	2	3	3		----
Major Cations - Ca	*mg/L*	19	76	15		----
Major Cations - Mg	*mg/L*	19	87	21		----
Electrical Conductivity (non compensated)	*µS/cm*	933	2740	1340		1300
Temperature	*°C*	20.1	20.0	19.1		18.6
Depth	*m*	3.29	25.4	4.55		19.2
June 2016						
Electrical Conductivity (non compensated)	*uS/cm*	941	1440	1190		1260
Temperature	*°C*	19.0	16.8	19.3		16.6
Depth	*m*	3.01	24.6	4.25		19.0
July 2016						

Parameter	unit	Sampling location				
		BH1	***BT0702***	***BT0703***	***BT1201***	***BT1202***
Electrical Conductivity (non compensated)	*uS/cm*	883	1940	1240		1280
Temperature	*°C*	18.6	18.3	18.4		18.6
Depth	*m*	1.86	24.6	4.0		18.1
August 2016						
pH	*pH Unit*	7.4	8.1	5.1		----
Total Dissolved Solids @180*C	*µS/cm*	658	1230	730		----
Total Phosphorus (dissolved & recoverable)	*mg/L*	0.04	0.5	0.02		----
Total Kjeldahl Nitrogen as N	*mg/L*	----	0.3	<0.1		----
NOx	*mg/L*	----	----	----		----
Major Anions - SO4	*mg/L*	174	101	80		----
Major Anions - Cl	*mg/L*	119	555	323		----
Major Anions - Na	*mg/L*	185	366	220		----
Major Cations - K	*mg/L*	2	5	3		----
Major Cations - Ca	*mg/L*	27	24	14		----
Major Cations - Mg	*mg/L*	21	38	18		----
Electrical Conductivity (non compensated)	*µS/cm*	1080	2060	1280		1290
Temperature	*°C*	17.3	17.8	16.0		17.3
Depth	*m*	1.40	24.7	4.50		19.1
September 2016						
Electrical Conductivity (non compensated)	*uS/cm*	1440	2160	1330		1360
Temperature	*°C*	18.0	18.0	18.1		18.0
Depth	*m*	1.41	26.1	4.48		19.15
October 2016						
Electrical Conductivity (non compensated)	*uS/cm*	1160	2860	1380		1380
Temperature	*°C*	19.2	18.5	19.3		18.5
Depth	*m*	1.96	25.7	4.39		19.2
November 2016						
pH	*pH Unit*	7.9	5.9	5.3		----
Total Dissolved Solids @180*C	*µS/cm*	608	1320	861		----
Field Salinity	*mg/L*	----	0.2	----		----
Total Phosphorus (dissolved & recoverable)	*mg/L*	0.10	0.60	<0.01		----
Total Kjeldahl Nitrogen as N	*mg/L*	2.1	<0.1	0.3		----
NOx	*mg/L*	----	----	----		----
Major Anions - SO4	*mg/L*	155	91	76		----
Major Anions - Cl	*mg/L*	122	611	373		----
Major Anions - Na	*mg/L*	187	377	236		----
Major Cations - K	*mg/L*	2	5	3		----
Major Cations - Ca	*mg/L*	21	23	17		----
Major Cations - Mg	*mg/L*	19	42	22		----
Electrical Conductivity (non compensated)	*µS/cm*	1030	2310	1390		1560
Temperature	*°C*	22.8	21.3	21.1		20.9
Depth	*m*	2.18	25.27	5.05		19.38
December 2016						
Electrical Conductivity (non compensated)	*uS/cm*	1140	2350	1550		1590
Temperature	*°C*	19.7	19.3	18.8		18.9
Depth	*m*	3.28	25.74	4.92		19.57
2015						
January 2015						
Electrical Conductivity (non compensated)	*uS/cm*	831	2180	1150		
Temperature	*°C*	23.7	20.8	21.2		
Depth	*m*	0.8	26.8	4.08		
pH	*pH Unit*	6.6	6.6	5.0		
Salinity	*mg/L*	0.4	1.2	0.6		
February 2015						
Electrical Conductivity (non compensated)	*uS/cm*	725	1670	1090		
Temperature	*°C*	22.3	20.5	19.7		
Depth	*m*	0.8	26.0	4.2		
pH	*pH Unit*	6.9	6.0	5.4		
Salinity	*mg/L*	0.4	0.9	0.6		
March 2015						
Electrical Conductivity (non compensated)	*uS/cm*	879	1810	1180		
Temperature	*°C*	23.1	19.4	19.1		
Depth	*m*	0.9	25.9	4.2		
pH	*pH Unit*	7.3	6.0	5.9		
Salinity	*mg/L*	0.5	6.0	5.9		
April 2015						
Electrical Conductivity (non compensated)	*uS/cm*	752	1260	1150		
Temperature	*°C*	20.9	18.3	19.0		
Depth	*m*	0.8	25.7	4.0		

Parameter	unit	Sampling location				
		BH1	*BT0702*	*BT0703*	*BT1201*	*BT1202*
pH	*pH Unit*	7.0	5.8	5.2		
Salinity	*mg/L*	0.4	0.7	0.7		
May 2015						
Electrical Conductivity (non compensated)	*uS/cm*	747	1050	1270		
Temperature	*°C*	16.5	16.4	17.0		
Depth	*m*	0.9	26.0	3.9		
pH	*pH Unit*	7.4	6.6	5.2		
Salinity	*mg/L*	0.4	0.6	0.8		
June 2015						
Electrical Conductivity (non compensated)	*uS/cm*	716	2180	1170		
Temperature	*°C*	18.1	17.9	19.4		
Depth	*m*	1.0	25.9	4.0		
pH	*pH Unit*	7.5	6.8	5.6		
Salinity	*mg/L*	0.4	1.3	0.7		
July 2015						
Electrical Conductivity (non compensated)	*uS/cm*	714	1920	1120		
Temperature	*°C*	16.4	17.5	18.0		
Depth	*m*	0.9	25.6	3.7		
pH	*pH Unit*	7.1	6.4	6.0		
Salinity	*mg/L*	0.4	1.2	0.7		
August 2015						
pH	*pH Unit*	7.3	7.2	5.8		
Total Dissolved Solids @180*C	*µS/cm*	473	1780	754		
Total Phosphorus (dissolved & recoverable)	*mg/L*	0.07	0.06	0.14		
Total Kjeldahl Nitrogen as N	*mg/L*	0.4	0.2	0.5		
Major Anions - SO4	*mg/L*	86	125	110		
Major Anions - Cl	*mg/L*	62	552	260		
Major Anions - Na	*mg/L*	148	326	212		
Major Cations - K	*mg/L*	3	86	18		
Major Cations - Ca	*mg/L*	18	77	17		
Major Cations - Mg	*mg/L*	14	----	----		
Electrical Conductivity (non compensated)	*µS/cm*	863	2720	1190	497	1300
Temperature	*°C*	16.8	18.1	18.4	17.9	19.1
Depth	*m*	1.07	25.8	4.1	9.73	19.9
September 2015						
Electrical Conductivity (non compensated)	*uS/cm*	867	2760	1200	518	1340
Temperature	*°C*	17.0	17.8	17.9	17.9	17.7
Depth	*m*	0.87	26.0	4.01	9.17	19.4
October 2015						
Electrical Conductivity (non compensated)	*uS/cm*	860	2450	1210	504	1290
Temperature	*°C*	19.5	20.3	18.4	19.4	19.3
Depth	*m*	1.15	25.3	3.93	9.09	19.4
November 2015						
pH	*pH Unit*	7.9	6.5	5.5		
Total Dissolved Solids @180*C	*µS/cm*	557	1520	721		
Total Phosphorus (dissolved & recoverable)	*mg/L*	0.02	0.09	<0.01		
Total Kjeldahl Nitrogen as N	*mg/L*	0.5	0.1	0.3		
Major Anions - SO4	*mg/L*	96	108	92		
Major Anions - Cl	*mg/L*	106	616	318		
Major Anions - Na	*mg/L*	154	316	204		
Major Cations - K	*mg/L*	3	3	2		
Major Cations - Ca	*mg/L*	19	53	16		
Major Cations - Mg	*mg/L*	13	62	18		
Electrical Conductivity (non compensated)	*µS/cm*	865	2070	1220	514	1280
Temperature	*°C*	21.8	20.1	20.0	18.7	19.2
Depth	*m*	1.48	25.3	4.20	9.12	19.4
December 2015						
Electrical Conductivity (non compensated)	*uS/cm*	1010	2410	1370	585	1460
Temperature	*°C*	20.9	19.8	21.7	18.6	19.0
Depth	*m*	3.09	25.8	4.73	9.18	19.4
2014						
July 2014						
Electrical Conductivity (non compensated)	*uS/cm*	572	1900	1020		
Temperature	*°C*	17.0	17.3	17.1		
Depth	*m*	1.148	26.217	4.180		
pH	*pH Unit*	7.8	6.2	5.5		
Salinity	*mg/L*	0.3	1.2	0.6		
August 2014						
Electrical Conductivity (non compensated)	*uS/cm*	581	1950	1040		

Parameter	unit	Sampling location				
		BH1	***BT0702***	***BT0703***	***BT1201***	***BT1202***
Temperature	*°C*	17.2	16.9	17.6		
Depth	*m*	1.735	26.306	4.390		
pH	*pH Unit*	7.8	6.0	5.7		
Salinity	*mg/L*	0.3	1.2	0.6		
September 2014						
Electrical Conductivity (non compensated)	*uS/cm*	603	1100	1070		
Temperature	*°C*	17.0	18.3	18.1		
Depth	*m*	0.954	25.952	3.890		
pH	*pH Unit*	7.8	6.6	5.8		
Salinity	*mg/L*	0.4	0.6	0.6		
October 2014						
Electrical Conductivity (non compensated)	*uS/cm*	624	1860	1050		
Temperature	*°C*	18.3	17.8	17.5		
Depth	*m*	0.820	25.699	4.203		
pH	*pH Unit*	7.9	6.0	6.4		
Salinity	*mg/L*	0.4	1.1	0.6		
November 2014						
Electrical Conductivity (non compensated)	*uS/cm*	712	1990	1110		
Temperature	*°C*	20.8	19.8	19.6		
Depth	*m*	1.359	26.244	4.057		
pH	*pH Unit*	7.5	5.6	5.7		
Salinity	*mg/L*	0.4	1.1	0.6		
December 2014						
Electrical Conductivity (non compensated)	*uS/cm*	732	1850	1140		
Temperature	*°C*	21.4	20.5	20.0		
Depth	*m*	0.867	25.946	4.048		
pH	*pH Unit*	7.7	6.2	6.0		
Salinity	*mg/L*	0.4	1.0	0.6		

Surface water monitoring - Killalea Lagoon

The quarry monitors surface water quality in Killalea Lagoon. Monitoring requirements stem from the Killalea Lagoon Management Plan, which forms part of the Water Management Plan required under *Schedule 3, Condition 24* of Project Approval MP 08_0143.

The scope of this report is surface water monitoring data sampled, analysed, and reported by an external laboratory. Other required surface water monitoring data, which is collected by Hanson, is outside of the scope of this report and is instead included in the Annual Review.

Killalea lagoon groundwater management and monitoring plan		
Sampling requirement	**Frequency**	**Location**
pH Electrical Conductivity (EC) Total Suspended Solids (TSS) Dissolved Oxygen (DO) Total Nitrogen (TN) Total Phosphorus (TP) Salinity	Quarterly	Killalea Lagoon (surface water)

Notes
The extensive quarterly groundwater monitoring programme commenced in August 2015.

Parameter	**unit**	**Sampling location**
		Killalea Lagoon
2024		
January 2024		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	<0.01
February 2024		
pH	*pH Unit*	7.2
Electrical Conductivity (non-compensated)	*µS/cm*	434
Salinity	*g/L*	0.2
Suspended Solids (SS)	*mg/L*	7
Nitrite + Nitrate as N	*mg/L*	<0.01
Total Kjeldahl Nitrogen as N	*mg/L*	1.4
^ Total Nitrogen as N	*mg/L*	1.4
Total Phosphorus as P	*mg/L*	0.11
Dissolved Oxygen	*mg/L*	6.70
Depth - Surface Water	*m*	0.00
March 2024		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth - Surface Water	*m*	0.1
April 2024		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth - Surface Water	*m*	----
2023		
January 2023		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.24
February 2023		
pH	*pH Unit*	7.1
Electrical Conductivity (non-compensated)	*µS/cm*	367

Parameter	unit	Sampling location
		Killalea Lagoon
Salinity	*g/L*	<0.2
Suspended Solids (SS)	*mg/L*	<5
Nitrite + Nitrate as N	*mg/L*	0.07
Total Kjeldahl Nitrogen as N	*mg/L*	2.4
^ Total Nitrogen as N	*mg/L*	2.5
Total Phosphorus as P	*mg/L*	0.22
Dissolved Oxygen	*mg/L*	7.39
Depth - Surface Water	*m*	0.20
March 2023		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth - Surface Water	*m*	-0.3
April 2023		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth - Surface Water	*m*	<0.01
May 2023		
pH	*pH Unit*	7.1
Electrical Conductivity (non compensated)	*µS/cm*	384
Salinity	*g/L*	0.2
Suspended Solids (SS)	*mg/L*	<5
Nitrite + Nitrate as N	*mg/L*	0.02
Total Kjeldahl Nitrogen as N	*mg/L*	0.8
^ Total Nitrogen as N	*mg/L*	0.8
Total Phosphorus as P	*mg/L*	0.05
Dissolved Oxygen	*mg/L*	8.88
Depth - Surface Water	*m*	<0.01
June 2023		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.0
July 2023		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.10
August 2023		
pH	*pH Unit*	7.0
Electrical Conductivity (non compensated)	*µS/cm*	446
Salinity	*g/L*	0.3
Suspended Solids (SS)	*mg/L*	6
Nitrite + Nitrate as N	*mg/L*	0.02
Total Kjeldahl Nitrogen as N	*mg/L*	1.1
^ Total Nitrogen as N	*mg/L*	1.1
Total Phosphorus as P	*mg/L*	0.13
Dissolved Oxygen	*mg/L*	8.63
Depth - Surface Water	*m*	0.10
September 2023		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.80
October 2023		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.25
November 2023		

Parameter	unit	Sampling location
		Killalea Lagoon
pH	*pH Unit*	7.1
Electrical Conductivity (non compensated)	*µS/cm*	438
Salinity	*g/L*	0.2
Suspended Solids (SS)	*mg/L*	<5
Nitrite + Nitrate as N	*mg/L*	0.01
Total Kjeldahl Nitrogen as N	*mg/L*	1.1
^ Total Nitrogen as N	*mg/L*	1.1
Total Phosphorus as P	*mg/L*	0.06
Dissolved Oxygen	*mg/L*	8.44
Depth - Surface Water	*m*	0.22
December 2023		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.20
2022		
January 2022		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	-0.1
February 2022		
pH	*pH Unit*	6.4
Electrical Conductivity (non-compensated)	*µS/cm*	739
Salinity	*g/L*	1.0
Suspended Solids (SS)	*mg/L*	154
Nitrite + Nitrate as N	*mg/L*	<0.01
Total Kjeldahl Nitrogen as N	*mg/L*	6.4
^ Total Nitrogen as N	*mg/L*	6.4
Total Phosphorus as P	*mg/L*	0.53
Dissolved Oxygen	*mg/L*	1.37
Depth - Surface Water	*m*	0.1
March 2022		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth - Surface Water	*m*	0.22
April 2022		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth - Surface Water	*m*	0.18
May 2022		
pH	*pH Unit*	7.0
Electrical Conductivity (non compensated)	*µS/cm*	356
Salinity	*g/L*	<0.2
Suspended Solids (SS)	*mg/L*	8
Nitrite + Nitrate as N	*mg/L*	0.08
Total Kjeldahl Nitrogen as N	*mg/L*	1.0
^ Total Nitrogen as N	*mg/L*	1.1
Total Phosphorus as P	*mg/L*	0.12
Dissolved Oxygen	*mg/L*	4.05
Depth - Surface Water	*m*	2.60
June 2022		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.10
July 2022		
Electrical Conductivity (non compensated)	*uS/cm*	----

Parameter	unit	Sampling location
		Killalea Lagoon
Temperature	*°C*	----
Depth	*m*	0.20
August 2022		
pH	*pH Unit*	7.3
Electrical Conductivity (non compensated)	*µS/cm*	303
Salinity	*g/L*	<0.2
Suspended Solids (SS)	*mg/L*	<5
Nitrite + Nitrate as N	*mg/L*	<0.01
Total Kjeldahl Nitrogen as N	*mg/L*	0.7
^ Total Nitrogen as N	*mg/L*	0.7
Total Phosphorus as P	*mg/L*	0.07
Dissolved Oxygen	*mg/L*	10.7
Dissolved Oxygen - % Saturation	*% saturation*	106
Depth - Surface Water	*m*	0.08
September 2022		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.10
October 2022		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	2.0
November 2022		
pH	*pH Unit*	7.9
Electrical Conductivity (non compensated)	*µS/cm*	288
Salinity	*g/L*	<0.2
Suspended Solids (SS)	*mg/L*	28
Nitrite + Nitrate as N	*mg/L*	<0.01
Total Kjeldahl Nitrogen as N	*mg/L*	0.9
^ Total Nitrogen as N	*mg/L*	0.9
Total Phosphorus as P	*mg/L*	0.14
Dissolved Oxygen	*mg/L*	11.2
Dissolved Oxygen - % Saturation	*% saturation*	135
Depth - Surface Water	*m*	----
December 2022		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	1.0
2021		
January 2021		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.5
February 2021		
pH	*pH Unit*	6.4
Electrical Conductivity (non-compensated)	*µS/cm*	1100
Salinity	*g/L*	0.5
Suspended Solids (SS)	*mg/L*	55
Nitrite + Nitrate as N	*mg/L*	0.06
Total Kjeldahl Nitrogen as N	*mg/L*	3.2
^ Total Nitrogen as N	*mg/L*	3.3
Total Phosphorus as P	*mg/L*	0.3
Dissolved Oxygen	*mg/L*	4.41
Depth - Surface Water	*m*	0.6
March 2021		

Parameter	unit	Sampling location
		Killalea Lagoon
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.66
April 2021		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.27
May 2021		
pH	*pH Unit*	6.6
Electrical Conductivity (non compensated)	*µS/cm*	718
Salinity	*g/L*	0.4
Suspended Solids (SS)	*mg/L*	11
Nitrite + Nitrate as N	*mg/L*	0.04
Total Kjeldahl Nitrogen as N	*mg/L*	2.2
^ Total Nitrogen as N	*mg/L*	2.2
Total Phosphorus as P	*mg/L*	0.2
Dissolved Oxygen	*mg/L*	7.98
Depth - Surface Water	*m*	0
June 2021		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.02
July 2021		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	<0.01
August 2021		
pH	*pH Unit*	7.5
Electrical Conductivity (non compensated)	*µS/cm*	746
Salinity	*g/L*	0.4
Suspended Solids (SS)	*mg/L*	<5
Nitrite + Nitrate as N	*mg/L*	0.01
Total Kjeldahl Nitrogen as N	*mg/L*	0.9
^ Total Nitrogen as N	*mg/L*	0.9
Total Phosphorus as P	*mg/L*	<0.01
Dissolved Oxygen	*mg/L*	9.62
Depth - Surface Water	*m*	0
September 2021		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.14
October 2021		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.15
November 2021		
pH	*pH Unit*	6.3
Electrical Conductivity (non compensated)	*µS/cm*	724
Salinity	*g/L*	0.4
Suspended Solids (SS)	*mg/L*	18
Nitrite + Nitrate as N	*mg/L*	<0.01
Total Kjeldahl Nitrogen as N	*mg/L*	1.5
^ Total Nitrogen as N	*mg/L*	1.5
Total Phosphorus as P	*mg/L*	0.13
Dissolved Oxygen	*mg/L*	3.51

Parameter	unit	Sampling location
		Killalea Lagoon
Depth - Surface Water	*m*	0
December 2021		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.2
2020		
January 2020		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0
February 2020		
pH	*pH Unit*	4.9
Electrical Conductivity (non-compensated)	*µS/cm*	2220
Salinity	*g/L*	1.1
Suspended Solids (SS)	*mg/L*	9
Nitrite + Nitrate as N	*mg/L*	0.15
Total Kjeldahl Nitrogen as N	*mg/L*	10.1
^ Total Nitrogen as N	*mg/L*	10.2
Total Phosphorus as P	*mg/L*	0.08
Dissolved Oxygen	*mg/L*	8.54
Depth - Surface Water	*m*	<0.7
March 2020		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.7
April 2020		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	<0.7
May 2020		
pH	*pH Unit*	4.6
Electrical Conductivity (non compensated)	*µS/cm*	4760
Salinity	*g/L*	3.2
Suspended Solids (SS)	*mg/L*	22
Nitrite + Nitrate as N	*mg/L*	0.02
Total Kjeldahl Nitrogen as N	*mg/L*	33.4
^ Total Nitrogen as N	*mg/L*	33.4
Total Phosphorus as P	*mg/L*	0.06
Dissolved Oxygen	*mg/L*	9.98
Depth - Surface Water	*m*	<0.7
June 2020		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	<0.7
July 2020		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	<0.7
August 2020		
pH	*pH Unit*	5.2
Electrical Conductivity (non compensated)	*µS/cm*	897
Salinity	*g/L*	0.6
Suspended Solids (SS)	*mg/L*	<5
Nitrite + Nitrate as N	*mg/L*	0.16
Total Kjeldahl Nitrogen as N	*mg/L*	3.9

Parameter	unit	Sampling location
		Killalea Lagoon
^ Total Nitrogen as N	*mg/L*	4.1
Total Phosphorus as P	*mg/L*	0.07
Dissolved Oxygen	*mg/L*	10.9
Depth - Surface Water	*m*	0.3
September 2020		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.3
October 2020		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.45
November 2020		
pH	*pH Unit*	4.9
Electrical Conductivity (non compensated)	*µS/cm*	1010
Salinity	*g/L*	0.5
Suspended Solids (SS)	*mg/L*	70
Nitrite + Nitrate as N	*mg/L*	0.04
Total Kjeldahl Nitrogen as N	*mg/L*	3.9
^ Total Nitrogen as N	*mg/L*	3.9
Total Phosphorus as P	*mg/L*	0.12
Dissolved Oxygen	*mg/L*	7.57
Depth - Surface Water	*m*	0.4
December 2020		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.6
2019		
January 2019		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.75
February 2019		
pH	*pH Unit*	8.5
Electrical Conductivity (non-compensated)	*µS/cm*	1950
Salinity	*g/L*	0.9
Suspended Solids (SS)	*mg/L*	47
Nitrite + Nitrate as N	*mg/L*	<0.01
Total Kjeldahl Nitrogen as N	*mg/L*	1.9
^ Total Nitrogen as N	*mg/L*	1.9
Total Phosphorus as P	*mg/L*	0.05
Dissolved Oxygen	*mg/L*	10.1
Depth - Surface Water	*m*	<0.75
March 2019		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	<0.75
April 2019		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	<0.75
May 2019		
pH	*pH Unit*	6.6
Electrical Conductivity (non compensated)	*µS/cm*	1860
Salinity	*g/L*	1.2

Parameter	unit	Sampling location
		Killalea Lagoon
Suspended Solids (SS)	*mg/L*	37
Nitrite + Nitrate as N	*mg/L*	<0.01
Total Kjeldahl Nitrogen as N	*mg/L*	4
^ Total Nitrogen as N	*mg/L*	4
Total Phosphorus as P	*mg/L*	0.24
Dissolved Oxygen	*mg/L*	8.78
Depth - Surface Water	*m*	<0.75
June 2019		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.80
July 2019		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.85
August 2019		
pH	*pH Unit*	6.5
Electrical Conductivity (non compensated)	*µS/cm*	1820
Salinity	*g/L*	1.2
Suspended Solids (SS)	*mg/L*	31
Nitrite + Nitrate as N	*mg/L*	0.08
Total Kjeldahl Nitrogen as N	*mg/L*	1.5
^ Total Nitrogen as N	*mg/L*	1.6
Total Phosphorus as P	*mg/L*	0.18
Dissolved Oxygen	*mg/L*	10.4
Depth - Surface Water	*m*	----
September 2019		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.60
October 2019		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.75
November 2019		
pH	*pH Unit*	7.4
Electrical Conductivity (non compensated)	*µS/cm*	3120
Salinity	*g/L*	1.6
Suspended Solids (SS)	*mg/L*	40
Nitrite + Nitrate as N	*mg/L*	<0.01
Total Kjeldahl Nitrogen as N	*mg/L*	4
^ Total Nitrogen as N	*mg/L*	4
Total Phosphorus as P	*mg/L*	0.26
Dissolved Oxygen	*mg/L*	9.47
Depth - Surface Water	*m*	----
December 2019		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0
2018		
January 2018		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.5
February 2018		

Parameter	unit	Sampling location
		Killalea Lagoon
pH	*pH Unit*	9.9
Electrical Conductivity (non-compensated)	*µS/cm*	849
Salinity	*g/L*	0.4
Suspended Solids (SS)	*mg/L*	90
Nitrite + Nitrate as N	*mg/L*	0.03
Total Kjeldahl Nitrogen as N	*mg/L*	8.4
^ Total Nitrogen as N	*mg/L*	8.4
Total Phosphorus as P	*mg/L*	0.6
Dissolved Oxygen	*mg/L*	11.1
Depth - Surface Water	*m*	0.65
March 2018		
Electrical Conductivity (non-compensated)	*µS/cm*	----
Suspended Solids (SS)	*mg/L*	<5
Temperature	*°C*	----
Depth	*m*	0.65
April 2018		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.75
May 2018		
pH	*pH Unit*	7.6
Electrical Conductivity (non compensated)	*µS/cm*	1050
Salinity	*g/L*	0.6
Suspended Solids (SS)	*mg/L*	28
Nitrite + Nitrate as N	*mg/L*	0.32
Total Kjeldahl Nitrogen as N	*mg/L*	1.9
^ Total Nitrogen as N	*mg/L*	2.2
Total Phosphorus as P	*mg/L*	0.11
Dissolved Oxygen	*mg/L*	10.3
Depth - Surface Water	*m*	0.75
June 2018		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.75
July 2018		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.74
August 2018		
pH	*pH Unit*	7.2
Electrical Conductivity (non compensated)	*µS/cm*	1030
Salinity	*g/L*	0.6
Suspended Solids (SS)	*mg/L*	14
Nitrite + Nitrate as N	*mg/L*	<0.01
Total Kjeldahl Nitrogen as N	*mg/L*	1.6
^ Total Nitrogen as N	*mg/L*	1.6
Total Phosphorus as P	*mg/L*	0.06
Dissolved Oxygen	*mg/L*	10
Depth - Surface Water	*m*	0.75
September 2018		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.75
October 2018		
Electrical Conductivity (non compensated)	*uS/cm*	----

Parameter	unit	Sampling location
		Killalea Lagoon
Temperature	*°C*	----
Depth	*m*	0.75
November 2018		
pH	*pH Unit*	7.2
Electrical Conductivity (non compensated)	*µS/cm*	1110
Salinity	*g/L*	0.6
Suspended Solids (SS)	*mg/L*	9
Nitrite + Nitrate as N	*mg/L*	0.05
Total Kjeldahl Nitrogen as N	*mg/L*	1.4
^ Total Nitrogen as N	*mg/L*	1.4
Total Phosphorus as P	*mg/L*	0.04
Dissolved Oxygen	*mg/L*	8.37
Depth - Surface Water	*m*	0.75
December 2018		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	0.8
2017		
January 2017		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
February 2017		
pH	*pH Unit*	----
Field Salinity	*mg/L*	----
Total Phosphorus (dissolved & recoverable)	*mg/L*	----
Total Kjeldahl Nitrogen as N	*mg/L*	----
Electrical Conductivity (non compensated)	*µS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
March 2017		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
April 2017		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
May 2017		
pH	*pH Unit*	7.6
Field Salinity	*mg/L*	0.3
Total Phosphorus (dissolved & recoverable)	*mg/L*	0.04
Total Kjeldahl Nitrogen as N	*mg/L*	0.7
Electrical Conductivity (non compensated)	*µS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
June 2017		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
July 2017		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
August 2017		

Parameter	unit	Sampling location
		Killalea Lagoon
pH	*pH Unit*	8.3
Field Salinity	*mg/L*	0.3
Total Phosphorus (dissolved & recoverable)	*mg/L*	0.04
Total Kjeldahl Nitrogen as N	*mg/L*	0.7
Electrical Conductivity (non compensated)	*µS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
September 2017		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
October 2017		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
November 2017		
pH	*pH Unit*	----
Field Salinity	*mg/L*	----
Total Phosphorus (dissolved & recoverable)	*mg/L*	----
Total Kjeldahl Nitrogen as N	*mg/L*	----
Electrical Conductivity (non compensated)	*µS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
December 2017		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
2016		
January 2016		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
February 2016		
pH	*pH Unit*	8.9
Field Salinity	*mg/L*	0.2
Total Phosphorus (dissolved & recoverable)	*mg/L*	0.14
Total Kjeldahl Nitrogen as N	*mg/L*	2.1
NOx	*mg/L*	0.02
Electrical Conductivity (non compensated)	*µS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
March 2016		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
April 2016		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
May 2016		
pH	*pH Unit*	8.0
Field Salinity	*mg/L*	0.4
Total Phosphorus (dissolved & recoverable)	*mg/L*	0.24
Total Kjeldahl Nitrogen as N	*mg/L*	3.2
NOx	*mg/L*	0.23

Parameter	unit	Sampling location
		Killalea Lagoon
Electrical Conductivity (non compensated)	*µS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
June 2016		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
July 2016		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
August 2016		
pH	*pH Unit*	7.5
Field Salinity	*mg/L*	0.3
Total Phosphorus (dissolved & recoverable)	*mg/L*	0.08
Total Kjeldahl Nitrogen as N	*mg/L*	1.0
NOx	*mg/L*	0.02
Electrical Conductivity (non compensated)	*µS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
September 2016		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
October 2016		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
November 2016		
pH	*pH Unit*	7.0
Field Salinity	*mg/L*	----
Total Phosphorus (dissolved & recoverable)	*mg/L*	0.28
Total Kjeldahl Nitrogen as N	*mg/L*	3.9
NOx	*mg/L*	0.03
Electrical Conductivity (non compensated)	*µS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
December 2016		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
2015		
January 2015		
Electrical Conductivity (non compensated)	*uS/cm*	718
Temperature	*°C*	----
Depth	*m*	----
pH	*pH Unit*	7.1
Salinity	*mg/L*	----
February 2015		
Electrical Conductivity (non compensated)	*uS/cm*	619
Temperature	*°C*	----
Depth	*m*	----
pH	*pH Unit*	7.2
Salinity	*mg/L*	----
March 2015		

Parameter	unit	Sampling location
		Killalea Lagoon
Electrical Conductivity (non compensated)	*uS/cm*	641
Temperature	*°C*	----
Depth	*m*	----
pH	*pH Unit*	7.4
Salinity	*mg/L*	----
April 2015		
Electrical Conductivity (non compensated)	*uS/cm*	586
Temperature	*°C*	----
Depth	*m*	----
pH	*pH Unit*	6.4
Salinity	*mg/L*	----
May 2015		
Electrical Conductivity (non compensated)	*uS/cm*	579
Temperature	*°C*	----
Depth	*m*	----
pH	*pH Unit*	6.8
Salinity	*mg/L*	----
June 2015		
Electrical Conductivity (non compensated)	*uS/cm*	414
Temperature	*°C*	----
Depth	*m*	----
pH	*pH Unit*	6.8
Salinity	*mg/L*	----
July 2015		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
pH	*pH Unit*	----
Salinity	*mg/L*	----
August 2015		
pH	*pH Unit*	7.9
Total Phosphorus (dissolved & recoverable)	*mg/L*	0.08
Total Kjeldahl Nitrogen as N	*mg/L*	1.2
Electrical Conductivity (non compensated)	*µS/cm*	556
Temperature	*°C*	----
Depth	*m*	----
Total Suspended Solids	*mg/L*	5
Dissolved Oxygen	*mg/L*	10.1
September 2015		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
October 2015		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
November 2015		
pH	*pH Unit*	9.1
Total Phosphorus (dissolved & recoverable)	*mg/L*	0.08
Total Kjeldahl Nitrogen as N	*mg/L*	1
Electrical Conductivity (non compensated)	*µS/cm*	430
Temperature	*°C*	----
Depth	*m*	----
Total Suspended Solids	*mg/L*	<5
Dissolved Oxygen	*mg/L*	12.7

Parameter	unit	Sampling location
		Killalea Lagoon
December 2015		
Electrical Conductivity (non compensated)	*uS/cm*	----
Temperature	*°C*	----
Depth	*m*	----
2014		
July 2014		
Electrical Conductivity (non compensated)	*uS/cm*	499
Temperature	*°C*	13.4
Depth	*m*	----
pH	*pH Unit*	7.1
Salinity	*mg/L*	0.3
August 2014		
Electrical Conductivity (non compensated)	*uS/cm*	481
Temperature	*°C*	10.4
Depth	*m*	----
pH	*pH Unit*	7.1
Salinity	*mg/L*	0.3
September 2014		
Electrical Conductivity (non compensated)	*uS/cm*	482
Temperature	*°C*	17.7
Depth	*m*	----
pH	*pH Unit*	7.0
Salinity	*mg/L*	0.3
October 2014		
Electrical Conductivity (non compensated)	*uS/cm*	451
Temperature	*°C*	15.1
Depth	*m*	----
pH	*pH Unit*	6.9
Salinity	*mg/L*	0.3
November 2014		
Electrical Conductivity (non compensated)	*uS/cm*	594
Temperature	*°C*	21.5
Depth	*m*	0
pH	*pH Unit*	7.7
Salinity	*mg/L*	0.3
December 2014		
Electrical Conductivity (non compensated)	*uS/cm*	635
Temperature	*°C*	23.2
Depth	*m*	----
pH	*pH Unit*	7.5
Salinity	*mg/L*	0.3