



# Tritton and Girilambone Operations

## Monthly Environmental Monitoring Report

[December] [2021]

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### **Environmental Protection License 11254**

TRITTON COPPER MINE

YARRANDALE ROAD, HERMIDALE, NSW, 2831

*<http://www.epa.nsw.gov.au/prpoeoapp/Detail.aspx?instid=11254&id=11254&option=licence&searchrange=licence&range=POEO licence&prp=no&status=Issued>*

### **Environmental Protection License 4501**

TRITTON COPPER MINE

BOORAMUGGA ROAD, GIRILAMBONE, NSW, 2831

*<http://www.epa.nsw.gov.au/prpoeoapp/Detail.aspx?instid=4501&id=4501&option=licence&searchrange=licence&range=POEO licence&prp=no&status=Issued>*

**[DECEMBER] [2021] – GROUNDWATER MONITORING REPORT**  
**TRITTON OPERATIONS LICENCE NO.11254**

Licensee: TRITTON RESOURCES LIMITED EPL No. 11254					
Sample Point	Monitoring Frequency	Date	Parameter	Measurement	Unit
EPA ID No. 12 - PZH001	Quarterly	Sampled:  Obtained:  Published: 8/04/2022	Arsenic Barium Beryllium Cadmium Chloride Chromium Cobalt Conductivity (EC) Copper Iron Lead Manganese Mercury Nickel pH Sulfate Vanadium Zinc SWL		mg/L <sup>1</sup> mg/L mg/L mg/L mg/L mg/L mg/L mg/L μS/cm <sup>2</sup> mg/L mg/L mg/L mg/L mg/L mg/L pH Unit mg/L mg/L mg/L mg/L m <sup>3</sup>
EPA ID No. 13 - PZH002	Quarterly	Sampled:  Obtained:  Published: 8/04/2022	Arsenic Barium Beryllium Cadmium Chloride Chromium Cobalt Conductivity (EC) Copper Iron Lead Manganese Mercury Nickel pH		mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L μS/cm mg/L mg/L mg/L mg/L mg/L mg/L mg/L pH Unit

<sup>1</sup> Milligrams per litre

<sup>2</sup> Microsiemens per centimetre

<sup>3</sup> Metres

			Sulfate Vanadium Zinc SWL		mg/L mg/L mg/L m
EPA ID No. 14 - PZH003	Quarterly	Sampled:  Obtained:  Published: 8/04/2022	Arsenic Barium Beryllium Cadmium Chloride Chromium Cobalt Conductivity (EC) Copper Iron Lead Manganese Mercury Nickel pH Sulfate Vanadium Zinc SWL		mg/L mg/L mg/L mg/L mg/L mg/L mg/L µS/cm mg/L mg/L mg/L mg/L mg/L mg/L pH Unit mg/L mg/L mg/L m
EPA ID No. 15 - PZH004	Quarterly	Sampled:  Obtained:  Published: 8/04/2022	Arsenic Barium Beryllium Cadmium Chloride Chromium Cobalt Conductivity (EC) Copper Iron Lead Manganese Mercury Nickel pH Sulfate Vanadium Zinc SWL		mg/L mg/L mg/L mg/L mg/L mg/L mg/L µS/cm mg/L mg/L mg/L mg/L mg/L mg/L pH Unit mg/L mg/L mg/L m
EPA ID No. 16 - PZH005	Quarterly	Sampled:  Obtained:	Arsenic Barium Beryllium Cadmium		mg/L mg/L mg/L mg/L

		Published: 8/04/2022	Chloride Chromium Cobalt Conductivity (EC) Copper Iron Lead Manganese Mercury Nickel pH Sulfate Vanadium Zinc SWL		mg/L mg/L mg/L µS/cm mg/L mg/L mg/L mg/L mg/L pH Unit mg/L mg/L mg/L m
EPA ID No. 17 - PZH006	Quarterly	Sampled:  Obtained:  Published: 8/04/2022	Arsenic Barium Beryllium Cadmium Chloride Chromium Cobalt Conductivity (EC) Copper Iron Lead Manganese Mercury Nickel pH Sulfate Vanadium Zinc SWL		mg/L mg/L mg/L mg/L mg/L mg/L mg/L µS/cm mg/L mg/L mg/L mg/L mg/L mg/L pH Unit mg/L mg/L mg/L m
EPA ID No. 18 - PZH007	Quarterly	Sampled: 16/12/21 Obtained: 12/1/22 Published: 8/04/2022	Arsenic Barium Beryllium Cadmium Chloride Chromium Cobalt Conductivity (EC) Copper Iron Lead Manganese	0.005 0.031 0.001 0.002 4650 0.004 0.016 15900 0.198 0.44 0.001 0.21	mg/L mg/L mg/L mg/L mg/L mg/L mg/L µS/cm mg/L mg/L mg/L mg/L

			Mercury	0.0001	mg/L
			Nickel	0.011	mg/L
			pH	8.05	pH Unit
			Sulfate	2250	mg/L
			Vanadium	0.01	mg/L
			Zinc	0.12	mg/L
			SWL	42.39	m
EPA ID No. 19 - PZH008	Quarterly	Sampled: 16/12/21 Obtained: 12/01/22  Published: 8/04/2022	Arsenic	0.02	mg/L
			Barium	0.019	mg/L
			Beryllium	0.001	mg/L
			Cadmium	0.0006	mg/L
			Chloride	3970	mg/L
			Chromium	0.001	mg/L
			Cobalt	0.01	mg/L
			Conductivity (EC)	13300	µS/cm
			Copper	0.044	mg/L
			Iron	1.12	mg/L
			Lead	0.001	mg/L
			Manganese	0.108	mg/L
			Mercury	0.0001	mg/L
			Nickel	0.004	mg/L
			pH	7.92	pH Unit
			Sulfate	1810	mg/L
			Vanadium	0.01	mg/L
			Zinc	0.065	mg/L
			SWL	17.22	m
EPA ID No. 20 - PZH009	Quarterly	Sampled: 16/12/21 Obtained: 12/01/22  Published: 8/04/2022	Arsenic	0.001	mg/L
			Barium	0.045	mg/L
			Beryllium	0.001	mg/L
			Cadmium	0.0008	mg/L
			Chloride	5380	mg/L
			Chromium	0.001	mg/L
			Cobalt	0.002	mg/L
			Conductivity (EC)	17200	µS/cm
			Copper	0.098	mg/L
			Iron	0.18	mg/L
			Lead	0.001	mg/L
			Manganese	0.072	mg/L
			Mercury	0.0001	mg/L
			Nickel	0.018	mg/L
			pH	8	pH Unit
			Sulfate	2280	mg/L
			Vanadium	0.01	mg/L
			Zinc	0.127	mg/L
			SWL	12.83	m
EPA ID	Quarterly	Sampled:	Arsenic		mg/L

No. 22 - PZH013		16/12/21  Obtained: DRY  Published: 8/04/2022	Barium Beryllium Cadmium Chloride Chromium Cobalt Conductivity (EC) Copper Iron Lead Manganese Mercury Nickel pH Sulfate Vanadium Zinc SWL		mg/L mg/L mg/L mg/L mg/L mg/L μS/cm mg/L mg/L mg/L mg/L mg/L mg/L pH Unit mg/L mg/L mg/L mg/L m
EPA ID No. 23 - PZH014	Quarterly	Sampled: 16/12/21  Obtained: 12/01/22  Published: 8/04/2022	Arsenic Barium Beryllium Cadmium Chloride Chromium Cobalt Conductivity (EC) Copper Iron Lead Manganese Mercury Nickel pH Sulfate Vanadium Zinc SWL	0.001 0.004 0.001 0.0002 4480 0.001 0.001 14500 0.005 0.05 0.001 0.019 0.0001 0.003 7.86 1870 0.01 0.015 46.24	mg/L mg/L mg/L mg/L mg/L mg/L mg/L μS/cm mg/L mg/L mg/L mg/L mg/L pH Unit mg/L mg/L mg/L mg/L m
EPA ID No. 24 - PZH015	Quarterly	Sampled: 16/12/21  Obtained: 12/01/22  Published: 8/04/2022	Arsenic Barium Beryllium Cadmium Chloride Chromium Cobalt Conductivity (EC) Copper	0.001 0.007 0.001 0.0001 4950 0.012 0.001 16900 0.016	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L μS/cm mg/L



			Zinc SWL		mg/L m
EPA ID No. 27 - PZH019	Quarterly	Sampled: D/M/Y  Obtained: D/M/Y  Published: 8/04/2022	Arsenic Barium Beryllium Cadmium Chloride Chromium Cobalt Conductivity (EC) Copper Iron Lead Manganese Mercury Nickel pH Sulfate Vanadium Zinc SWL		mg/L mg/L mg/L mg/L mg/L mg/L mg/L μS/cm mg/L mg/L mg/L mg/L mg/L mg/L pH Unit mg/L mg/L mg/L m
EPA ID No. 28 - PZH020	Quarterly	Sampled: D/M/Y  Obtained: D/M/Y  Published: 8/04/2022	Arsenic Barium Beryllium Cadmium Chloride Chromium Cobalt Conductivity (EC) Copper Iron Lead Manganese Mercury Nickel pH Sulfate Vanadium Zinc SWL		mg/L mg/L mg/L mg/L mg/L mg/L mg/L μS/cm mg/L mg/L mg/L mg/L mg/L mg/L pH Unit mg/L mg/L mg/L m
EPA ID No. 29 - PZH021	Quarterly	Sampled: D/M/Y  Obtained: D/M/Y	Arsenic Barium Beryllium Cadmium Chloride Chromium		mg/L mg/L mg/L mg/L mg/L mg/L



		Published: 8/04/2022	Cobalt Conductivity (EC) Copper Iron Lead Manganese Mercury Nickel pH Sulfate Vanadium Zinc SWL		mg/L μS/cm mg/L mg/L mg/L mg/L mg/L mg/L pH Unit mg/L mg/L mg/L m
EPA ID No. 30 - PZH022	Quarterly	Sampled:  Obtained:  Published: 8/04/2022	Arsenic Barium Beryllium Cadmium Chloride Chromium Cobalt Conductivity (EC) Copper Iron Lead Manganese Mercury Nickel pH Sulfate Vanadium Zinc SWL		mg/L mg/L mg/L mg/L mg/L mg/L mg/L μS/cm mg/L mg/L mg/L mg/L mg/L pH Unit mg/L mg/L mg/L m
EPA ID No. 31 - PZH023	Quarterly	Sampled:  Obtained:  Published: 8/04/2022	Arsenic Barium Beryllium Cadmium Chloride Chromium Cobalt Conductivity (EC) Copper Iron Lead Manganese Mercury Nickel		mg/L mg/L mg/L mg/L mg/L mg/L mg/L μS/cm mg/L mg/L mg/L mg/L mg/L mg/L mg/L

			<p>pH</p> <p>Sulfate</p> <p>Vanadium</p> <p>Zinc</p> <p>SWL</p>		<p>pH Unit</p> <p>mg/L</p> <p>mg/L</p> <p>mg/L</p> <p>m</p>
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**[DECEMBER] [2021] – GROUNDWATER MONITORING REPORT**  
**GIRILAMBONE OPERATIONS LICENCE NO.4501**

Licensee: TRITTON RESOURCES LIMITED EPL No. 4501					
Sample Point	Monitoring Frequency	Date	Parameter	Measurement	Unit
EPA ID No. 2 - GIP224	Monthly	Sampled:	Arsenic		mg/L
			Barium		mg/L
			Beryllium		mg/L
		Obtained:	Cadmium		mg/L
			Chloride		mg/L
		Published:	Chromium		mg/L
		8/04/2022	Cobalt		mg/L
			Conductivity (EC)		µS/cm
			Copper		mg/L
			Iron		mg/L
			Lead		mg/L
			Manganese		mg/L
			Mercury		mg/L
			Nickel		mg/L
			pH		pH Unit
			Sulfate		mg/L
			Vanadium		mg/L
	Zinc		mg/L		
	SWL		m		
EPA ID No. 3 - GIP225	Monthly	Sampled:	Arsenic		mg/L
			Barium		mg/L
			Beryllium		mg/L
		Obtained:	Cadmium		mg/L
			Chloride		mg/L
		Published:	Chromium		mg/L
		8/04/2022	Cobalt		mg/L
			Conductivity (EC)		µS/cm
			Copper		mg/L
			Iron		mg/L
			Lead		mg/L
			Manganese		mg/L
			Mercury		mg/L
			Nickel		mg/L
			pH		pH Unit
			Sulfate		mg/L
			Vanadium		mg/L
	Zinc		mg/L		
	SWL		m		





			Vanadium Zinc SWL	17.55	mg/L mg/L m
EPA ID No. 9 - GIP278	Quarterly	Sampled: 23/12/21  Obtained:  Published: 8/04/2022	Arsenic Barium Beryllium Cadmium Chloride Chromium Cobalt Conductivity (EC) Copper Iron Lead Manganese Mercury Nickel pH Sulfate Vanadium Zinc SWL		mg/L mg/L mg/L mg/L mg/L mg/L mg/L µS/cm mg/L mg/L mg/L mg/L mg/L pH Unit mg/L mg/L mg/L m
EPA ID No. 10 - GIP279A	Quarterly	Sampled: 23/12/21  Obtained:  Published: 8/04/2022	Arsenic Barium Beryllium Cadmium Chloride Chromium Cobalt Conductivity (EC) Copper Iron Lead Manganese Mercury Nickel pH Sulfate Vanadium Zinc SWL		mg/L mg/L mg/L mg/L mg/L mg/L mg/L µS/cm mg/L mg/L mg/L mg/L mg/L pH Unit mg/L mg/L mg/L m
EPA ID No. 11 - GIP280A	Quarterly	Sampled: 23/12/21  Obtained:	Arsenic Barium Beryllium Cadmium Chloride		mg/L mg/L mg/L mg/L mg/L

		Published: 8/04/2022	Chromium Cobalt Conductivity (EC) Copper Iron Lead Manganese Mercury Nickel pH Sulfate Vanadium Zinc SWL	22.67	mg/L mg/L µS/cm mg/L mg/L mg/L mg/L mg/L pH Unit mg/L mg/L mg/L m
EPA ID No. 12 - GIP290	Monthly	Sampled: 22/12/21  Obtained: 12/01/22  Published: 8/04/2022	Arsenic Barium Beryllium Cadmium Chloride Chromium Cobalt Conductivity (EC) Copper Iron Lead Manganese Mercury Nickel pH Sulfate Vanadium Zinc SWL	0.002 0.014 0.001 0.0247 3860 0.001 0.164 16200 0.156 0.13 0.002 8.31 0.0001 0.017 7.52 3870 0.01 0.369 15.52	mg/L mg/L mg/L mg/L mg/L mg/L µS/cm mg/L mg/L mg/L mg/L mg/L mg/L pH Unit mg/L mg/L mg/L m
EPA ID No. 13 - GIP291	Monthly	Sampled: 13/12/21  Obtained: 12/01/22  Published: 8/04/2022	Arsenic Barium Beryllium Cadmium Chloride Chromium Cobalt Conductivity (EC) Copper Iron Lead Manganese Mercury	0.001 0.023 0.001 0.0015 8460 0.001 0.014 25400 0.086 0.23 0.002 0.194 0.0001	mg/L mg/L mg/L mg/L mg/L mg/L mg/L µS/cm mg/L mg/L mg/L mg/L mg/L

			Nickel	0.008	mg/L
			pH	7.73	pH Unit
			Sulfate	2830	mg/L
			Vanadium	0.01	mg/L
			Zinc	0.072	mg/L
			SWL	11.14	m
EPA ID No. 14 - GIP292A	Monthly	Sampled: 9/12/21  Obtained: 12/01/22 Published: 8/04/2022	Arsenic	0.058	mg/L
			Barium	0.01	mg/L
			Beryllium	0.123	mg/L
			Cadmium	4.6	mg/L
			Chloride	2440	mg/L
			Chromium	0.21	mg/L
			Cobalt	77.5	mg/L
			Conductivity (EC)	31200	µS/cm
			Copper	332	mg/L
			Iron	152	mg/L
			Lead	0.01	mg/L
			Manganese	688	mg/L
			Mercury	0.0002	mg/L
			Nickel	24.5	mg/L
			pH	3.52	pH Unit
			Sulfate	39900	mg/L
			Vanadium	0.21	mg/L
			Zinc	361	mg/L
			SWL	10.89	m
EPA ID No. 16 - GIP292AS	Monthly	Sampled: 9/12/21 Obtained: DRY  Published: 8/04/2022	Arsenic		mg/L
			Barium		mg/L
			Beryllium		mg/L
			Cadmium		mg/L
			Chloride		mg/L
			Chromium		mg/L
			Cobalt		mg/L
			Conductivity (EC)		µS/cm
			Copper		mg/L
			Iron		mg/L
			Lead		mg/L
			Manganese		mg/L
			Mercury		mg/L
			Nickel		mg/L
			pH		pH Unit
			Sulfate		mg/L
			Vanadium		mg/L
			Zinc		mg/L
			SWL	10.31	m
EPA ID No. 17 -	Monthly	Sampled: 13/12/21	Arsenic	0.038	mg/L
			Barium	0.01	mg/L



GIP293		Obtained: 12/01/22  Published: 8/04/2022	Beryllium Cadmium Chloride Chromium Cobalt Conductivity (EC) Copper Iron Lead Manganese Mercury Nickel pH Sulfate Vanadium Zinc SWL	0.025 2.84 4120 0.077 44 38500 92 0.46 0.01 607 0.0006 14.6 3.91 39200 0.1 161 15.42	mg/L mg/L mg/L mg/L mg/L μS/cm mg/L mg/L mg/L mg/L mg/L pH Unit mg/L mg/L mg/L mg/L m
EPA ID No. 18 - GIP294	Monthly	Sampled:  Obtained:  Published: 8/04/2022	Arsenic Barium Beryllium Cadmium Chloride Chromium Cobalt Conductivity (EC) Copper Iron Lead Manganese Mercury Nickel pH Sulfate Vanadium Zinc SWL		mg/L mg/L mg/L mg/L mg/L mg/L mg/L μS/cm mg/L mg/L mg/L mg/L mg/L mg/L pH Unit mg/L mg/L mg/L mg/L m
EPA ID No. 19 - GIP295	Monthly	Sampled: 14/12/21  Obtained: 12/01/22  Published: 8/04/2022	Arsenic Barium Beryllium Cadmium Chloride Chromium Cobalt Conductivity (EC) Copper Iron	0.01 0.045 0.01 0.001 9220 0.01 0.01 29400 0.01 0.1	mg/L mg/L mg/L mg/L mg/L mg/L mg/L μS/cm mg/L mg/L

			Lead	0.01	mg/L
			Manganese	0.466	mg/L
			Mercury	0.0001	mg/L
			Nickel	0.01	mg/L
			pH	7.73	pH Unit
			Sulfate	2760	mg/L
			Vanadium	0.1	mg/L
			Zinc	0.05	mg/L
			SWL	18.86	m
EPA ID No. 20 - GIP296	Monthly	Sampled: 9/12/21	Arsenic	0.001	mg/L
			Barium	0.009	mg/L
		Obtained: 12/01/22	Beryllium	0.001	mg/L
			Cadmium	0.0007	mg/L
		Published: 8/04/2022	Chloride	886	mg/L
			Chromium	0.001	mg/L
			Cobalt	0.01	mg/L
			Conductivity (EC)	13100	µS/cm
			Copper	0.043	mg/L
			Iron	0.06	mg/L
			Lead	0.001	mg/L
			Manganese	0.104	mg/L
			Mercury	0.0001	mg/L
			Nickel	0.008	mg/L
		pH	7.81	pH Unit	
		Sulfate	6120	mg/L	
		Vanadium	0.01	mg/L	
Zinc	0.064	mg/L			
SWL	8.66	m			
EPA ID No. 21 - GIP297	Monthly	Sampled: 14/12/21	Arsenic	0.005	mg/L
			Barium	0.004	mg/L
		Obtained: 12/01/22	Beryllium	0.001	mg/L
			Cadmium	0.0004	mg/L
		Published: 8/04/2022	Chloride	106	mg/L
			Chromium	0.002	mg/L
			Cobalt	0.006	mg/L
			Conductivity (EC)	1180	µS/cm
			Copper	0.078	mg/L
			Iron	0.9	mg/L
			Lead	0.002	mg/L
			Manganese	0.094	mg/L
			Mercury	0.0001	mg/L
			Nickel	0.004	mg/L
		pH	7.73	pH Unit	
		Sulfate	215	mg/L	
		Vanadium	0.01	mg/L	
Zinc	0.089	mg/L			

			SWL	22.66	m
EPA ID No. 22 - GIP298	Monthly	Sampled: 14/12/21	Arsenic	0.01	mg/L
			Barium	0.01	mg/L
			Beryllium	0.01	mg/L
		Obtained: 12/01/22	Cadmium	0.001	mg/L
			Chloride	9900	mg/L
			Chromium	0.01	mg/L
		Published: 8/04/2022	Cobalt	0.01	mg/L
			Conductivity (EC)	29600	μS/cm
			Copper	0.035	mg/L
			Iron	0.16	mg/L
			Lead	0.01	mg/L
			Manganese	0.08	mg/L
			Mercury	0.0001	mg/L
			Nickel	0.01	mg/L
			pH	7.87	pH Unit
			Sulfate	2900	mg/L
			Vanadium	0.1	mg/L
Zinc	0.079	mg/L			
SWL	22.62	m			
EPA ID No. 23 - GIP299	Monthly	Sampled:	Arsenic		mg/L
			Barium		mg/L
		Obtained:	Beryllium		mg/L
			Cadmium		mg/L
		Published: 8/04/2022	Chloride		mg/L
			Chromium		mg/L
			Cobalt		mg/L
			Conductivity (EC)		μS/cm
			Copper		mg/L
			Iron		mg/L
			Lead		mg/L
			Manganese		mg/L
			Mercury		mg/L
			Nickel		mg/L
			pH		pH Unit
			Sulfate		mg/L
			Vanadium		mg/L
Zinc		mg/L			
SWL		m			
EPA ID No. 24 - GIP300	Monthly	Sampled:	Arsenic		mg/L
			Barium		mg/L
		Obtained:	Beryllium		mg/L
			Cadmium		mg/L
		Published: 8/04/2022	Chloride		mg/L
			Chromium		mg/L
Cobalt		mg/L			

			Conductivity (EC) Copper Iron Lead Manganese Mercury Nickel pH Sulfate Vanadium Zinc SWL		µS/cm mg/L mg/L mg/L mg/L mg/L mg/L pH Unit mg/L mg/L mg/L mg/L m
EPA ID No. 25 - GIP301	Monthly	Sampled: 14/12/21  Obtained: 12/01/22  Published: 8/04/2022	Arsenic Barium Beryllium Cadmium Chloride Chromium Cobalt Conductivity (EC) Copper Iron Lead Manganese Mercury Nickel pH Sulfate Vanadium Zinc SWL	0.001 0.021 0.001 0.0045 2310 0.001 0.001 9490 0.043 0.06 0.001 0.883 0.0001 0.019 8.06 1360 0.01 0.201 15.45	mg/L mg/L mg/L mg/L mg/L mg/L mg/L µS/cm mg/L mg/L mg/L mg/L mg/L mg/L pH Unit mg/L mg/L mg/L m
EPA ID No. 26 - GIP302	Monthly	Sampled: 14/12/21  Obtained: 12/01/22  Published: 8/04/2022	Arsenic Barium Beryllium Cadmium Chloride Chromium Cobalt Conductivity (EC) Copper Iron Lead Manganese Mercury Nickel pH	0.01 0.01 0.01 0.0119 9060 0.052 0.145 29400 0.934 0.28 0.01 1.56 0.0001 0.529 7.76	mg/L mg/L mg/L mg/L mg/L mg/L mg/L µS/cm mg/L mg/L mg/L mg/L mg/L mg/L pH Unit

			Sulfate	5460	mg/L
			Vanadium	0.1	mg/L
			Zinc	0.765	mg/L
			SWL	17.71	m