

**AuS-10 Rhyolite - Licence number 12323**

**Dam 1 - SB1 - EPL Point 1**  
Licence Discharge Point 1

Guidance range		Range - 6.5 - 8.5	<1500us/cm			<30 mg/l	20	10 mg/l		
Month	Number of Samples	pH	Electrical Conductivity	Turbidity	Total Dissolved Solids	Total Suspend Solids	Oxygen demand	Oil/Grease	Volume Discharged - KL	Comment
Jul-2018	0								Nil Discharge	
Aug-2018	0								Nil Discharge	
Sep-2018	0								Nil Discharge	
Oct-2018	0								Nil Discharge	
Nov-2018	0								Nil Discharge	
Dec-2018	0								Nil Discharge	
Jan-2019	0								Nil Discharge	
Feb-2019	0								Nil Discharge	
Mar-2019	0								Nil Discharge	
Apr-2019	0								Nil Discharge	
May-2019	0								Nil Discharge	
Jun-2019	0								Nil Discharge	
<b>Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>		
Mean		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
Lowest		0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Highest		0.00	0.00	0.00	0.00	0.00	0.00	0.00		

**EPL POINT 2** Range - 6.5 - 8.5  
Upstream Location AQW-1

Month	Number of Samples	pH	Electrical Conductivity	Turbidity	Total Dissolved Solids	Total Suspend Solids	Oxygen demand	Oil/Grease	Volume Discharged - KL
Jul-2018	1	7.6	652	1.2	330	<5	<2	<5	Nil Discharge
Aug-2018	1	6.5	619	1.3	398	<5	<2	<5	Nil Discharge
Sep-2018	1	8.1	704	2.1	359	<5	<2	<5	Nil Discharge
Oct-2018	1	8.0	601	1.3	347	<5	<2	<5	Nil Discharge
Nov-2018	1	8.5	727	1.7	408	<5	2	<5	Nil Discharge
Dec-2018	1	8.8	232	162	188	162	2	<5	Nil Discharge
Jan-2019	1	8.4	794	2.9	4.5	<5	<2	<5	Nil Discharge
Feb-2019	1	8.1	730	2	448	<5	4	<5	Nil Discharge
Mar-2019	1	8.1	589	2.2	386	6	<2	<5	Nil Discharge
Apr-2019	1	7.5	647	1.4	357	<5	7	<5	Nil Discharge
May-2019	1	8.1	657	1.1	410	<5	<2	<5	Nil Discharge
Jun-2019									
<b>Total</b>		<b>87.7</b>	<b>6952</b>	<b>179.2</b>	<b>3635.5</b>	<b>168</b>	<b>15</b>	<b>0</b>	
Mean		7.31	579.33	14.93	302.96	14.00	1.25	0.00	
Lowest		6.50	232.00	1.10	4.50	6.00	2.00	0.00	
Highest		8.80	794.00	162.00	448.00	162.00	7.00	0.00	

**EPL Point 3**  
COXS RIVER LOWER CROSSING 6/7/2011 - AQW3

Month	Number of Samples	pH	Electrical Conductivity	Turbidity	Total Dissolved Solids	Total Suspend Solids	Oxygen demand	Oil/Grease	Volume Discharged - KL
Jul-2018	1	7.8	653	1.2	328	<5	<2	<5	Nil Discharge
Aug-2018	1	7.2	607	1.2	388	<5	<2	<5	Nil Discharge
Sep-2018	1	7.5	575	1.8	695	<5	<2	<5	Nil Discharge
Oct-2018	1	7.8	611	1.2	327	<5	4	<5	Nil Discharge
Nov-2018	1	8.6	715	1.1	410	<5	2	<5	Nil Discharge
Dec-2018	1	7.8	239	168	255	120	2	<5	Nil Discharge
23.01.2019	1	8.4							EPL 9 discharge
Jan-2019	1	8.5	704	3.1	433	<5	<2	<5	Nil Discharge
Feb-2019	1	8.0	761	1.7	434	<5	<2	<5	Nil Discharge
Mar-2019	1	8.0	572	2.0	332	8	<2	<5	Nil Discharge
Apr-2019	1	7.1	638	1.6	361	<5	7	<5	Nil Discharge
May-2019	1	8.3	653	1.2	392	19	<2	<5	Nil Discharge
Jun-2019									
<b>Total</b>		<b>87.2</b>	<b>6075</b>	<b>182.9</b>	<b>4027</b>	<b>147</b>	<b>15</b>	<b>0</b>	
Mean		7.27	506.25	15.24	335.58	12.25	1.25	0.00	
Lowest		7.10	239.00	1.10	255.00	8.00	2.00	0.00	#DIV/0!
Highest		8.60	761.00	168.00	695.00	120.00	7.00	0.00	#DIV/0!

**Dust Monitoring** EPL Point 4

Month	Number of Samples	Sawmill	Insoluble Solids	Combustible Matter	Ash
Jul-2018	continuous	Sawmill	0.20	0.2	<0.1
Aug-2018	continuous	Sawmill	1.00	0.3	0.6
Sep-2018	continuous	Sawmill	1.00	0.4	0.6
Oct-2018	continuous	Sawmill	3.70	1.8	1.9
Nov-2018	continuous	Sawmill	2.50	0.6	1.9
Dec-2018	continuous	Sawmill	3.70	0.7	3.0
Jan-2019	continuous	Sawmill	0.50	0.2	0.3
Feb-2019	continuous	Sawmill	0.10	0.1	<0.1
Mar-2019	continuous	Sawmill	1.20	0.2	1.0
Apr-2019	continuous	Sawmill	0.50	0.2	0.3
May-2019	continuous	Sawmill	0.40	0.1	0.3
Jun-2019	continuous	Sawmill			
<b>Total</b>			<b>14.7</b>	<b>4.8</b>	<b>9.9</b>
Mean			1.34	0.44	1.10
Lowest			0.1	0.1	0.3
Highest			3.7	1.8	3

**Dust Monitoring** EPL Point 5

Month	Number of Samples	Baners Lane	Insoluble Solids	Combustible Matter	Ash
Jul-2018	continuous	Baners Lane	0.2	0.2	<0.1
Aug-2018	continuous	Baners Lane	1.1	0.2	0.9
Sep-2018	continuous	Baners Lane	0.4	0.2	0.2
Oct-2018	continuous	Baners Lane	0.9	0.8	0.1
Nov-2018	continuous	Baners Lane	0.90	0.3	0.6
Dec-2018	continuous	Baners Lane	1.60	0.5	1.1
Jan-2019	continuous	Baners Lane	2.80	1.1	1.7
Feb-2019	continuous	Baners Lane	0.80	0.3	0.5
Mar-2019	continuous	Baners Lane	0.80	0.2	0.6
Apr-2019	continuous	Baners Lane	0.50	0.2	0.3
May-2019	continuous	Baners Lane	0.50	0.2	0.3
Jun-2019	continuous	Baners Lane			
<b>Total</b>			<b>10.5</b>	<b>4.2</b>	<b>6.3</b>
Mean			0.95	0.38	0.63
Lowest			0.2	0.2	0.1
Highest			2.8	1.1	1.7

**Dust Monitoring** EPL Point 6

Month	Number of Samples	Bald Hill	Insoluble Solids	Combustible Matter	Ash
Jul-2018	continuous	Bald Hill	<0.1	<0.1	<0.1
Aug-2018	continuous	Bald Hill	2.3	0.5	1.8
Sep-2018	continuous	Bald Hill	0.9	0.3	0.6
Oct-2018	continuous	Bald Hill	0.5	0.3	0.2
Nov-2018	continuous	Bald Hill	1.7	0.5	1.2
Dec-2018	continuous	Bald Hill	3.3	0.8	2.5

Jan-2019	continuous	Bald Hill	4.1	1.9	2.2
Feb-2019	continuous	Bald Hill	2.5	1.1	1.4
Mar-2019	continuous	Bald Hill	2.3	0.8	1.5
Apr-2019	continuous	Bald Hill	1	0.4	0.6
May-2019	continuous	Bald Hill	0.3	0.1	0.2
Jun-2019	continuous	Bald Hill			
			<b>18.9</b>	<b>6.7</b>	<b>12.2</b>
			<b>1.89</b>	<b>0.67</b>	<b>1.22</b>
			<b>0.3</b>	<b>0.1</b>	<b>0.2</b>
			<b>4.1</b>	<b>1.9</b>	<b>2.5</b>

ND - Not Detected

Requirement to Monitor  
Volume or Mass - Points  
1, 8, 9, 10, 11

Kilolitres per day	Daily during any discharge	Estimate					
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EPL POINT 8  
Dam 2 - SB2b  
Range - 6.5 - 8.5

Month	Number of Samples	pH	Electrical Conductivity	Turbidity	Total Dissolved Solids	Total Suspend Solids	Oxygen demand	Oil/Grease	Volume Discharged - KL	Comment
Jul-2018	0								Nil Discharge	
Aug-2018	0								Nil Discharge	
Sep-2018	0								Nil Discharge	
Oct-2018	0								Nil Discharge	
Nov-2018	0								Nil Discharge	
Dec-2018	0								Nil Discharge	
Jan-2019	0								Nil Discharge	
Feb-2019	0								Nil Discharge	
Mar-2019	0								Nil Discharge	
Apr-2019	0								Nil Discharge	
May-2019	0								Nil Discharge	
Jun-2019	0								Nil Discharge	
Mean		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Lowest		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Highest		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

EPL POINT 9  
South of O/Burden dump  
Dam 3 - SB3a  
Range - 6.5 - 8.5

Month	Number of Samples	pH	Electrical Conductivity	Turbidity	Total Dissolved Solids	Total Suspend Solids	Oxygen demand	Oil/Grease	Volume Discharged - KL	Comment
Jul-2018	0								Nil Discharge	
Aug-2018	0								Nil Discharge	
Sep-2018	0								Nil Discharge	
Oct-2018	0								Nil Discharge	
Nov-2018	0								Nil Discharge	
Dec-2018	0								Nil Discharge	
09.01.2019	1	7.6	973	9		11			Nil Discharge	Sample only
23.01.2019	1	8.5				17		<5	1MI approx	
Feb-2019	0								Nil Discharge	
Mar-2019	0								Nil Discharge	
Apr-2019	0								Nil Discharge	
May-2019	0								Nil Discharge	
Jun-2019	0								Nil Discharge	
Mean		8.05	973.00	9.00	#DIV/0!	14.00	#DIV/0!	#DIV/0!		
Lowest		7.60	973.00	9.00	0.00	11.00	0.00	0.00		
Highest		8.50	973.00	9.00	0.00	17.00	0.00	0.00		

EPL POINT 10  
Storage Dam 4  
Dam 4 - SD2  
Range - 6.5 - 8.5

Month	Number of Samples	pH	Electrical Conductivity	Turbidity	Total Dissolved Solids	Total Suspend Solids	Oxygen demand	Oil/Grease	Volume Discharged - KL	Comment
Jul-2018	0								Nil Discharge	
Aug-2018	0								Nil Discharge	
Sep-2018	0								Nil Discharge	
Oct-2018	0								Nil Discharge	
Nov-2018	0								Nil Discharge	
Dec-2018	0								Nil Discharge	
Jan-2019	0								Nil Discharge	
Feb-2019	0								Nil Discharge	
Mar-2019	0								Nil Discharge	
Apr-2019	0								Nil Discharge	
May-2019	0								Nil Discharge	
Jun-2019	0								Nil Discharge	
Mean		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
Lowest		0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Highest		0.00	0.00	0.00	0.00	0.00	0.00	0.00		

EPL POINT 11  
Dam 5 - SD6 - AQW-8  
Range - 6.5 - 8.5

Month	Number of Samples	pH	Electrical Conductivity	Turbidity	Total Dissolved Solids	Total Suspend Solids	Oxygen demand	Oil/Grease	Volume Discharged - KL	Comment
Jul-2018	0								Nil Discharge	
Aug-2018	0								Nil Discharge	
Sep-2018	0								Nil Discharge	
Oct-2018	0								Nil Discharge	
Nov-2018	0								Nil Discharge	
Dec-2018	0								Nil Discharge	
Jan-2019	0								Nil Discharge	
Feb-2019	0								Nil Discharge	
Mar-2019	0								Nil Discharge	
Apr-2019	0								Nil Discharge	
May-2019	0								Nil Discharge	
Jun-2019	0								Nil Discharge	
Mean		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Lowest		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Highest		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Weather station results available upon request

AuS-10 Rhyolite - Licence number 12323

Blasting	Frequency	Date	Blast Number	Limits	Units of measure	Results - Hartley Village	Monitor Location - Hartley Village	2nd Monitor 781 Jenolan Caves Rd
Ground Vibration	Per Blast	31.01.2018	146	5 - trigger point >0.51	mm/s	Nil Trigger	√	
Overpressure	Per Blast	31.01.2018	146	115 - Trigger point <88	dB	Nil Trigger	√	
Ground Vibration	Per Blast	14.02.2018	147	5 - trigger point >0.51	mm/s	Nil Trigger	√	
Overpressure	Per Blast	14.02.2018	147	115 - Trigger point <88	dB	Nil Trigger	√	
Ground Vibration	Per Blast	14.03.2018	148	5 - trigger point >0.51	mm/s	Nil Trigger	√	
Overpressure	Per Blast	14.03.2018	148	115 - Trigger point <88	dB	Nil Trigger	√	
Ground Vibration	Per Blast	07.03.2018	149	5 - trigger point >0.51	mm/s	Nil Trigger	√	
Overpressure	Per Blast	07.03.2018	149	115 - Trigger point <88	dB	Nil Trigger	√	
Ground Vibration	Per Blast	28.03.2018	150	5 - trigger point >0.51	mm/s	Nil Trigger	√	
Overpressure	Per Blast	28.03.2018	150	115 - Trigger point <88	dB	Nil Trigger	√	
Ground Vibration	Per Blast	11.04.2018	151	5 - trigger point >0.51	mm/s	Nil Trigger	√	
Overpressure	Per Blast	11.04.2018	151	115 - Trigger point <88	dB	Nil Trigger	√	
Ground Vibration	Per Blast	26.04.2018	152	5 - trigger point >0.51	mm/s	Nil Trigger	√	

Overpressure	Per Blast	26.04.2018	152	115 - Trigger point <88	dB	Nil Trigger	✓	
Ground Vibration	Per Blast	22.05.2018	153	5 - trigger point >0.51	mm/s	Nil Trigger	✓	
Overpressure	Per Blast	22.05.2018	153	115 - Trigger point <88	dB	Nil Trigger	✓	
Ground Vibration	Per Blast	06.06.2018	154	5 - trigger point >0.51	mm/s	Nil Trigger	✓	
Overpressure	Per Blast	06.06.2018	154	115 - Trigger point <88	dB	Nil Trigger	✓	
Ground Vibration	Per Blast	20.06.2018	155	5 - trigger point >0.51	mm/s	Nil Trigger	✓	
Overpressure	Per Blast	20.06.2018	155	115 - Trigger point <88	dB	Nil Trigger	✓	
Ground Vibration	Per Blast	04.07.2018	156	5 - trigger point >0.51	mm/s	Nil Trigger	✓	
Overpressure	Per Blast	04.07.2018	156	115 - Trigger point <88	dB	Nil Trigger	✓	
Ground Vibration	Per Blast	09.07.2018	157	5 - trigger point >0.51	mm/s	Nil Trigger	✓	
Overpressure	Per Blast	09.07.2018	157	115 - Trigger point <88	dB	Nil Trigger	✓	
Ground Vibration	Per Blast	18.07.2018	158A & B	5 - trigger point >0.51	mm/s	Nil Trigger	✓	Nil Trigger
Overpressure	Per Blast	18.07.2018	158A & B	115 - Trigger point <88	dB	Nil Trigger	✓	Nil Trigger
Ground Vibration	Per Blast	15.08.2018	159	5 - trigger point >0.51	mm/s	Nil Trigger	✓	1.04
Overpressure	Per Blast	15.08.2018	159	115 - Trigger point <88	dB	Nil Trigger	✓	109.2
Ground Vibration	Per Blast	29.08.2018	160	5 - trigger point >0.51	mm/s	Nil Trigger	✓	Nil Trigger
Overpressure	Per Blast	29.08.2018	160	115 - Trigger point <88	dB	Nil Trigger	✓	Nil Trigger
Ground Vibration	Per Blast	12.09.2018	161	5 - trigger point >0.51	mm/s	Nil Trigger	✓	Nil Trigger
Overpressure	Per Blast	12.09.2018	161	115 - Trigger point <88	dB	Nil Trigger	✓	Nil Trigger
Ground Vibration	Per Blast	12.10.2018	162	5 - trigger point >0.51	mm/s	Nil Trigger	✓	Nil Trigger
Overpressure	Per Blast	12.10.2018	162	115 - Trigger point <88	dB	Nil Trigger	✓	Nil Trigger
Ground Vibration	Per Blast	24.10.2018	163	5 - trigger point >0.51	mm/s	Nil Trigger	✓	Nil Trigger
Overpressure	Per Blast	24.10.2018	163	115 - Trigger point <88	dB	Nil Trigger	✓	Nil Trigger
Ground Vibration	Per Blast	09.11.2018	164	5 - trigger point >0.50	mm/s	Nil Trigger	✓	Nil Trigger
Overpressure	Per Blast	09.11.2018	164	115 - Trigger point <88	dB	Nil Trigger	✓	Nil Trigger
Ground Vibration	Per Blast	21.11.2018	165	5 - trigger point >0.50	mm/s	Nil Trigger	✓	Nil Trigger
Overpressure	Per Blast	21.11.2018	165	115 - Trigger point <88	dB	Nil Trigger	✓	Nil Trigger
Ground Vibration	Per Blast	05.12.2018	MISFIRE Blast	5 - trigger point >0.50	mm/s	Nil Trigger	✓	Nil Trigger
Overpressure	Per Blast	05.12.2018	MISFIRE Blast	115 - Trigger point <100	dB	Nil Trigger	✓	Nil Trigger
Ground Vibration	Per Blast	07.12.2018	166 A & B	5 - trigger point >0.50	mm/s	Nil Trigger	✓	Nil Trigger
Overpressure	Per Blast	07.12.2018	166 A & B	115 - Trigger point <100	dB	Nil Trigger	✓	Nil Trigger
Ground Vibration	Per Blast	19.12.2018	167	5 - trigger point >0.51	mm/s	Nil Trigger	✓	0.078
Overpressure	Per Blast	19.12.2018	167	115 - Trigger point <100	dB	Nil Trigger	✓	108.4
Ground Vibration	Per Blast	30.01.2019	168	5 - trigger point >0.51	mm/s	Nil Trigger	✓	Nil Trigger
Overpressure	Per Blast	30.01.2019	168	115 - Trigger point <100	dB	Nil Trigger	✓	Nil Trigger
Ground Vibration	Per Blast	13.02.2019	169	5 - trigger point >0.51	mm/s	Nil Trigger	✓	Nil Trigger
Overpressure	Per Blast	13.02.2019	169	115 - Trigger point <100	dB	Nil Trigger	✓	Nil Trigger
Ground Vibration	Per Blast	27.02.2019	170	5 - trigger point >0.51	mm/s	Nil Trigger	✓	Nil Trigger
Overpressure	Per Blast	27.02.2019	170	115 - Trigger point <100	dB	Nil Trigger	✓	Nil Trigger
Ground Vibration	Per Blast	13.03.2019	171	5 - trigger point >0.51	mm/s	Nil Trigger	✓	0.08
Overpressure	Per Blast	13.03.2019	171	115 - Trigger point <100	dB	Nil Trigger	✓	109.2
Ground Vibration	Per Blast	10.04.2019	172	5 - trigger point >0.51	mm/s	Nil Trigger	✓	Nil Trigger
Overpressure	Per Blast	10.04.2019	172	115 - Trigger point <100	dB	Nil Trigger	✓	Nil Trigger
Ground Vibration	Per Blast	01.05.2019	173	5 - trigger point >0.51	mm/s	Nil Trigger	✓	Nil Trigger
Overpressure	Per Blast	01.05.2019	173	115 - Trigger point <100	dB	Nil Trigger	✓	Nil Trigger
Ground Vibration	Per Blast	08.05.2019	174	5 - trigger point >0.51	mm/s	Nil Trigger	✓	Nil Trigger
Overpressure	Per Blast	08.05.2019	174	115 - Trigger point <100	dB	Nil Trigger	✓	Nil Trigger
Ground Vibration	Per Blast	22.05.2019	175	5 - trigger point >0.51	mm/s	Nil Trigger	✓	Nil Trigger
Overpressure	Per Blast	22.05.2019	175	115 - Trigger point <100	dB	Nil Trigger	✓	Nil Trigger

**Grant's Head Quarry - Licence Number 4040**

EPL Point 1 - sump	Pollutant	Aluminium	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Comment
	Units of Measure	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	
Month	Number of Samples										
29.06.2017	1	0.163	0.0003	0.0008	0.0007	0.143	0.0024	<0.0003	0.0269	0.208	
19.09.2017	1	0.13	0.0003	0.0008	0.0007	0.193	0.0005	<0.0001	0.0358	0.222	
07.12.2017	1	0.077	0.0002	0.0008	0.0005	0.179	0.0003	<0.0003	0.0265	0.159	
15.02.2018	1	0.127	<0.0002	0.0007	0.0003	0.256	0.0002	0.00004	0.0355	0.106	
23.05.2018	1	0.135	<0.0002	0.0007	0.0004	0.237	0.0003	<0.0001	0.0346	0.117	
22.08.2018	1	0.237	<0.0002	0.0007	0.0005	0.209	0.0002	<0.0001	0.0344	0.122	
17.10.2018	1	0.09	<0.001	0.0004	<0.001	0.14	0.001	<0.0001	0.02	0.068	
29.11.2018	1	0.305	0.0003	0.0005	0.0032	0.293	0.0003	0.00007	0.0259	0.073	
11.01.2019	1	0.1	<0.001	0.0005	<0.001	0.23	<0.001	<0.0001	0.21	0.061	Filtered
26.02.2019	1	0.186	0.0002	0.0005	0.0003	0.167	<0.0001	0.00001	0.0301	0.097	
03.04.2019	1	0.11	<0.001	0.0005	<0.001	0.13	<0.0001	<0.0001	0.021	0.076	
20.05.2019	1	0.07	0.0002	0.0007	0.0002	0.132	0.0001	<0.0001	0.0322	0.111	

Wetland site (new Oct 2018)	Pollutant	Aluminium	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
	Units of Measure	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Date	No. of samples									
17.10.2018	1	0.52	<0.001	<0.0002	0.001	<0.001	<0.001	<0.0001	<0.001	0.014
03.04.2019	1	0.24	<0.001	<0.0002	<0.001	0.003	<0.001	<0.0001	0.001	0.034

EPL Point 1 - sump	Pollutant	pH (wet) Range		Electrical Conductivity	Turbidity	Total Suspended Solids Max 30 Milligrams per litre	Oil and Grease	Hours of pump operation	Requirement to Monitor Volume or Mass - KL
	Units of Measure	5.3 to 7.0							
Month	Number of Samples	pH	µS/cm	NTU	mg/l	Visible	Hours	KL	
28.06.2018	1	5.9	354	1.3	<3	<5	24	6,825.6	
11.07.2018	1	6.2	339	1.4	<3	<5	24	6,825.6	
24.07.2018	1	5.4	363	2.5	<3	<5	24	6,825.6	
14.08.2018	1	6.2	410	3.9	4	<5	24	6,825.6	
22.08.2018	1	6.4	421	6.2	6	<5	24	6,825.6	
10.09.2018	1	5.5	499	15	9	<5	24	6,825.6	
04.10.2018	1	6.2	441	4.9	6	<5	24	6,825.6	
15.10.2018	1	6.0	389	6.2	5	<5	24	6,825.6	
17.10.2018	1	6.99	127.7				Sample Only	Sample only	
30.10.2018	1	6.10	370	2.4	4	<5	24	6,825.6	
22.11.2018	1	6.6	385	4.0	5	NR	Sample Only	Sample only	
29.11.2018	1	6.4	400	14	10	<5	24	6,825.6	
13.12.2018	1	6.4	403	6.7	4	<5	24	6,825.6	
11.01.2019	1	4.18	472.5				Sample Only	Sample Only	
30.01.2019	1	4.60	446	3.2	<3	<5	Sample Only	Sample only	
04.02.2019	1	6.6	461	2.8	<3	<5	24	6,825.6	
26.02.2019	1	6.3	448	4.9	3	<5	24	6,825.6	
13.03.2019	1	6.1	440	7	5	<5	24	6,825.6	
08.04.2019	1	7.1	415	3.5	3	<5	Sample Only	Sample only	
16.04.2019	1	6.6	436	7.8	7	<5	24	6,825.6	
20.05.2019	1	6.0	440	1.1	<3	<5	24	6,825.6	

Grant's Head Points 2 & 3	Position ID	Standing Water Level Metres (mAHD)	Position ID	Standing Water Level Metres (mAHD)
		Quarterly		Quarterly
28.03.2017	MW05	4.814	MW06	4.934
19.06.2017	MW05	4.619	MW06	4.839
11.10.2017	MW05	4.474	MW06	4.529
17.01.2018	MW05	4.664	MW06	4.809
11.04.2018	MW05	3.739	MW06	4.849
14.06.2018	MW05	4.731	MW06	4.854
17.10.2018	MW05	4.749	MW06	4.854
11.01.2019	MW05	4.339	MW06	4.379
03.04.2019	MW05	4.152	MW06	4.129

Grant's Head Point 4	Position ID	Conductivity	pH	Standing Water Level	Aluminium	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
11.10.2017	NW01S	471	4.96	-1.055									
11.10.2017	NW01D	508	4.1	-4.15									
17.01.2018	NW01D	492	4.67	-0.79	0.51	<0.001	<0.0002	<0.001	0.005	<0.001	<0.0001	0.003	0.034
17.01.2018	NW01S	447	4.99	-0.14	0.22	<0.001	<0.0002	<0.001	0.002	<0.001	<0.0001	0.002	0.012
11.04.2018	NW01D	523	4.74	-0.35									
11.04.2018	NW01S	459	5.04	0.245									
14.06.2018	NW01D	326	4.84	-0.85									
14.06.2018	NW01S	301	4.92	0.039									
17.10.2018	NW01D	425.4	4.3	-1.9	0.7	<0.001	<0.0002	<0.001	0.052	0.004	<0.0001	0.008	0.076
17.10.2018	NW01S	372.3	5.43	-1.17	<0.05	<0.001	<0.0002	<0.001	0.08	0.006	<0.0001	0.007	0.12
11.01.2019	NW01S	477.3	5.00	-1.665	<0.05	<0.001	<0.0002	<0.001	<0.001	<0.001	<0.0001	0.032	0.046
11.01.2019	NW01D	533.1	4.2	-3.64	0.41	<0.001	<0.0002	<0.001	0.018	0.002	<0.0001	0.028	0.055
03.04.2019	NW01S	384.8	5.66	-2.115	0.05	<0.001	<0.0002	<0.001	0.003	<0.001	<0.0001	0.003	0.024
03.04.2019	NW01D	421.6	5.19	-2.835	0.26	<0.001	<0.0002	<0.001	0.009	<0.001	<0.0001	0.005	0.035

Grant's Head Point 5	Position ID	Conductivity	pH	Standing Water Level	Aluminium	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
11.10.2017	NW02S	822	5.86	-8.374									
11.10.2017	NW02D	352	3.93	-0.87									
17.01.2018	NW02D	842	6.02	-0.535	<0.05	0.004	<0.0002	<0.001	<0.001	<0.001	<0.0001	0.013	0.006
17.01.2018	NW02S	353	4.1	-8.35	0.39	<0.001	<0.0002	<0.001	0.005	<0.001	<0.0001	<0.001	0.009
11.04.2018	NW02D	890	6.13	-0.325									
11.04.2018	NW02S	398	4.28	-8.41									
14.06.2018	NW02D	572	6.39	-0.147									
14.06.2018	NW02S	256	4.38	-8.248									
17.10.2018	NW02D	717	6.03	-0.315	<0.05	<0.001	<0.0002	<0.001	<0.001	<0.001	<0.0001	0.014	0.012
17.10.2018	NW02S	304.3	4.24	-8.126	0.32	<0.001	<0.0002	<0.001	0.007	<0.001	<0.0001	<0.001	0.007
11.01.2019	NW02S	376.7	4.03	-8.88	<0.05	<0.001	<0.0002	<0.001	0.025	0.003	<0.0001	0.021	0.056
11.01.2019	NW02D	929	5.84	-0.515	<0.05	0.003	<0.0002	<0.001	<0.001	<0.001	<0.0001	0.016	0.009
03.04.2019	NW02S	290.1	4.55	-8.97	<0.05	<0.001	<0.0002	<0.001	0.007	<0.001	<0.0001	0.013	0.008
03.04.2019	NW02D	742.5	6.73	-0.635	0.18	<0.001	<0.0002	<0.001	0.006	<0.001	<0.0001	0.001	0.011

Grant's Head Point 6	Position ID	Conductivity	pH	Standing Water Level	Aluminium	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
11.10.2017	NW03S	412	3.99	-11.115									
11.10.2017	NW03D	1369	5.4	-29.707									
17.01.2018	NW03D	1211	5.35		<0.05	<0.001	<0.0002	<0.001	<0.001	<0.001	<0.0001	0.029	0.057
17.01.2018	NW03S	421	4.52		0.2	<0.001	<0.0002	<0.001	0.003	<0.001	<0.0001	<0.001	0.011
11.04.2018	NW03D	489	2.11	-32.015									
11.04.2018	NW03S	465	4.64	-11.01									
14.06.2018	NW03D	1133	5.42	-32.135									
14.06.2018	NW03S			-10.66	Unable to reach water - no sample								
17.10.2018	NW03D	1246	5.53	-31.63	<0.05	<0.001	<0.0002	<0.001	0.036	0.002	<0.0001	0.056	0.16
17.10.2018	NW03S	343.3	4.85	-11.036	0.08	<0.001	<0.0002	<0.001	0.044	0.004	<0.0001	0.005	0.064
11.01.2019	NW03S	N/A	N/A	-11.09	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11.01.2019	NW03D	844	5.3	-31.935	<0.05	<0.001	<0.0002	<0.001	0.003	<0.001	<0.0001	0.023	0.046
03.04.2019	NW03S	351	4.85	-10.3	0.06	<0.001	<0.0002	<0.001	0.001	<0.001	<0.0001	<0.001	0.008
03.04.2019	NW03D	1024	6.1	-31.645	<0.05	<0.001	<0.0002	<0.001	0.03	0.002	<0.0001	0.025	0.068

### Grant's Head Quarry - Licence Number 4040

Blasting	Frequency	Date	Limits	Units of measure	Results Bonny Hills 1st House	Results - Sherrod Park	Blast No #
Ground Vibration	Per Blast	16.08.2017	5 - trigger point >0.27	mm/s	1.61	0.63	#118
Overpressure	Per Blast	16.08.2017	115 - Trigger point >100	dB	103.8	107	#118
Ground Vibration	Per Blast	31.10.2017	5 - trigger point >0.27	mm/s	4.57	Nil Trigger	#119
Overpressure	Per Blast	31.10.2017	115 - Trigger point >100	dB	104.9	Nil Trigger	#119
Ground Vibration	Per Blast	18.01.2018	5 - trigger point >0.27	mm/s	3.97	Nil Trigger	#120
Overpressure	Per Blast	18.01.2018	115 - Trigger point >100	dB	107.1	Nil Trigger	#120
Ground Vibration	Per Blast	13.02.2018	5 - trigger point >0.27	mm/s	2.5	0.13	#121
Overpressure	Per Blast	13.02.2018	115 - Trigger point >100	dB	108.6	115.0	#121
Ground Vibration	Per Blast	10.04.2018	5 - trigger point >0.27	mm/s	1.79	Nil Trigger	#122
Overpressure	Per Blast	10.04.2018	115 - Trigger point >100	dB	104.1	Nil Trigger	#122
Ground Vibration	Per Blast	29.06.2018	5 - trigger point >0.27	5 - trigger point >0.27	1.6	0.51	#123
Overpressure	Per Blast	29.06.2018	115 - Trigger point >100	115 - Trigger point >100	105.1	101.9	#123
Ground Vibration	Per Blast	20.08.2018	5 - trigger point >0.27	5 - trigger point >0.30	2.38	Nil Trigger	#124
Overpressure	Per Blast	20.08.2018	115 - Trigger point >100	115 - Trigger point >100	113.3	Nil Trigger	#124
Ground Vibration	Per Blast	05.02.2019	5 - trigger point >0.27	5 - trigger point >0.30	3.65	3.17	#125
Overpressure	Per Blast	05.02.2019	115 - Trigger point >100	115 - Trigger point >100	109.8	114.6	#125

### Tumbulgem EPL 3430

Tumbulgem Point 1	WM 1	Pollutant	OIL and Grease -10 Milligrams per lt.	Total Suspended Solids Max 50 Milligrams per litre	pH (wet) Range 6.5 to 8.5	Requirement to Monitor Volume or Mass	Why Sampled - Discharge or Random?
		Frequency	Less than 24 hours before Discharge	Less than 24 hours before Discharge	Less than 24 hours before Discharge	Daily when wastes (water) discharged Klitres per day	
Month	Number of Samples						
Jul-2018	0						Nil Discharge
Aug-2018	0						Nil Discharge
Sep-2018	0						Nil Discharge
Oct-2018	0						Nil Discharge
Nov-2018	0						Nil Discharge
Dec-2018	0						Nil Discharge
Jan-2019	0						Nil Discharge
Feb-2019	0						Nil Discharge
Mar-2019	0						Nil Discharge
Apr-2019	0						Nil Discharge
May-2019	0						Nil Discharge
Jun-2019	0						Nil Discharge

Tumbulgem Point 2	WM 2	Pollutant	OIL and Grease -10 Milligrams per lt.	Total Suspended Solids Max 50 Milligrams per litre	pH (wet) Range 6.5 to 8.5	Requirement to Monitor Volume or Mass
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Month	Number of Samples	Frequency		Monthly during discharge	<24hrs prior to discharge	Daily when wastes (water) discharged Kliltres per day	Why Sampled - Discharge or Random?
Jul-2018	0						Nil Discharge
Aug-2018	0						Nil Discharge
Sep-2018	0						Nil Discharge
Oct-2018	0						Nil Discharge
Nov-2018	0						Nil Discharge
Dec-2018	0						Nil Discharge
Jan-2019	0						Nil Discharge
Feb-2019	0						Nil Discharge
21-Mar-19	1	S82	<4	3	3.7		Nil Discharge/Sample only
28-Mar-19	1	S82	<4	2.4	3.9		Nil Discharge/Sample only
08-Apr-19	1	WM2	<4	4	3.9		Seepage only - no direct discharge
01-May-19	1	S82			4.17		Sample only
01-May-19	1	WM2	<5	9	3.8		Seepage only - no direct discharge
02-May-19	1	WM2	-	-	4		Seepage only - no direct discharge
02-May-19	1	WM2	-	-	4.3		Seepage only - no direct discharge
03-May-19	1	WM2	<1	3	5.2		Seepage only - no direct discharge
03-May-19	1	WM2	-	-	5		Seepage only - no direct discharge
15-May-19	1	S82	-	-	3.88		Nil Discharge/Sample only
15-May-19	1	S82	-	-	3.8		Nil Discharge/Sample only

#### Tumbulgum EPL 3430

##### Tumbulgum Blast Monitoring results

Blasting	Frequency	Date	Limits	Units of measure	Loc # 1 - 43 Pollard Rd	Loc # 2 - 2 Pollard Rd	Loc # 3 - 729 - 731 Dulguigan Rd	Blast #
Ground Vibration	Per Blast	03.08.2017	5 - trigger point >0.26	mm/s	0.6	1.08	Not required	#34
Overpressure	Per Blast	03.08.2017	Max 115 - Trigger point >100	dB	101	104.9	Not required	#34
Ground Vibration	Per Blast	03.08.2017	5 - trigger point >0.26	mm/s	No Trigger	No Trigger	Not required	#35
Overpressure	Per Blast	03.08.2017	Max 115 - Trigger point >100	dB	No Trigger	No Trigger	Not required	#35
Ground Vibration	Per Blast	20.09.2017	5 - trigger point >0.26	mm/s	0.75	0.719	Not required	#36
Overpressure	Per Blast	20.09.2017	Max 115 - Trigger point >100	dB	109.9	112.3	Not required	#36
Ground Vibration	Per Blast	09.11.2017	5 - trigger point >0.26	mm/s	1.528	1.473	Not required	#37
Overpressure	Per Blast	09.11.2017	Max 115 - Trigger point >100	dB	112.6	111.2	Not required	#37
Ground Vibration	Per Blast	13.03.2018	5 - trigger point >0.26	mm/s	1.03	2.77	Not required	#38
Overpressure	Per Blast	13.03.2018	Max 115 - Trigger point >100	dB	108	109.5	Not required	#38
Ground Vibration	Per Blast	12.06.2018	5 - trigger point >0.26	mm/s	1.02	1.17	Not required	#39
Overpressure	Per Blast	12.06.2018	Max 115 - Trigger point >100	dB	107.5	104.2	Not required	#39
Ground Vibration	Per Blast	02.07.2018	5 - trigger point >0.26	mm/s	1.27	1.29	Not required	#40
Overpressure	Per Blast	02.07.2018	Max 115 - Trigger point >100	dB	101.9	107.0	Not required	#40
Ground Vibration	Per Blast	28.09.2018	5 - trigger point >0.26	mm/s	0.52	0.76	Not required	#41
Overpressure	Per Blast	28.09.2018	Max 115 - Trigger point >100	dB	106	106.0	Not required	#41
Ground Vibration	Per Blast	16.10.2018	5 - trigger point >0.26	mm/s	0.71	0.58	Not required	#42
Overpressure	Per Blast	16.10.2018	Max 115 - Trigger point >100	dB	106.0	108.0	Not required	#42
Ground Vibration	Per Blast	25.01.2019	5 - trigger point >0.26	mm/s	0.74	0.49	Not required	#43
Overpressure	Per Blast	25.01.2019	Max 115 - Trigger point >100	dB	103.5	106	Not required	#43
Ground Vibration	Per Blast	30.04.2019	5 - trigger point >0.26	mm/s	0.6	0.95	Not required	#44
Overpressure	Per Blast	30.04.2019	Max 115 - Trigger point >100	dB	104.9	102.8	Not required	#44
Ground Vibration	Per Blast	30.04.2019	5 - trigger point >0.26	mm/s	No Trigger	No Trigger	Not required	#45
Overpressure	Per Blast	30.04.2019	Max 115 - Trigger point >100	dB	No Trigger	No Trigger	Not required	#45

#### Yarrabee Rd Quarry - Licence Number 11462

Yarrabee Rd Point 3		Pollutant	Total Suspended Solids Max 50 Milligrams per litre	pH (wet) Range 6.5 to 8.5	Requirement to Monitor Volume or Mass
Month	Number of Samples	Frequency	<24hrs prior to discharge	<24hrs prior to discharge	Daily when wastes (water) discharged Litres per day
06.03.2017	1		7	8.2	0
01.05.2017	1		<3	8.9	0
29.11.2017	1		30	8.3	0
08.03.2018	1		5	7.8	0
29.10.2018	1		4	7.9	0
Number of samples	5				
Mean			11.50	8.22	-
Lowest			4.00	7.80	-
Highest			30.00	8.90	-

#### Yarrabee Rd Quarry - Licence Number 11462

Blasting	Frequency	Date	Limits	Units of measure	Results	Blast #	Blast ID
Ground Vibration	Per Blast	05.09.2017	5 - trigger point >1.00	mm/s	1.06	#69	YRQ-1707
Overpressure	Per Blast	05.09.2017	Max 115 - Trigger point >105	dB	113.8	#69	YRQ-1707
Ground Vibration	Per Blast	21.09.2017	5 - trigger point >0.30	mm/s	Nil Trigger	#70	YRQ-1708
Overpressure	Per Blast	21.09.2017	Max 115 - Trigger point >100	dB	Nil Trigger	#70	YRQ-1708
Ground Vibration	Per Blast	02.11.2017	5 - trigger point >0.51	mm/s	0.84	#71	YRQ-1709
Overpressure	Per Blast	02.11.2017	Max 115 - Trigger point >105	dB	111.8	#71	YRQ-1709
Ground Vibration	Per Blast	24.01.2018	5 - trigger point >1.00	mm/s	0.61	#72	YRQ-1801
Overpressure	Per Blast	24.01.2018	Max 115 - Trigger point >105	dB	110.7	#72	YRQ-1801
Ground Vibration	Per Blast	20.03.2018	5 - trigger point >0.50	mm/s	0.54	#73	YRQ-1802
Overpressure	Per Blast	20.03.2018	Max 115 - Trigger point >105	dB	113.2	#73	YRQ-1802

<b>Ground Vibration</b>	Per Blast	21.05.2018	5 - trigger point 0.50	mm/s	<b>Nii Trigger</b>	<b>#74</b>	YRQ-1803
<b>Overpressure</b>	Per Blast	21.05.2018	Max 115 - Trigger point >100dB	dB	<b>Nii Trigger</b>	<b>#74</b>	YRQ-1803
<b>Ground Vibration</b>	Per Blast	03.07.2018	5 - trigger point >0.50	mm/s	<b>0.80</b>	<b>#75</b>	YRQ-1804
<b>Overpressure</b>	Per Blast	03.07.2018	Max 115 - Trigger point >100dB	dB	<b>111.0</b>	<b>#75</b>	YRQ-1804
<b>Ground Vibration</b>	Per Blast	31.07.2018	5 - trigger point >0.50	mm/s	<b>1.37</b>	<b>#76</b>	YRQ-1805
<b>Overpressure</b>	Per Blast	31.07.2018	Max 115 - Trigger point >100dB	dB	<b>114.3</b>	<b>#76</b>	YRQ-1805
<b>Ground Vibration</b>	Per Blast	17.09.2018	5 - trigger point >0.50	mm/s	<b>0.77</b>	<b>#77</b>	YRQ-1806
<b>Overpressure</b>	Per Blast	17.09.2018	Max 115 - Trigger point >100dB	dB	<b>106.3</b>	<b>#77</b>	YRQ-1806
<b>Ground Vibration</b>	Per Blast	30.10.2018	5 - trigger point >0.50	mm/s	<b>Nii Trigger</b>	<b>#78</b>	YRQ-1807
<b>Overpressure</b>	Per Blast	30.10.2018	Max 115 - Trigger point >100dB	dB	<b>Nii Trigger</b>	<b>#78</b>	YRQ-1807
<b>Ground Vibration</b>	Per Blast	20.11.2018	5 - trigger point >0.50	mm/s	<b>0.56</b>	<b>#79</b>	YRQ-1808
<b>Overpressure</b>	Per Blast	20.11.2018	Max 115 - Trigger point >100dB	dB	<b>108.8</b>	<b>#79</b>	YRQ-1808
<b>Ground Vibration</b>	Per Blast	21.01.2019	5 - trigger point >0.50	mm/s	<b>0.65</b>	<b>#80</b>	YRQ-1901
<b>Overpressure</b>	Per Blast	21.01.2019	Max 115 - Trigger point >100dB	dB	<b>110.2</b>	<b>#80</b>	YRQ-1901
<b>Ground Vibration</b>	Per Blast	06.03.2019	5 - trigger point >0.50	mm/s	<b>0.87</b>	<b>#81</b>	YRQ-1902
<b>Overpressure</b>	Per Blast	06.03.2019	Max 115 - Trigger point >100dB	dB	<b>103.9</b>	<b>#81</b>	YRQ-1902
<b>Ground Vibration</b>	Per Blast	15.04.2019	5 - trigger point >0.50	mm/s	<b>0.84</b>	<b>#82</b>	YRQ-1903
<b>Overpressure</b>	Per Blast	15.04.2019	Max 115 - Trigger point >100dB	dB	<b>110.2</b>	<b>#82</b>	YRQ-1903