



A Montrose Environmental Company

2023 – 2024 Receiving Environment Monitoring Program Report

Multicom Resources

SEP-RPT-EV-00004 – Receiving Environment Monitoring Program Report

Saint Elmo Mine

SWS240077.01

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EXECUTIVE SUMMARY

The Saint Elmo Vanadium Project (the Project), operated by Multicom Resources (Multicom), is located within the Flinders River Catchment, east of Julia Creek, Queensland. The Project is located across four Mining Leases (ML) ML100162, ML100244, ML100245 and ML100246.

A Receiving Environment Monitoring Program (REMP) design document was developed within six months of the EA becoming effective (03/02/2023) in accordance with Condition E11 of the Project's Environmental Authority (EA) P-EA-100119386. The REMP design document outlines methods to identify potential adverse impacts to the receiving environment as a result of the activities undertaken as part of the Project, and to monitor any changes in water and sediment quality observed in the receiving environment.

In accordance with Condition E13 of the EA, a report outlining the results of the REMP implementation is to be prepared annually. Epic Environmental Pty Ltd (Epic) was engaged by Multicom to prepare the 2023 – 2024 REMP implementation report. This report covers the period of January 2023 to December 2024, with annual reporting (calendar year) to be completed hereafter.

Key findings from analysis of the 2023/2024 data include the following:

- There were a number of exceedances of surface water quality EA criteria, in particular metals including aluminium, copper, cobalt, chromium, iron, lead, mercury, manganese, nickel, uranium, vanadium and zinc and physico-chemical parameters including electrical conductivity, sulphate and pH. Exceedances were typically reported during periods of no flow when monitoring sites comprised remnant, disconnected pools. Furthermore, mining had not yet commenced and no mine-affected water discharges have occurred. Therefore, the exceedances are unlikely to be mining related and do not pose a risk to environmental receptors and human uses.
- Analysis of sediment quality data against sediment quality EA criteria identified an exceedance of hydrocarbons during the 2023 post-dry survey and an exceedance of cadmium during the 2024 post-dry survey. The concentrations are unlikely to be mining related and are considered to pose a low risk to environmental values.
- As mining activities have not yet commenced in the study area and no releases of mine-affected water were reported, exceedances recorded during this reporting period are not attributable to mining activities. It is recommended that once mining commences, water quality is closely monitored following each sampling round, in particular for exceedances of metals.

As per Condition E7 of the EA, compliance limits are hard limits that should not be exceeded. However, some of the compliance limits for surface water may not be appropriate. These include total aluminium (0.2 mg/L) and pH (6.0–8.0), where monitoring data shows that most of the data collected during the reporting period exceeded the compliance limits for these parameters. These exceedances occurred at upstream reference sites as well as downstream compliance sites, indicating a broadscale natural variability. As these exceedances occurred in the absence of mining and mine affected water releases, it is recommended that the compliance limits should be reviewed. Revised compliance limits should take into account baseline data collected to date.

1 INTRODUCTION

Epic Environmental Pty Ltd (Epic) was engaged by Multicom Resources (Multicom) to prepare this 2023 – 2024 Receiving Environment Monitoring Program (REMP) report.

1.1 Background

The Saint Elmo Vanadium Project (the Project) is located within the Flinders River Catchment, east of Julia Creek, Queensland. The Project is located across four Mining Leases (ML) ML100162, ML100244, ML100245 and ML100246.

The Receiving Environment Monitoring Program (REMP) design document was developed within six months of the EA becoming effective (03/02/2023) in accordance with Condition E11 of the Project’s Environmental Authority (EA) P-EA-100119386. The REMP design document outlines methods to identify potential adverse impacts to the receiving environment as a result of the activities undertaken as part of the Project, and to monitor any changes in water and sediment quality observed in the receiving environment.

1.2 EA Conditions

In accordance with Condition E13 of the Saint Elmo Mine Environmental Authority (EA), a report outlining the results of the REMP implementation is to be prepared annually. This report covers the period of January 2023 to December 2024, with annual reporting (calendar year) to be completed hereafter.

Table 1 details the requirements of Conditions E11 to E14 of the EA with reference to the REMP and where each condition is addressed in the report.

Table 1. EA Conditions

Condition	Reference / Report Section
Condition E11	
The holder of this environmental authority must develop, document and implement a Receiving Environment Monitoring Program to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows, within 6 months of the effective date of this environmental authority.	REMP Design Document (Multicom, 2022)
Condition E12	
The Receiving Environment Monitoring Program must include at a minimum:	Section 2
(a) The surface water quality and sediment monitoring locations, the monitoring frequency (before and after the activity starts) and the indicators to be monitored in accordance with Table E2 – Surface water quality objectives and Table E3 – Sediment quality objectives	
(b) Encompassing the waters of Flinders River and Julia Creek catchment and connected or surrounding waterways within 10 km downstream of the mining activities, and where possible in tributaries on site	Section 2.1
(c) Identification of all environmental values of receiving waters	Section 1.3.1
(d) An assessment of background reference water quality, the condition of downstream water quality compared against water quality objective in accordance with Table E2 – Surface water quality objectives	Section 3.2 & 4.1
(e) An aquatic ecosystem health and aquatic flora and fauna assessment within and immediately surrounding the project area that assesses potential impacts to the aquatic ecosystem and proposed appropriate mitigation measures	REMP Design Document (Multicom, 2022)
(f) The aquatic ecology monitoring locations and frequency	REMP Design Document (Multicom, 2022)
(g) Measure any adverse impacts on flora and fauna species richness and species abundance	REMP Design Document (Multicom, 2022)
Condition E13	
A Receiving Environment Monitoring Program report, including all monitoring results and any interpretations or assumptions relied upon, must be prepared by an appropriately qualified person annually and submitted to the Administering Authority annually.	Section 1 to Section 5

Condition E14

The following information must be recorded in relation to all surface water, sediment and biological monitoring required under the conditions of this environmental authority and submitted to the administering authority in the specified format with each annual return or upon request from the administering authority:

- (a) The date on which the sample was taken; and
- (b) The time at which the sample was taken; and
- (c) The monitoring point at which the sample was taken; and
- (d) The observed flow rate of the stream at which the sample was taken; and
- (e) The results of all monitoring and details of any exceedances of the conditions of this environmental authority.

Appendix A & Appendix B

1.3 Study Area

The Project is located within the Flinders River Catchment which is a sub-basin of the greater Guld Rivers Catchment. The Flinders River Catchment has a total catchment area of approximately 109,000 km² with the main rivers being the Flinders, Cloncurry, and Saxby Rivers, which drain towards the Gulf of Carpentaria to the North (Engeny 2020).

There are no major waterways that traverse or intersect with the Project area mine site (ML100162). There are three minor tributaries that traverse the southern extent of ML100162 and report to Julia Creek. Only one of these tributaries is named (Horse Creek).

A Watercourse Determination was requested to confirm that the minor tributaries within ML100162 are drainage features under the *Water Act 2000* (Water Act). In April 2021 the Department of Regional Development, Manufacturing and Water (DRDMW) determined that the features are drainage features, not watercourses, as defined under the Water Act. In accordance with the definitions of the Water Act, water within a drainage feature is classed as overland flow water. Works including (but not limited to) the excavation or placement of fill, destroying vegetation, etc can be undertaken in a drainage feature and do not require a Riverine Protection Permit.

The Offsite Water Storage Facility (OWSF) ML100244 and ML100246 are located adjacent to the Flinders River with the pipeline (ML100245) which supplies water to ML100162 crossing one major waterway (Alick Creek).

The Flinders River is the primary river of the Flinders River sub-basin and flows in a northwest direction east of the Project site. It is the longest river in Queensland with a length of approximately 1,004 km. The Flinders River can be subject to flash flooding, with strongly intermittent and seasonal flow. The Flinders River is a defined watercourse under the Water Act as well as a Prescribed Watercourse under the *Water Plan (Gulf) 2007*.

Alick Creek is a tributary of the Flinders River located to the east of ML100162 and is defined as a watercourse under the Water Act.

Julia Creek is a first order tributary of the Cloncurry River. It is the closest major waterway located to the west of the Project site and flows in a northwest direction. Julia Creek transects the Flinders Highway and Mount Isa Railway at the Julia Creek township before flowing for approximately 100 km until the confluence with the Cloncurry River. Julia Creek is not defined as a watercourse or drainage feature under the Water Act.

Other minor tributaries located close to the Project site include:

- Horse Creek transects the southwest corner of ML100162. Horse Creek is not a defined watercourse under the Water Act
- Spellary Creek is located to the east of the Project site and is a tributary of Alick Creek. Spellary Creek is not a defined watercourse under the Water Act
- Pigeon Creek originates above the northern extent of ML100162 and flows into Julia Creek. Pigeon Creek is not a defined watercourse under the Water Act

1.3.1 Environmental Values

Environmental values for the study area have been defined in the REMP. The watercourses within the study are considered to be ‘slightly to moderately disturbed’ in accordance with ANZG (2018) guidelines.

There are currently no documented environmental values for the Project catchment under the *Environmental Protection (Water and Wetland Biodiversity) Policy 2019* (EPP (water)). The environmental values adopted from Engeny (2020) for inclusion within the REMP include:

- Aquatic ecosystems – areas surrounding the Project site are considered to be ‘slightly to moderately disturbed’
- Agriculture – agriculture (cattle grazing) is considered a relevant environmental value for the Project
- Recreational uses – waterholes are known to exist between flood events without surface or groundwater inflow. Primary and secondary recreational uses are identified on the Flinders River
- Aesthetic and cultural and spiritual values – areas of the surrounding waterways are known to have recreational uses, it is considered possible that these waterways provide aesthetic quality or visual recreation use. It is also possible that the waterways provide cultural and spiritual value

1.4 Mine Affected Water Discharges

At the time of reporting mining had not commenced, therefore no releases of mine affected water occurred during the reporting period.

2 METHODOLOGY

2.1 Monitoring Sites

Monitoring sites for water and sediment quality have been defined in the REMP. There are two types of monitoring sites, described as follows:

- **Reference site:** a monitoring site located upstream of the influence of mining activities that provides a suitable baseline of benchmark for comparison with compliance sites. A reference site may be subject to minimal disturbance from dry land grazing, but is not influenced by major extractive industries, urban or point source discharges (DEHP 2013).
- **Compliance site:** a monitoring site located downstream of and potentially influenced by mining activities.

Water quality monitoring sites are detailed in **Table 2** and shown on **Figure 1**.

Table 2. Water and Sediment Quality Monitoring Locations

Monitoring Locations	Site ID	Monitoring Site Description	Coordinates (GDA94, Zone 54)	
			Easting	Northing
Reference Sites (Upstream)				
Julia Creek Upstream	JC-US	Located at the DNRME gauging station location between the Flinders Highway and Punchbowl Road	579193	7715681
Flinders River Upstream	FR-US1	Upstream of Flinders River OWSF	613957	7737321
Horse Creek Upstream	HC-US	Upstream of the Flinders Highway and Northern Rail Line	592928	7715558
Spellary Creek Upstream	SC-US		610079	7715327
Alick Creek Upstream	AC-US		620444	7714585
Compliance Sites (Downstream)				
Julia Creek Downstream	JC-DS	Downstream of confluence with Pigeon Creek, off Old Normanton Road	522987	7781963
Flinders River Downstream	FR-DS	Downstream of confluence with unnamed tributary, north of Old Normanton Road	551204	7797232
Horse Creek Downstream	HC-DS	Horse Creek and/or other tributary flowing from the western side of the site to Julia Creek	583517	7722162
Pigeon Creek Downstream	PC-DS	Pigeon Creek to the north west of the site flowing to Julia Creek	568014	7744274
Tributary of Flinders River Downstream	FR-TRIB	Northern tributary flowing eventually to Flinders Creek	590184	7750824

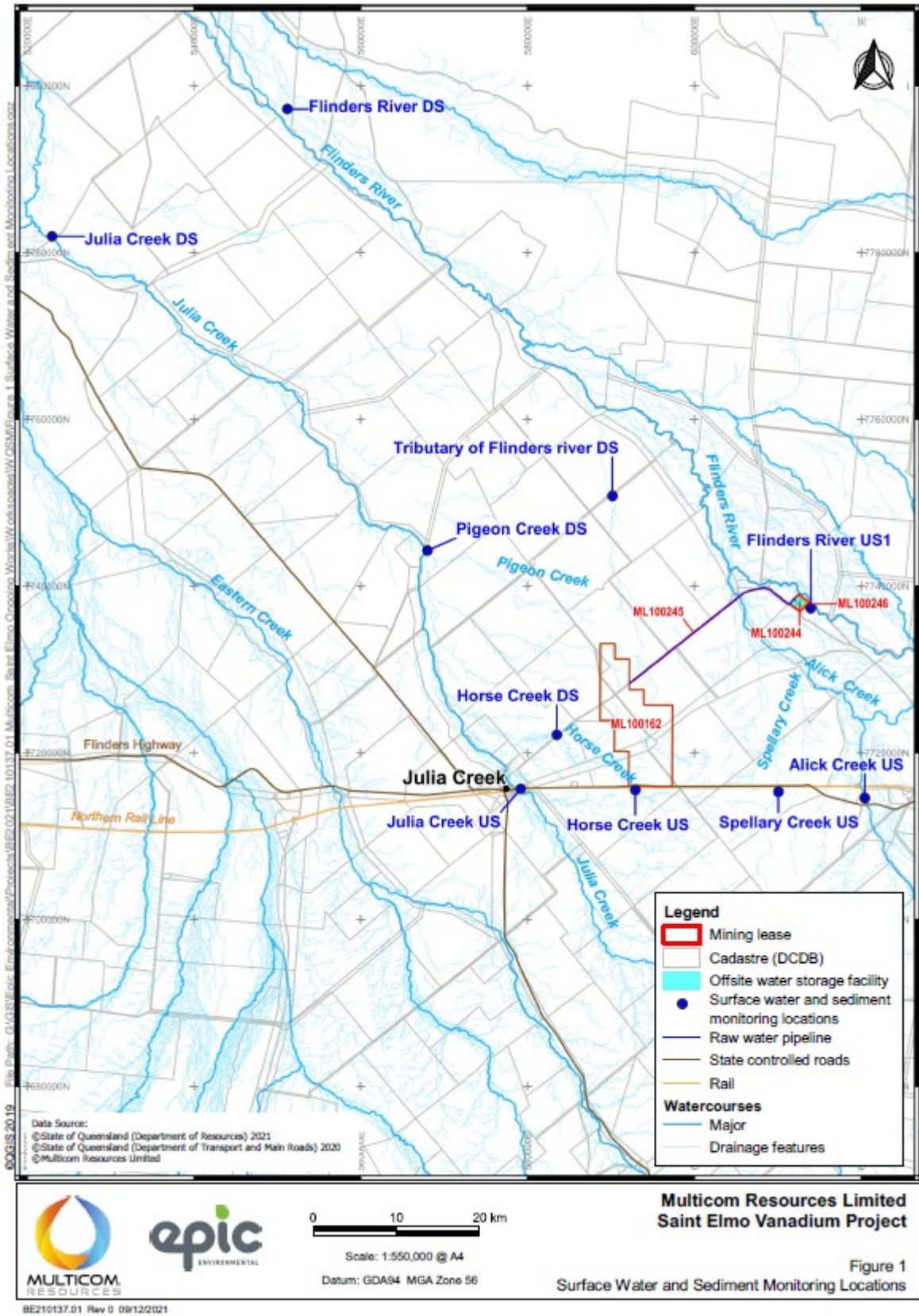


Figure 1. Surface Water and Sediment Monitoring Locations

2.2 Water and Sediment Quality Sampling

2.2.1 Water Quality

Surface water sampling was undertaken on a monthly basis in accordance with the EA. All sampling was undertaken in accordance with current guidance including the *Monitoring and Sampling Manual* (DES 2018).

In-situ water quality parameters were collected at each location using a calibrated portable water quality meter. Field parameters collected included temperature, pH, dissolved oxygen, electrical conductivity, turbidity and redox potential. Field parameters were recorded on standardised field sheets, along with any visual observation made at the time of sampling (odour, colour, flow, hydrocarbon sheen, etc.).

Samples were collected at each location using a telescopic pole with a fit-for-purpose sample bottle attached to the end. Samples were collected from the centre of the water body where possible, or no less than one metre from the edge of the water body. Samples were collected from within the water column at a depth of no less than 30 cm below the surface and at least 30 cm above the base of the water body, where practicable. Sample bottles were lowered into the water body with the opening facing downward so as to not capture any surface sediments and rotated upwards to fill once the desired depth was reached.

Samples were decanted from the collection bottle into laboratory prepared bottles and vials, in accordance with laboratory specifications and requirements (e.g., field filtered, no headspace).

A duplicate surface water sample was collected from one location during each event and labelled with a non-identifiable sample number for quality assurance / quality control (QA/QC) purposes.

All sample bottles were clearly labelled with unique identification numbers consisting of the date, sample location and sampler's initials. All samples were kept in an ice-filled cooler box (esky) prior to dispatch and during transport to a National Association of Testing Authorities (NATA) accredited laboratory under chain-of-custody procedures.

Reusable equipment was decontaminated between each surface water sampling location and event by scrubbing with a solution of Decon 90 detergent followed by a rinse in potable water.

2.2.1.1 Flow

Observed flow rate was recorded at each sample point at the time of sample collection. Observations were visual only with an estimation of flow rates recorded using qualitative terms such as 'standing water', 'no flow', 'low flow', 'medium flow' and 'high flow'.

2.2.2 Sediment Quality

Sediment samples were collected twice per year, once at the end of the wet season and once at the end of the dry season, in accordance with the EA. Sampling was undertaken in line with current guidance including the *Monitoring and Sampling Manual* (DES 2018).

Sediment samples were collected from sediments contained within the water channel at the nominated sample locations using a clean trowel or shovel. Samples were collected from a minimum of 100 mm below surface from the centre of the returned material by hand, ensuring a clean nitrile glove was worn for each location. Samples were placed directly into laboratory prepared sample containers.

A duplicate sediment sample was collected from one location each event and was labelled with a non-identifiable sample number for QA/QC purposes.

All sample containers were clearly labelled with unique identification numbers consisting of the date, sample location and sampler's initials. All samples were kept in an ice-filled cooler box (esky) prior to dispatch and during transport to a National Association of Testing Authorities (NATA) accredited laboratory under chain-of-custody procedures.

Reusable equipment was decontaminated between each sediment sampling location and event by scrubbing with a solution of Decon 90 detergent followed by a rinse in potable water.

2.2.3 Data Analysis

The results from surface water quality monitoring were compared with (i) water quality objectives and (ii) compliance limits as set out in *Table E2 – Surface water quality objectives* in the EA. Sediment quality results were compared with the sediment trigger limits as set out in *Table E3 – Sediment quality objectives* in the EA. Sediment quality objectives are derived from ANZG (2018).

As per Condition E6 of the EA, water quality objectives are used as trigger levels for further investigation. In contrast, as per Condition E7 of the EA, compliance limits are hard limits that should not be exceeded.

The surface water and sediment quality objectives are outlined in **Table 3** and **Table 4**, respectively.

Table 3. Surface Water Quality Objectives (EA)

Quality Characteristics ¹	Unit	Water Quality Objective	Compliance Limit	Monitoring Frequency
pH	pH units	-	6 – 8 ³	Monthly
Electrical conductivity	µS/cm	607 ⁴	1,300 ⁶	
Sulfate	mg/L	46 ⁴	250 ⁵	
Aluminium	mg/L	0.06 ⁴	0.2 ⁵	
Arsenic	mg/L	0.01 ²	0.1 ⁶	
Barium	mg/L	0.057 ⁴	2 ⁵	
Boron	mg/L	0.37 ²	4 ⁵	
Cadmium	mg/L	0.0002 ²	0.002 ⁵	
Chromium	mg/L	0.001 ²	0.05 ⁵	
Cobalt	mg/L	0.0014 ²	0.05 ⁶	
Copper	mg/L	0.004 ⁴	2 ⁵	
Iron	mg/L	0.2 ⁶	0.3 ²	
Lead	mg/L	0.0034 ²	0.01 ⁵	
Manganese	mg/L	0.2 ⁶	1.9 ²	
Mercury (inorganic)	mg/L	0.0006 ²	0.001 ⁵	
Molybdenum	mg/L	0.034 ²	0.05 ⁵	
Nickel	mg/L	0.011 ²	0.02 ⁵	
Selenium	mg/L	0.011 ²	0.02 ⁶	
Uranium	mg/L	0.002 ⁴	0.017 ⁵	
Vanadium	mg/L	0.02 ⁴	0.1 ⁶	
Zinc	mg/L	0.008 ²	3 ⁵	
Hydrocarbons	mg/L	No visible film		
Major cations and anions	mg/L	For interpretive purposes		
Stream observations	m ³ /s	For interpretive purposes		

Notes:

¹ All metals and metalloids must be measured as ‘dissolved’ and ‘total’

² ANZG (2018) trigger levels for 95% aquatic ecosystem protection for slightly to moderately disturbed ecosystems. Measured as ‘dissolved’

³ ANZECC (2000) Table 3.3.5 for lowland rivers

⁴ 80th percentile surface water data. Measured as ‘dissolved’

⁵ Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy (2011) version 3.6. measured as ‘total’

⁶ ANZECC (2000) volume 3, chapter 9 water quality for irrigation and general use long term trigger. Measured as ‘dissolved’

Table 4. Sediment Quality Objectives (EA)

Quality Characteristic	Unit	Sediment Quality Objective	Monitoring Frequency
Arsenic	mg/kg dry weight	20	Twice a year (post-wet season and post-dry season)
Cadmium	mg/kg dry weight	1.5	
Chromium	mg/kg dry weight	80	
Copper	mg/kg dry weight	65	
Lead	mg/kg dry weight	50	
Mercury (inorganic)	mg/kg dry weight	0.15	
Nickel	mg/kg dry weight	21	
Zinc	mg/kg dry weight	200	
Total petroleum hydrocarbons (TPHs)	mg/kg dry weight	280	

Results were compared to the EA criteria as per the below process outlined in **Figure 2**. Compliance monitoring locations and the corresponding applicable reference sites for comparison are outlined in **Table 5**.

Note that the flow chart in **Figure 2** relates to the water quality objectives (**Table 3**) which act as triggers for further investigations. In contrast, the compliance limits in **Table 3** are hard limits that should not be exceeded (as per Condition E7 of the EA).

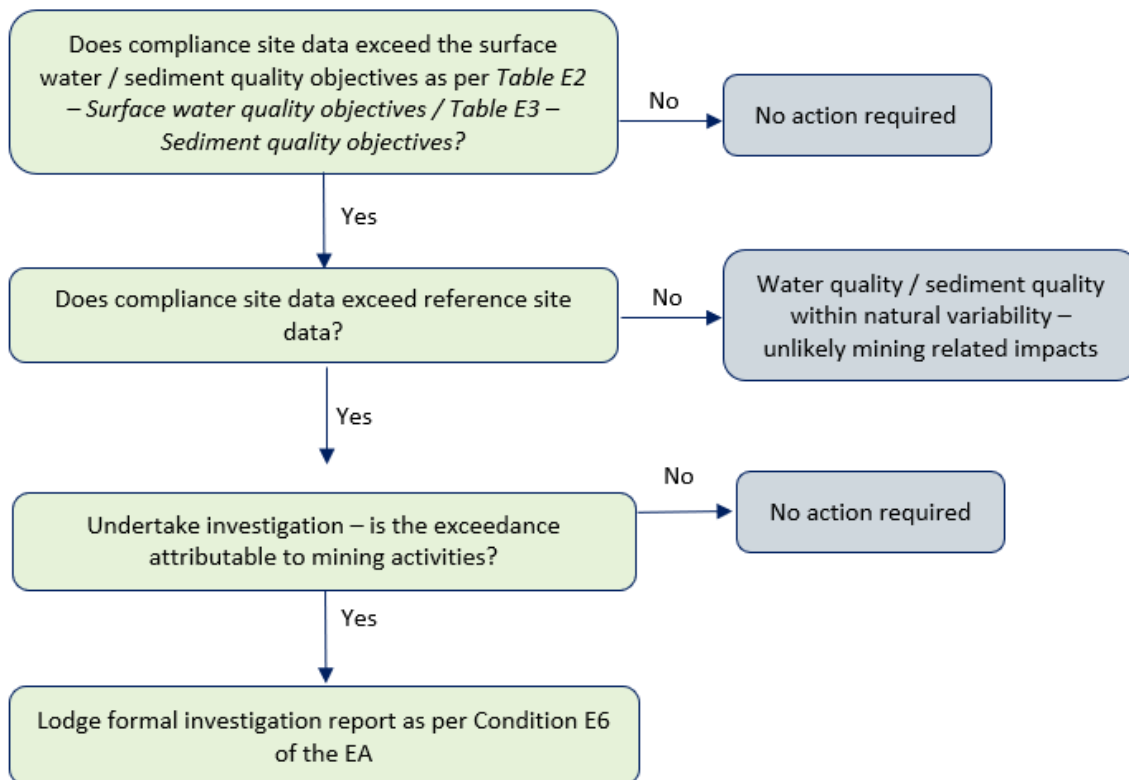


Figure 2. Surface Water and Sediment Quality Assessment Process

Table 5. Compliance Sites and Applicable Reference Sites

Compliance Sites	Applicable Reference Sites
Flinders River Downstream	Flinders River Upstream
Tributary of Flinders River Downstream	Alick Creek Upstream Spellary Creek Upstream
Julia Creek Downstream	Julia Creek Upstream
Pigeon Creek Downstream	Horse Creek Upstream
Horse Creek Downstream	

2.2.4 Quality Assurance and Quality Control

Duplicate samples were collected during both water and sediment sampling to determine the level of variation in the analysis of samples taken from the same location. For both water and sediment quality monitoring, duplicate samples were collected at a rate of 1 per 20 primary samples or one per event.

The relative percentage difference (RPD) was calculated for each parameter to compare the results of duplicate samples. If values are less than 10 times the limit of reporting (LOR), there is no RPD limit. Values between 10 and 20 times the LOR were compared to an acceptable RPD range of 0-50%. Values that are 20+ times the LOR were compared to an acceptable RPD range of 0-20%.

Additional quality control measures included the collection of trip blanks, rinsate blanks and trip spikes at a rate of one per sampling event.

3 RESULTS

3.1 Rainfall

Total monthly rainfall recorded at the Julia Creek Airport Bureau of Meteorology (BoM) weather station (29058) between August 2023 and December 2024 is shown on **Figure 3** plotted against long-term mean monthly rainfall. This indicates higher than average rainfall occurred at Julia Creek during January, February and November 2024.

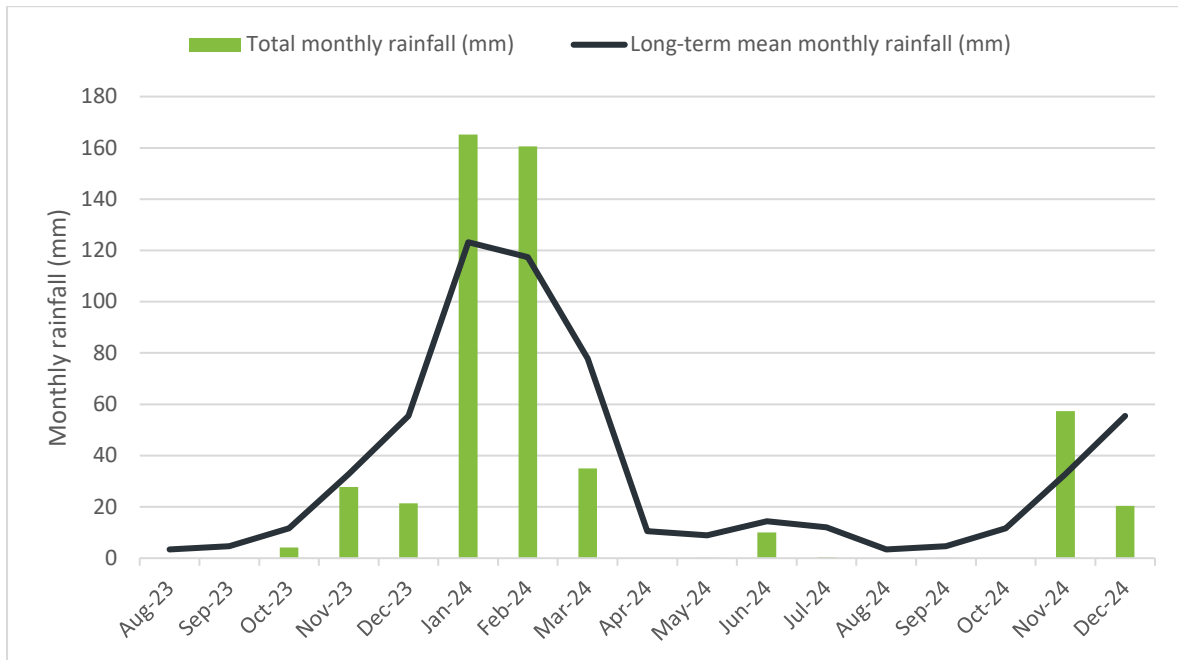


Figure 3. Rainfall Data (August 2023 to December 2024) – Julia Creek Airport Weather Station (BoM Station 29058)

3.2 Water Quality

3.2.1 Field Data

Field parameters were collected *in-situ* at the time of surface water sampling using a calibrated handheld water quality meter. Field data collected during each monitoring event including observations at the time of sampling are presented in **Appendix A**. Median values for each field parameter across the reporting period are presented in **Table 6**.

Note that the field data is presented in this section for information only. There are no water quality objectives or compliance limits for field parameters, except pH and EC which are included in the following section (**Section 3.2.2**).

Table 6. In-situ field parameters

Monitoring Site	Temperature	Dissolved Oxygen		Electrical Conductivity	Total Dissolved Solids	Salinity	pH	Turbidity
	°C	% sat.	mg/L	µS/cm	mg/L	ppt	pH units	NTU
Compliance Sites								
FR-DS	23.15	91.8	7.7	326.05	181.5	0.18	8.1	8.6
FR-TRIB	24.6	81.8	6.7	647.0	429.0	0.3	8.3	351.2
JC-DS	22.9	100.6	8.7	249.2	188.0	0.2	8.1	149.2
PC-DS	23.9	36.6	7.2	632.2	455.5	0.3	7.9	1687.1
HC-DS	23.4	109.2	9.5	382.9	322.0	0.2	8.6	222.6

Reference Sites								
FR-US	27.4	100.8	7.6	296.1	184.0	0.1	8.0	45.0
AC-US	24.8	104.6	8.9	477.4	357.0	0.3	8.4	175.5
SC-US	20.4	109.0	9.3	298.4	215.0	0.2	8.6	197.8
JC-US	25.7	47.5	4.3	469.9	405.0	0.3	7.8	273.8
HC-US	21.4	106.3	9.0	383.0	237.0	0.2	7.9	100.7

3.2.2 Analytical Data

Surface water quality data for each monitoring site for 2023/2024 has been tabulated and provided in **Table T1**. Data was compared to water quality objectives and compliance limits, with exceedances highlighted. Compliance sites which exceeded the water quality objectives and/or compliance limits were compared to the appropriate reference sites to determine whether exceedances were a result of natural variability.

Compliance site data which exceeded water quality objectives and reference site data have been summarised in **Table 7**. Compliance site data which exceeded compliance limits have been summarised in **Table 8**. Note that **Table 8** only includes exceedances of compliance limits which also exceeded reference site data - this is discussed further in **Section 4**.

Table 7. Compliance Sites in Exceedance of Water Quality Objectives and Reference Site Data

Analyte	Sample Date	Concentration
Flinders River DS		
Dissolved Aluminium	25/01/2024	0.11 mg/L
Dissolved Copper	23/11/2023	0.005 mg/L
	1/10/2024	0.006 mg/L
Dissolved Zinc	1/10/2024	0.01 mg/L
Horse Creek DS		
Dissolved Cobalt	22/10/2023	0.002 mg/L
Dissolved Copper	21/05/2024	0.005 mg/L
	31/07/2024	0.007 mg/L
	4/09/2024	0.005 mg/L
Dissolved Manganese	22/10/2023	0.843 mg/L
Sulphate	22/10/2023	994 mg/L
	31/07/2024	52 mg/L
	15/08/2024	67 mg/L
	4/09/2024	101 mg/L
Dissolved Uranium	4/09/2024	0.003 mg/L
Dissolved Vanadium	26/04/2023	0.03 mg/L
	25/01/2024	0.03 mg/L
	25/03/2024	0.03 mg/L
	23/04/2024	0.03 mg/L
Julia Creek DS		
Dissolved Copper	19/12/2023	0.005 mg/L
Dissolved Zinc	23/04/2023	0.011 mg/L
Sulphate	22/10/2023	60 mg/L
	23/11/2023	64 mg/L
	19/12/2023	81 mg/L
Pigeon Creek DS		
Dissolved Copper	25/01/2024	0.009 mg/L
Electrical Conductivity	23/04/2024	865 µS/cm
Dissolved Uranium	23/04/2024	0.003 mg/L
Dissolved Vanadium	25/01/2024	0.05 mg/L
	25/01/2024	0.04 mg/L
	23/04/2024	0.03 mg/L
Tributary of Flinders River DS		
Dissolved Aluminium	21/05/2024	0.07 mg/L

	6/11/2024	0.13 mg/L
	5/12/2024	3.85 mg/L
Dissolved Cobalt	5/12/2024	0.005 mg/L
Electrical Conductivity	31/08/2023	646 µS/cm
	19/06/2024	777 µS/cm
	4/09/2024	878 µS/cm
Dissolved Iron	5/12/2024	4.25 mg/L
Dissolved Lead	5/12/2024	0.01 mg/L
Dissolved Manganese	5/12/2024	0.428 mg/L
Sulphate	19/06/2024	55 mg/L
	31/07/2024	72 mg/L
	15/08/2024	65 mg/L
	4/09/2024	52 mg/L
	2/10/2024	54 mg/L
	6/11/2024	67 mg/L
Dissolved Vanadium	6/11/2024	0.03 mg/L
	5/12/2024	0.05 mg/L
Dissolved Zinc	5/12/2024	0.014 mg/L

Table 8. Compliance Sites in Exceedance of Compliance Limits and Reference Site Data

Analyte	Sample Date	Concentration
Flinders River DS		
Total Aluminium	5/03/2024	7.8 mg/L
Horse Creek DS		
Total Aluminium	26/04/2023	4.3 mg/L
	21/05/2023	15.2 mg/L
	15/08/2024	32.40 mg/L
	4/09/2024	54.0 mg/L
Total Lead	21/05/2023	0.014 mg/L
	4/09/2024	0.022 mg/L
Total Nickel	4/09/2024	0.037 mg/L
pH	25/03/2024	8.52
	23/04/2024	9.0
Sulphate	22/10/2023	994 mg/L
	21/09/2023	340 mg/L
Julia Creek DS		
Total Aluminium	25/01/2024	37.90 mg/L
Pigeon Creek DS		
Total Aluminium	25/01/2024	65.60 mg/L
	23/04/2024	53.60 mg/L
Total Chromium	25/01/2024	0.07 mg/L
Total Lead	25/01/2024	0.031 mg/L
	23/04/2024	0.016 mg/L
Total Nickel	25/01/2024	0.05 mg/L
	23/04/2024	0.033 mg/L
Tributary of Flinders River DS		
Total Aluminium	6/03/2023	1.63 mg/L
	26/04/2023	19.8 mg/L
	31/08/2023	25.40 mg/L
	20/09/2023	15.60 mg/L
	22/10/2023	19.10 mg/L
	23/11/2023	28.70 mg/L
	20/12/2023	11.50 mg/L
	21/05/2024	53.70 mg/L
	19/06/2024	53.30 mg/L
	15/08/2024	23.70 mg/L
2/10/2024	43.90 mg/L	

Dissolved Iron	5/12/2024	4.25 mg/L
Total Lead	26/04/2023	0.014 mg/L
	21/05/2024	0.023 mg/L
	19/06/2024	0.025 mg/L
	2/10/2024	0.021 mg/L
	6/11/2024	0.015 mg/L
Total Mercury	6/11/2024	0.0013 mg/L
Total Nickel	26/04/2023	0.024 mg/L
	21/05/2024	0.034 mg/L
	19/06/2024	0.035 mg/L
	2/10/2024	0.032 mg/L

3.3 Sediment Quality

Sediment quality data for each monitoring site has been tabulated and provided in **Table T2**. Data was compared to the sediment quality objectives outlined in **Table 4**, with exceedances highlighted. Compliance sites which exceeded the sediment quality objectives were compared to the appropriate reference sites to determine whether exceedances were a result of natural variability. Compliance site data which exceeded both the sediment quality objectives and reference site data has been summarised in **Table 8**.

Field observations collected during each sediment monitoring round, including observations of sediment characteristics are included in **Appendix B**.

Table 9. Compliance Sites in Exceedance of Sediment Quality Objectives and Reference Site Data

Analyte	Sample Date	Concentration
Flinders River DS		
Cadmium	1/10/2024	2 mg/kg
Julia Creek DS		
Total recoverable hydrocarbons C10-C40 (sum)	23/10/2023	740 mg/kg

3.4 Quality Control Results and Analysis

Duplicate samples for both surface water and sediment quality were collected and analysed for quality assurance purposes.

The RPD was calculated for each parameter to compare the results of duplicate samples. The following criteria were applied:

- Where primary sample concentrations were less than 10 times the limit of reporting (LOR) no RPD limit applies
- Where primary sample concentrations were between 10 and 20 time the LOR, an acceptable RPD range of 0-50% applies
- Where primary sample concentrations were greater than 20 times the LOR, an acceptable RPD range of 0-20% applies
- Where either the primary or duplicate sample was reported to be below the LOR, no RPD calculation was made.

RPD analysis results are provided in **Table T3** and **Table T4**. All sediment duplicate RPDs were reported to be within the applicable performance criteria. While there were a few RPD exceedances for surfaced water, most of the data was within the acceptable RPD range and therefore surface water results from each monitoring event are considered generally reliable for interpretation. The exception is data collected during the August 2023 event (1/09/2023), which reported greater than usual variation between primary and duplicate sample results, in particular for physico-chemical parameters.

4 DISCUSSION

4.1 Water Quality

To assess potential impacts to surface water quality caused by mining operations, the process outlined in Condition E6 of the EA was followed. This process, illustrated in **Figure 2**, can be summarised as follows:

- Downstream compliance site data was compared to the water quality and sediment quality objectives outlined in **Table 3** and **Table 4** respectively
- If there were exceedances of the water quality and/or sediment quality objectives, the data was compared to reference site data. If the compliance site data exceeded the reference site data, then further investigation as to whether the exceedance is attributable to the mining activities was undertaken.

Following the above process, the water quality results show exceedances of nine dissolved metals (aluminium, copper, cobalt, iron, lead, manganese, uranium, vanadium, zinc), five total metals (aluminium, chromium, mercury, nickel, zinc) and three physico-chemical parameters (pH, sulphate, electrical conductivity).

Further investigation of the above exceedances concluded that the elevated concentrations were not likely to be related to mining activities as mining has not yet commenced and no mine-affected water discharges have occurred. Further to this, due to the ephemeral nature of the waterways, a majority of exceedances occurred during periods of no flow when monitoring sites comprised remnant, disconnected pools. This makes comparison of downstream compliance sites to upstream reference sites difficult. Key findings from further investigation of exceedances include the following:

- pH – slightly alkaline exceedances of pH were reported in Flinders River DS, Horse Creek DS and Pigeon Creek downstream. Alkaline pH is likely the result of natural conditions in the study area and represents a relatively low risk to environmental values (e.g. livestock, human uses).
- Sulphate/ Electrical Conductivity – exceedances of sulphate and electrical conductivity were reported in Horse Creek DS, Julia Creek DS, Pigeon Creek DS and Tributary of Flinders River DS. Comparison with in-field observations (**Appendix A**) found that the recorded exceedances of sulphate and electrical conductivity typically coincided with periods of no flow during the dry season. The elevated concentrations are likely due to evapoconcentration of remnant pools during the dry season, which is typical of ephemeral waterways. As no releases of mine-affected water were reported, these exceedances are not likely to be the result of mining activities.
- Dissolved / total metals – exceedances of dissolved and/or total metals were reported at all compliance sites at varying times throughout the reporting period. Most exceedances were reported during periods of no flow, with the exception of exceedances reported during the January 2024 monitoring event which followed a period of heavy rainfall during which strong flow was reported in the Flinders River and Julia Creek Downstream. A minor exceedance (0.11 mg/L) of dissolved aluminium was reported in Flinders River DS and a significant exceedance (37.90 mg/L) of total aluminium was reported in Julia Creek DS in January 2024. An exceedance of dissolved vanadium was reported in Horse Creek DS in January 2024 although no flow was reported at the time of sampling. Similarly, Pigeon Creek DS reported exceedances of total aluminium, total chromium, dissolved copper, total lead, total nickel and dissolved vanadium during the January 2024 monitoring round although no flow was observed following recent heavy rainfall. Several exceedances of dissolved and total metals were also reported at upstream reference sites throughout the reporting period, indicating natural variability within the Flinders River and Julia Creek systems. Exceedances of total metals are likely to be the result of particulate metals bound to suspended sediment loads and pose a low risk to environmental values.

Compliance limits

As per Condition E7 of the EA, compliance limits are hard limits that should not be exceeded. However, as shown in **Table T1**, some of the compliance limits for surface water may not be appropriate. These include total aluminium (0.2 mg/L) and pH (6.0–8.0), where monitoring data shows that most of the data collected during the reporting period exceeded the compliance limits for these parameters. These exceedances occurred

at upstream reference sites as well as downstream compliance sites, indicating a broadscale natural variability. As these exceedances occurred in the absence of mining and mine affected water releases, it is recommended that the compliance limits should be reviewed. Revised compliance limits should take into account baseline data collected to date.

4.2 Sediment Quality

Sediment quality data from two post-dry and one post-wet sampling events was compared to the criteria outlined in **Table 4**. Exceedances of the sediment quality objectives were compared to the relevant reference site data with exceedances of reference site data shown in **Table 8**.

Sediment quality results showed exceedances of cadmium in October 2024 and total recoverable hydrocarbons in October 2023, each reported once during post-dry events. These exceedances were considered minor and unlikely to be the result of mining activities.

5 CONCLUSIONS

Analysis of data collected during the 2023/2024 reporting period indicated that there were a number of exceedances of surface water quality EA criteria, in particular metals including aluminium, copper, cobalt, chromium, iron, lead, mercury, manganese, nickel, uranium, vanadium and zinc and physico-chemical parameters including electrical conductivity, sulphate and pH. Exceedances were typically reported during periods of no flow when monitoring sites comprised remnant, disconnected pools. Furthermore, mining had not yet commenced and no mine-affected water discharges have occurred. Therefore, the exceedances are unlikely to be mining related and do not pose a risk to environmental receptors and human uses.

Analysis of sediment quality data against sediment quality EA criteria identified an exceedance of hydrocarbons during the 2023 post-dry survey and an exceedance of cadmium during the 2024 post-dry survey. The concentrations are unlikely to be mining related and are considered to pose a low risk to environmental values.

As mining activities have not yet commenced in the study area and no releases of mine-affected water were reported, exceedances recorded during this reporting period are not attributable to mining activities. It is recommended that once mining commences, water quality is closely monitored following each sampling round, in particular for exceedances of metals.

As per Condition E7 of the EA, compliance limits are hard limits that should not be exceeded. However, some of the compliance limits for surface water may not be appropriate. These include total aluminium (0.2 mg/L) and pH (6.0–8.0), where monitoring data shows that most of the data collected during the reporting period exceeded the compliance limits for these parameters. These exceedances occurred at upstream reference sites as well as downstream compliance sites, indicating a broadscale natural variability. As these exceedances occurred in the absence of mining and mine affected water releases, it is recommended that the compliance limits should be reviewed. Revised compliance limits should take into account baseline data collected to date.

6 REFERENCES

ANZECC (2000). Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australia and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, Canberra.

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7 ACRONYMS

• AC	Alick Creek
• ANZG	Australia New Zealand Guidelines
• DS	Downstream
• EA	Environmental Authority
• FR	Flinders River
• HC	Horse Creek
• JC	Julia Creek
• LOR	Limit of Reporting
• ML	Mining Lease
• NATA	National Association of Testing Authorities
• PC	Pigeon Creek
• QA/QC	Quality Assurance and Quality Control
• REMP	Receiving Environment Monitoring Program
• RPD	Relative Percentage Difference
• SC	Spellary Creek
• US	Upstream

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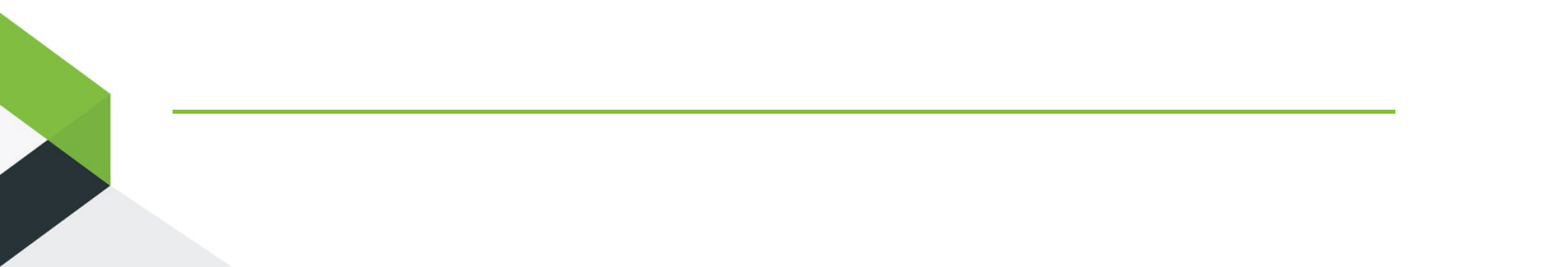
TABLES

Table T1. Surface Water Quality Data

Table T2. Sediment Quality Data

Table T3. RPD Table – Surface Water

Table T4. RPD Table - Sediment



Project Name: Multicom Saint Elmo REMP
 Job Number: SWS2400677.01
 Client: Multicom Resources
 Table: T1. Water Quality Results

	Aluminium Dissolved	Aluminium Total	Arsenic Dissolved	Arsenic Total	Barium Dissolved	Barium Total	Bicarb. Alka. as CaCO3	Boron Dissolved	Boron Total	Cadmium Dissolved	Cadmium Total	Calcium
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LOR	0.01	0.01	0.001	0.001	0.001	0.001	1	0.05	0.05	0.0001	0.0001	1
Table E2 - Surface water quality objectives - Water Quality Objectives	0.06		0.01		0.57			0.37		0.0002		
Table E2 - Surface water quality objectives - Compliance Limits		0.2	0.1		2				4		0.002	

Sample ID	Date	QA Type	Aluminium Dissolved	Aluminium Total	Arsenic Dissolved	Arsenic Total	Barium Dissolved	Barium Total	Bicarb. Alka. as CaCO3	Boron Dissolved	Boron Total	Cadmium Dissolved	Cadmium Total	Calcium
Julia Creek US	7/03/2023		0.03	5.02	0.003	0.004	0.026	0.057	96	0.06	0.08	<0.0001	<0.0001	19
Flinders River US1	5/03/2023		<0.01	1.46	<0.001	0.001	0.056	0.07	96	<0.05	<0.05	<0.0001	<0.0001	25
Horse Creek US	7/03/2023		<0.01	5.38	0.003	0.004	0.062	0.106	139	0.09	0.14	<0.0001	<0.0001	52
Spellary Creek US	5/03/2023		0.02	1.5	0.004	0.004	0.023	0.035	132	0.1	0.12	<0.0001	<0.0001	25
Alick Creek US	5/03/2023		<0.01	<0.01	0.003	0.004	0.019	0.069	84	0.05	0.06	<0.0001	<0.0001	15
Julia Creek DS	6/03/2023		0.02	3.12	0.003	0.004	0.022	0.043	72	0.07	0.06	<0.0001	<0.0001	16
Flinders River DS	6/03/2023		<0.01	7.8	0.002	0.003	0.044	0.126	93	<0.05	0.06	<0.0001	0.0001	23
Horse Creek DS	5/03/2023		<0.01	0.28	0.003	0.004	0.039	0.049	104	0.09	0.1	<0.0001	<0.0001	35
Tributary of Flinders river DS	6/03/2023		<0.01	1.63	<0.001	<0.001	0.066	0.125	185	0.07	0.08	<0.0001	<0.0001	16
Julia Creek US	28/04/2023		0.17	9.16	0.004	0.006	0.032	0.099	191	0.12	0.13	<0.0001	<0.0001	14
Julia Creek DS	23/04/2023		0.02	0.96	0.003	0.003	0.061	0.061	91	0.1	0.1	<0.0001	<0.0001	31
Flinders River US1	26/04/2023	Parallel Primary	0.01	0.16	0.001	0.001	0.124	0.153	188	0.15	0.14	<0.0001	<0.0001	55
Flinders River US1	26/04/2023	Parallel secondary	<0.01	0.19	0.001	0.001	0.123	0.151	227	0.15	0.16	<0.0001	<0.0001	54
Flinders River DS	23/04/2023		<0.01	0.5	0.002	0.003	0.085	0.094	146	0.13	0.08	<0.0001	<0.0001	46
Tributary of Flinders River	26/04/2023		0.05	19.8	0.001	0.004	0.104	0.53	162	0.12	0.12	<0.0001	<0.0001	17
Horse Creek DS	26/04/2023		0.02	4.3	0.003	0.003	0.056	0.09	82	0.16	0.15	<0.0001	<0.0001	40
Horse Creek US	27/04/2023		0.02	1.96	0.003	0.003	0.09	0.115	162	0.2	0.16	<0.0001	<0.0001	78
Alick Creek US	23/04/2023		0.02	4.37	0.002	0.002	0.053	0.084	135	0.1	0.08	<0.0001	<0.0001	28
Spellary Creek US	23/04/2023		0.02	4.36	0.002	0.003	0.03	0.054	138	0.15	0.13	<0.0001	<0.0001	35
Julia Creek DS	20/05/2023		<0.01	1.13	<0.001	0.002	0.055	0.06	110	0.09	0.09	<0.0001	<0.0001	31
Flinders River DS	20/05/2023		<0.01	0.31	<0.001	0.002	0.065	0.068	152	0.1	0.13	<0.0001	<0.0001	33
Julia Creek US	20/05/2023		0.01	15.6	0.004	0.006	0.021	0.086	239	0.14	0.11	<0.0001	<0.0001	12
Horse Creek US	20/05/2023		0.01	1.81	0.002	0.002	0.092	0.109	184	0.17	0.16	<0.0001	<0.0001	73
Spellary Creek US	20/05/2023		0.02	1.48	0.002	0.002	0.03	0.038	166	0.16	0.13	<0.0001	<0.0001	34
Alick Creek US	20/05/2023		0.02	5.33	0.001	0.002	0.035	0.076	140	0.1	0.08	<0.0001	<0.0001	26
Horse Creek DS	21/05/2023		0.01	15.2	0.002	0.004	0.065	0.321	106	0.16	0.13	<0.0001	0.0004	48
Tributary of Flinders river DS	21/05/2023		0.02	26.1	0.001	0.003	0.095	0.371	183	0.1	0.09	<0.0001	<0.0001	17
Flinders River US1	21/05/2023	Parallel Primary	0.01	2.28	0.001	0.002	0.119	0.143	219	0.2	0.2	<0.0001	0.0002	41
Flinders River US1	21/05/2023	Parallel Secondary	<0.01	2.77	<0.001	0.002	0.122	0.142	219	0.17	0.2	<0.0001	<0.0001	44
Flinders River DS	27/06/2023		<0.01	0.56	0.002	0.002	0.108	0.125	229	0.1	0.11	<0.0001	<0.0001	58
Julia Creek DS	27/06/2023		<0.01	0.95	0.001	0.002	0.053	0.066	118	0.08	0.08	<0.0001	<0.0001	32
Tributary of Flinders River	28/06/2023		0.02	17.9	<0.001	0.002	0.128	0.299	194	0.07	0.08	<0.0001	<0.0001	24
Flinders River US1	28/06/2023	Parallel Primary	<0.01	2.57	0.002	0.003	0.121	0.157	230	0.2	0.21	<0.0001	<0.0001	38
Flinders River US1	28/06/2023	Parallel Secondary	0.03	20.5	0.005	0.008	0.017	0.103	272	0.09	0.14	<0.0001	<0.0001	10
Horse Creek DS	28/06/2023		0.01	6.38	0.002	0.003	0.091	0.147	117	0.16	0.19	<0.0001	<0.0001	64
Alick Creek US	28/06/2023		<0.01	8.41	0.001	0.002	0.061	0.148	222	0.06	0.07	<0.0001	<0.0001	23
Spellary Creek US	28/06/2023		<0.01	0.97	0.002	0.002	0.026	0.041	172	0.12	0.16	<0.0001	<0.0001	33
Julia Creek US	28/06/2023		0.02	20.2	0.005	0.008	0.018	0.1	269	0.11	0.12	<0.0001	<0.0001	10
Horse Creek US	28/06/2023		<0.01	1.54	0.002	0.002	0.101	0.123	192	0.17	0.19	<0.0001	<0.0001	71
Julia Creek Upstream	28/07/2023		0.03	14	0.006	0.006	0.017	0.111	234	0.1	0.1	<0.0001	<0.0001	11
Julia Creek Downstream	27/07/2023		0.01	0.5	0.004	0.005	0.063	0.085	137	0.06	0.06	<0.0001	<0.0001	38
Flinders River Upstream 1	27/07/2023		0.02	5.92	0.003	0.003	0.195	0.276	274	0.15	0.13	<0.0001	0.0001	64
Flinders River DS	27/07/2023		0.02	0.36	0.001	0.002	0.042	0.046	101	0.09	0.09	<0.0001	<0.0001	14
Tributary of Flinders River	27/07/2023		0.03	8.44	0.002	0.002	0.108	0.247	198	0.06	0.07	<0.0001	<0.0001	24
Horse Creek Downstream	27/07/2023		0.02	3.52	0.002	0.002	0.065	0.085	86	0.12	0.11	<0.0001	<0.0001	47
Horse Creek Upstream	28/07/2023	Parallel Primary	0.07	1.21	0.002	0.002	0.07	0.08	134	0.1	0.11	0.0006	<0.0001	52
Horse Creek Upstream	28/07/2023	Parallel secondary	0.08	2.14	0.001	0.002	0.065	0.074	145	0.1	0.08	<0.0001	<0.0001	57
Alick Creek Upstream	28/07/2023		<0.01	1.62	0.001	0.001	0.061	0.113	191	<0.05	<0.05	<0.0001	<0.0001	20
Spellary Creek Upstream	28/07/2023		0.05	0.73	0.002	0.002	0.026	0.03	142	0.12	0.14	<0.0001	<0.0001	29
Horse Creek DS	31/08/2023		0.01	2.54	0.001	0.002	0.096	0.112	118	-	-	<0.0001	<0.0001	64
Tributary of Flinders river DS	31/08/2023		0.01	25.40	0.001	0.003	0.120	0.431	232	-	-	<0.0001	<0.0001	25
Alick Creek US	1/09/2023		0.02	2.75	0.001	0.002	0.072	0.114	218	-	-	<0.0001	<0.0001	21
Flinders River DS	1/09/2023		<0.01	0.41	0.002	0.002	0.108	0.117	242	-	-	<0.0001	<0.0001	54
Horse Creek US	1/09/2023		0.01	2.34	0.002	0.003	0.071	0.098	165	-	-	<0.0001	<0.0001	50
Julia Creek DS	1/09/2023		<0.01	2.14	0.001	0.001	0.059	0.071	133	-	-	<0.0001	<0.0001	34
Julia Creek US	1/09/2023	Parallel Primary	<0.01	23.10	0.005	0.008	0.020	0.140	295	-	-	<0.0001	0.0002	10

Project Name: Multicom Saint Elmo REMP
 Job Number: SWS2400677.01
 Client: Multicom Resources
 Table: T1. Water Quality Results

	Aluminium Dissolved	Aluminium Total	Arsenic Dissolved	Arsenic Total	Barium Dissolved	Barium Total	Bicarb. Alka. as CaCO3	Boron Dissolved	Boron Total	Cadmium Dissolved	Cadmium Total	Calcium
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LOR	0.01	0.01	0.001	0.001	0.001	0.001	1	0.05	0.05	0.0001	0.0001	1
Table E2 - Surface water quality objectives - Water Quality Objectives	0.06		0.01		0.57			0.37		0.0002		
Table E2 - Surface water quality objectives - Compliance Limits		0.2	0.1			2			4		0.002	

Sample ID	Date	QA Type	Aluminium Dissolved	Aluminium Total	Arsenic Dissolved	Arsenic Total	Barium Dissolved	Barium Total	Bicarb. Alka. as CaCO3	Boron Dissolved	Boron Total	Cadmium Dissolved	Cadmium Total	Calcium
Julia Creek US	1/09/2023	Parallel Secondary	<0.01	2.36	0.001	0.002	0.060	0.072	134	-	-	<0.0001	<0.0001	34
Spellary Creek US	1/09/2023		<0.01	5.87	0.003	0.003	0.012	0.039	153	-	-	<0.0001	<0.0001	14
Horse Creek DS	20/09/2023		0.02	2.61	0.002	0.002	0.101	0.126	86	0.21	0.20	<0.0001	<0.0001	67
Tributary of Flinders river DS	20/09/2023		<0.01	15.60	0.001	0.003	0.103	0.346	209	0.08	0.06	<0.0001	<0.0001	23
Alick Creek US	21/09/2023		<0.01	4.10	0.002	0.003	0.038	0.094	206	0.08	0.05	<0.0001	<0.0001	12
Flinders River DS	21/09/2023		<0.01	0.24	0.001	0.002	0.099	0.118	224	0.10	0.08	<0.0001	<0.0001	49
Horse Creek US	21/09/2023		<0.01	45.40	0.006	0.014	0.078	0.490	170	0.20	0.17	<0.0001	0.0013	44
Julia Creek DS	21/09/2023		<0.01	1.14	0.001	0.002	0.053	0.078	125	0.09	0.08	<0.0001	<0.0001	30
Julia Creek US	21/09/2023	Parallel Primary	<0.01	21.80	0.006	0.010	0.015	0.151	264	0.10	0.10	<0.0001	<0.0001	8
Julia Creek US	21/09/2023	Parallel Secondary	<0.01	20.00	0.006	0.010	0.016	0.146	293	0.09	0.10	<0.0001	<0.0001	8
Spellary Creek US	21/09/2023		<0.01	8.55	0.006	0.007	0.018	0.071	196	0.16	0.14	<0.0001	<0.0001	19
Alick Creek US	22/10/2023		0.02	9.01	0.004	0.006	0.043	0.160	215	<0.05	0.06	<0.0001	<0.0001	15
Flinders River DS	22/10/2023		0.01	0.31	0.002	0.002	0.105	0.109	226	0.08	0.09	<0.0001	<0.0001	46
Horse Creek DS	22/10/2023		0.02	11.60	0.008	0.012	0.283	0.372	85	0.35	0.35	<0.0001	<0.0001	179
Julia Creek DS	22/10/2023	Parallel Primary	0.01	11.80	0.002	0.003	0.044	0.115	106	0.11	0.11	<0.0001	<0.0001	19
Julia Creek DS	22/10/2023	Parallel Secondary	0.01	11.60	0.002	0.004	0.045	0.115	106	0.11	0.14	<0.0001	<0.0001	18
Julia Creek US	22/10/2023		0.12	40.20	0.009	0.014	0.019	0.189	309	0.09	0.11	<0.0001	<0.0001	10
Tributary of Flinders river DS	22/10/2023		<0.01	19.10	0.002	0.003	0.126	0.346	232	<0.05	<0.05	<0.0001	<0.0001	23
Alick Creek US	23/11/2023	Parallel Primary	0.03	13.20	0.003	0.006	0.052	0.199	232	0.09	0.09	<0.0001	<0.0001	17
Alick Creek US	23/11/2023	Parallel Secondary	1.61	12.80	0.004	0.005	0.086	0.187	234	0.09	0.08	<0.0001	<0.0001	19
Flinders River DS	23/11/2023		<0.01	0.46	0.003	0.003	0.111	0.124	255	0.14	0.14	<0.0001	<0.0001	51
Julia Creek DS	23/11/2023		<0.01	10.90	0.003	0.004	0.068	0.154	158	0.20	0.20	<0.0001	<0.0001	27
Julia Creek US	23/11/2023		<0.01	44.90	0.012	0.015	0.019	0.182	330	0.16	0.15	<0.0001	0.0001	10
Tributary of Flinders river DS	23/11/2023		0.03	28.70	0.002	0.003	0.112	0.373	205	0.09	0.09	<0.0001	<0.0001	21
Alick Creek US	19/12/2023		0.01	6.79	0.005	0.005	0.046	0.159	220	0.08	0.08	0.0001	0.0001	14
Julia Creek DS	19/12/2023		0.01	13.80	0.004	0.007	0.068	0.244	186	0.25	0.25	0.0001	0.0001	24
Julia Creek US	19/12/2023		0.01	23.00	0.013	0.014	0.018	0.138	334	0.14	0.15	0.0001	0.0001	11
Flinders River DS	19/12/2023	Parallel Primary	0.01	0.15	0.003	0.004	0.099	0.128	265	0.13	0.13	0.0001	0.0001	54
Flinders River DS	20/12/2023	Parallel Secondary	0.01	0.16	0.004	0.004	0.096	0.124	265	0.13	0.12	0.0001	0.0001	51
Tributary of Flinders river DS	20/12/2023		0.01	11.50	0.002	0.003	0.106	0.430	204	0.09	0.09	0.0001	0.0001	20
Alick Creek US	25/01/2024		0.02	31.70	0.002	0.004	0.021	0.258	41	0.05	0.05	0.0001	0.0002	7
Flinders River DS	25/01/2024		0.11	48.60	0.002	0.005	0.061	0.595	58	0.06	0.06	0.0001	0.0006	13
Flinders River US1	25/01/2024		0.06	26.20	0.001	0.003	0.028	0.303	49	0.05	0.05	0.0001	0.0003	12
Horse Creek DS	25/01/2024		0.01	4.10	0.004	0.004	0.034	0.044	79	0.12	0.06	0.0001	0.0001	20
Horse Creek US	25/01/2024		0.01	6.33	0.005	0.004	0.049	0.052	84	0.09	0.06	0.0001	0.0001	23
Julia Creek DS	25/01/2024		0.01	37.90	0.001	0.004	0.001	0.332	48	0.05	0.05	0.0001	0.0001	5
Julia Creek US	25/01/2024		0.01	18.80	0.007	0.004	0.015	0.070	72	0.08	0.07	0.0001	0.0001	19

Project Name: Multicom Saint Elmo REMP
 Job Number: SWS2400677.01
 Client: Multicom Resources
 Table: T1. Water Quality Results

	Aluminium Dissolved	Aluminium Total	Arsenic Dissolved	Arsenic Total	Barium Dissolved	Barium Total	Bicarb. Alka. as CaCO3	Boron Dissolved	Boron Total	Cadmium Dissolved	Cadmium Total	Calcium
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LOR	0.01	0.01	0.001	0.001	0.001	0.001	1	0.05	0.05	0.0001	0.0001	1
Table E2 - Surface water quality objectives - Water Quality Objectives	0.06		0.01		0.57			0.37		0.0002		
Table E2 - Surface water quality objectives - Compliance Limits		0.2	0.1		2				4		0.002	

Sample ID	Date	QA Type	Aluminium Dissolved	Aluminium Total	Arsenic Dissolved	Arsenic Total	Barium Dissolved	Barium Total	Bicarb. Alka. as CaCO3	Boron Dissolved	Boron Total	Cadmium Dissolved	Cadmium Total	Calcium
Pigeon Creek DS	25/01/2024	Parallel Primary	0.06	65.60	0.004	0.009	0.014	0.774	130	0.11	0.11	0.0001	0.0002	14
Pigeon Creek DS	25/01/2024	Parallel Secondary	0.01	66.00	0.003	0.008	0.015	0.745	129	0.12	0.12	0.0001	0.0002	12
Spellary Creek US	25/01/2024		0.03	21.70	0.007	0.008	0.020	0.158	128	0.09	0.08	0.0001	0.0003	24
Alick Creek US	22/02/2024		0.10	54.60	0.003	0.006	0.022	0.548	42	0.05	0.05	0.0001	0.0005	6
Flinders River US1	22/02/2024	Parallel Primary	0.02	3.90	0.001	0.002	0.058	0.078	91	0.05	0.05	0.0001	0.0001	23
Flinders River US1	22/02/2024	Parallel Secondary	0.01	3.92	0.001	0.002	0.049	0.074	90	0.05	0.05	0.0001	0.0001	23
Horse Creek DS	22/02/2024		0.01	5.39	0.004	0.004	0.024	0.056	87	0.07	0.05	0.0001	0.0001	25
Horse Creek US	22/02/2024		0.01	5.32	0.005	0.006	0.035	0.048	120	0.08	0.05	0.0001	0.0001	34
Julia Creek US	22/02/2024		0.06	39.80	0.003	0.006	0.014	0.174	72	0.06	0.06	0.0001	0.0001	14
Spellary Creek US	22/02/2024		0.06	17.00	0.004	0.006	0.013	0.076	90	0.08	0.05	0.0001	0.0001	14
Alick Creek US	25/03/2024		0.02	21.20	0.003	0.005	0.023	0.088	95	0.06	0.06	0.0001	0.0001	15
Flinders River US1	25/03/2024	Parallel Primary	0.01	3.69	0.001	0.001	0.041	0.063	94	0.05	0.05	0.0001	0.0001	20
Flinders River US1	25/03/2024	Parallel Secondary	0.01	3.61	0.001	0.001	0.044	0.061	102	0.05	0.05	0.0001	0.0001	21
Horse Creek DS	25/03/2024		0.04	3.50	0.005	0.006	0.025	0.042	84	0.07	0.08	0.0001	0.0001	24
Horse Creek US	25/03/2024		0.01	2.59	0.004	0.005	0.037	0.085	147	0.08	0.07	0.0001	0.0001	35
Julia Creek US	25/03/2024		0.02	32.70	0.003	0.008	0.021	0.121	108	0.06	0.06	0.0001	0.0001	13
Spellary Creek US	25/03/2024		0.02	29.40	0.004	0.006	0.017	0.109	149	0.07	0.06	0.0001	0.0004	32
Flinders River DS	23/04/2024		0.02	2.00	0.001	0.002	0.053	0.074	105	0.05	0.05	0.0001	0.0001	26
Flinders River US1	23/04/2024		0.01	0.44	0.001	0.001	0.058	0.067	122	0.05	0.05	0.0001	0.0001	29
Horse Creek DS	23/04/2024		0.02	4.49	0.006	0.006	0.019	0.045	52	0.10	0.11	0.0001	0.0001	20
Julia Creek DS	23/04/2024	Parallel Primary	0.02	9.24	0.003	0.005	0.039	0.094	100	0.06	0.07	0.0001	0.0001	19
Julia Creek DS	23/04/2024	Parallel Secondary	0.01	8.74	0.004	0.005	0.039	0.093	100	0.06	0.06	0.0001	0.0001	20
Julia Creek US	23/04/2024		0.01	28.80	0.002	0.006	0.022	0.154	143	0.07	0.08	0.0001	0.0001	16
Pigeon Creek DS	23/04/2024		0.01	53.60	0.004	0.009	0.032	0.339	386	0.14	0.18	0.0001	0.0001	21
Tributary of Flinders river DS	23/04/2024		0.01	10.80	0.001	0.002	0.144	0.229	180	0.09	0.10	0.0001	0.0001	32
Alick Creek US	24/04/2024		0.03	1.65	0.002	0.002	0.044	0.070	175	0.08	0.09	0.0001	0.0001	41
Horse Creek US	24/04/2024		0.03	1.65	0.002	0.002	0.044	0.070	175	0.08	0.09	0.0001	0.0001	41
Spellary Creek US	24/04/2024		0.01	11.90	0.003	0.004	0.022	0.081	144	0.08	0.10	0.0001	0.0001	32
Alick Creek US	21/05/2024		0.02	1.39	0.002	0.003	0.048	0.075	152	0.06	0.08	0.0001	0.0001	18
Flinders River DS	21/05/2024		0.01	0.44	0.001	0.002	0.083	0.088	166	0.05	0.06	0.0001	0.0001	38
Flinders River US1	21/05/2024		0.01	0.40	0.001	0.001	0.137	0.142	277	0.09	0.10	0.0001	0.0001	70
Horse Creek DS	21/05/2024	Parallel Primary	0.01	14.50	0.003	0.004	0.045	0.129	188	0.12	0.16	0.0001	0.0001	31
Horse Creek DS	21/05/2024	Parallel Secondary	0.01	15.40	0.003	0.004	0.047	0.136	187	0.13	0.15	0.0001	0.0001	33
Horse Creek US	21/05/2024		0.01	0.99	0.002	0.002	0.041	0.059	185	0.10	0.12	0.0001	0.0001	36
Julia Creek DS	21/05/2024		0.03	13.80	0.003	0.005	0.056	0.121	133	0.07	0.09	0.0001	0.0001	26
Julia Creek US	21/05/2024		0.01	34.80	0.003	0.006	0.028	0.140	242	0.10	0.12	0.0001	0.0001	16
Spellary Creek US	21/05/2024		0.02	30.10	0.002	0.004	0.029	0.103	142	0.10	0.12	0.0001	0.0001	29
Tributary of Flinders river DS	21/05/2024		0.07	53.70	0.001	0.005	0.133	0.794	223	0.08	0.13	0.0001	0.0002	26
Alick Creek US	18/06/2024		0.01	8.29	0.002	0.002	0.036	0.124	196	0.07	0.06	0.0001	0.0001	20
Flinders River DS	18/06/2024		0.02	0.08	0.001	0.001	0.073	0.088	149	0.05	0.06	0.0001	0.0001	34
Horse Creek US	18/06/2024		0.01	2.87	0.002	0.004	0.054	0.093	204	0.12	0.13	0.0001	0.0001	44
Julia Creek DS	18/06/2024		0.01	2.36	0.001	0.002	0.040	0.056	108	0.08	0.07	0.0001	0.0001	23
Spellary Creek US	18/06/2024		0.01	14.40	0.003	0.004	0.024	0.090	153	0.10	0.12	0.0001	0.0001	27
Flinders River US1	19/06/2024		0.02	0.65	0.001	0.001	0.110	0.129	233	0.11	0.13	0.0001	0.0001	47
Horse Creek DS	19/06/2024		0.01	4.08	0.002	0.003	0.042	0.078	148	0.13	0.14	0.0001	0.0001	31
Julia Creek US	19/06/2024		0.02	27.10	0.004	0.008	0.023	0.136	262	0.11	0.11	0.0001	0.0001	11
Tributary of Flinders river DS	19/06/2024	Parallel Primary	0.01	53.30	0.001	0.008	0.154	1.060	211	0.07	0.10	0.0001	0.0003	28
Tributary of Flinders river DS	19/06/2024	Parallel Secondary	0.01	54.00	0.001	0.006	0.151	0.972	210	0.07	0.09	0.0001	0.0002	28
Alick Creek US	31/07/2024		0.07	7.24	0.002	0.003	0.064	0.152	237	0.07	0.07	0.0001	0.0001	24
Flinders River DS	31/07/2024		0.01	1.23	0.001	0.002	0.041	0.042	107	0.08	0.08	0.0001	0.0001	21
Flinders River US1	31/07/2024		0.02	1.65	0.002	0.003	0.157	0.209	377	0.14	0.14	0.0001	0.0001	58
Horse Creek DS	31/07/2024		0.01	23.70	0.002	0.004	0.054	0.180	211	0.16	0.16	0.0001	0.0001	34
Julia Creek DS	31/07/2024		0.03	0.17	0.001	0.001	0.089	0.118	186	0.08	0.08	0.0001	0.0001	47
Julia Creek US	31/07/2024		0.01	37.50	0.005	0.008	0.018	0.153	316	0.12	0.12	0.0001	0.0001	11
Spellary Creek US	31/07/2024	Parallel Primary	0.01	9.55	0.002	0.003	0.027	0.067	166	0.12	0.12	0.0001	0.0001	26
Spellary Creek US	31/07/2024	Parallel Secondary	0.01	9.54	0.002	0.002	0.025	0.062	165	0.10	0.11	0.0001	0.0001	26

Project Name: Multicom Saint Elmo REMP
 Job Number: SWS2400677.01
 Client: Multicom Resources
 Table: T1. Water Quality Results

	Aluminium Dissolved	Aluminium Total	Arsenic Dissolved	Arsenic Total	Barium Dissolved	Barium Total	Bicarb. Alka. as CaCO3	Boron Dissolved	Boron Total	Cadmium Dissolved	Cadmium Total	Calcium
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LOR	0.01	0.01	0.001	0.001	0.001	0.001	1	0.05	0.05	0.0001	0.0001	1
Table E2 - Surface water quality objectives - Water Quality Objectives	0.06		0.01		0.57			0.37		0.0002		
Table E2 - Surface water quality objectives - Compliance Limits		0.2	0.1			2			4		0.002	

Sample ID	Date	QA Type	Aluminium Dissolved	Aluminium Total	Arsenic Dissolved	Arsenic Total	Barium Dissolved	Barium Total	Bicarb. Alka. as CaCO3	Boron Dissolved	Boron Total	Cadmium Dissolved	Cadmium Total	Calcium
Tributary of Flinders river DS	31/07/2024		0.01	2.92	0.001	0.001	0.097	0.129	161	0.08	0.07	0.0001	0.0001	20
Flinders River DS	15/08/2024		0.01	0.24	0.001	0.002	0.110	0.134	241	0.08	0.07	0.0001	0.0001	55
Flinders River US1	15/08/2024		0.01	0.54	0.004	0.005	0.189	0.253	423	0.15	0.14	0.0001	0.0001	62
Horse Creek DS	15/08/2024		0.01	32.40	0.002	0.006	0.055	0.246	234	0.18	0.18	0.0001	0.0002	39
Julia Creek DS	15/08/2024		0.05	1.82	0.001	0.002	0.038	0.045	125	0.10	0.08	0.0001	0.0001	22
Tributary of Flinders river DS	15/08/2024		0.06	23.70	0.001	0.003	0.111	0.260	230	0.09	0.08	0.0001	0.0001	30
Alick Creek US	16/08/2024		0.01	9.78	0.003	0.005	0.054	0.170	258	0.07	0.06	0.0001	0.0001	25
Julia Creek US	16/08/2024	Parallel Primary	0.01	22.90	0.005	0.008	0.022	0.145	324	0.13	0.12	0.0001	0.0001	11
Julia Creek US	15/08/2024	Parallel Secondary	0.01	22.90	0.005	0.008	0.022	0.147	325	0.13	0.12	0.0001	0.0001	11
Spellary Creek US	16/08/2024		0.01	13.20	0.002	0.004	0.025	0.121	186	0.12	0.10	0.0001	0.0001	25
Alick Creek US	04/09/2024		0.01	10.10	0.004	0.005	0.050	0.137	256	0.08	0.07	0.0001	0.0001	23
Horse Creek DS	04/09/2024		0.01	54.00	0.004	0.012	0.052	0.388	240	0.29	0.28	0.0001	0.0003	35
Spellary Creek US	04/09/2024		0.01	78.20	0.003	0.010	0.025	0.487	209	0.14	0.16	0.0001	0.0003	24
Tributary of Flinders river DS	04/09/2024		0.04	22.60	0.001	0.003	0.134	0.323	265	0.12	0.11	0.0001	0.0001	36
Flinders River DS	05/09/2024		0.01	0.42	0.002	0.002	0.104	0.114	251	0.08	0.07	0.0001	0.0001	54
Julia Creek DS	05/09/2024		0.03	4.59	0.002	0.003	0.031	0.051	111	0.10	0.09	0.0001	0.0001	16
Julia Creek US	05/09/2024	Parallel Primary	0.01	26.60	0.008	0.010	0.019	0.136	340	0.13	0.13	0.0001	0.0001	11
Julia Creek US	05/09/2024	Parallel Secondary	0.01	25.20	0.006	0.009	0.020	0.136	340	0.14	0.12	0.0001	0.0001	10
Alick Creek US	1/10/2024		0.01	9.66	0.006	0.005	0.048	0.155	235	0.09	0.08	0.0001	0.0001	23
Flinders River DS	1/10/2024		0.01	0.12	0.003	0.003	0.115	0.141	265	0.10	0.09	0.0001	0.0001	62
Julia Creek DS	1/10/2024		0.01	6.11	0.002	0.003	0.046	0.098	166	0.13	0.12	0.0001	0.0001	25
Julia Creek US	1/10/2024	Parallel Primary	0.01	28.70	0.008	0.011	0.024	0.163	377	0.15	0.15	0.0001	0.0001	13
Julia Creek US	1/10/2024	Parallel Secondary	0.02	29.00	0.008	0.012	0.021	0.159	378	0.15	0.15	0.0001	0.0001	10
Tributary of Flinders river DS	2/10/2024		0.01	43.90	0.002	0.006	0.149	0.802	371	0.15	0.16	0.0001	0.0002	32
Julia Creek US	06/11/2024	Parallel Primary	0.01	16.30	0.011	0.013	0.014	0.103	310	0.11	0.14	0.0001	0.0001	6
Julia Creek US	06/11/2024	Parallel Secondary	0.01	16.40	0.012	0.013	0.014	0.105	307	0.13	0.14	0.0001	0.0001	7
Tributary of Flinders river DS	06/11/2024		0.13	1.07	0.003	0.003	0.097	0.140	179	0.10	0.11	0.0001	0.0002	22
Alick Creek US	07/11/2024		0.01	6.35	0.007	0.009	0.046	0.139	279	0.10	0.11	0.0001	0.0001	16
Flinders River DS	07/11/2024		0.01	0.08	0.003	0.004	0.096	0.132	252	0.09	0.10	0.0001	0.0001	54
Julia Creek DS	07/11/2024		0.01	16.20	0.004	0.006	0.060	0.191	182	0.17	0.19	0.0001	0.0001	24
Alick Creek US	05/12/2024	Parallel Primary	0.01	19.80	0.006	0.010	0.045	0.211	217	0.09	0.10	0.0001	0.0001	13
Alick Creek US	05/12/2024	Parallel Secondary	0.06	17.50	0.006	0.010	0.042	0.231	219	0.08	0.10	0.0001	0.0001	12
Flinders River DS	05/12/2024		0.01	0.17	0.004	0.004	0.084	0.093	229	0.09	0.10	0.0001	0.0001	38
Julia Creek DS	05/12/2024		0.02	14.70	0.004	0.006	0.051	0.156	184	0.20	0.20	0.0001	0.0001	21
Julia Creek US	05/12/2024		0.01	16.20	0.013	0.011	0.014	0.120	243	0.12	0.13	0.0001	0.0001	9
Spellary Creek US	05/12/2024		0.07	99.30	0.003	0.008	0.013	0.676	83	0.07	0.10	0.0001	0.0005	16
Tributary of Flinders river DS	05/12/2024		3.85	0.02	0.006	0.003	0.388	0.104	232	0.11	0.12	0.0001	0.0001	29

Red text denotes exceedance of the water quality objectives and reference site data

Project Name: Multicom Saint Elmo REMP
 Job Number: SWS2400677.01
 Client: Multicom Resources
 Table: T1. Water Quality Results

	Carb. Alka. as CaCO3	Chloride	Chromium Dissolved	Chromium Total	Cobalt Dissolved	Cobalt Total	Copper Dissolved	Copper Total	Electrical Conductivity	pH	Potassium	Selenium Dissolved	Selenium Total	Sodium	Sulphate
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µS/cm	pH Unit	mg/L	mg/L	mg/L	mg/L	mg/L
LOR	1	1	0.001	0.001	0.001	0.001	0.001	0.001	1	0.01	1	0.01	0.01	1	1
Table E2 - Surface water quality objectives - Water Quality Objectives			0.001		0.0014		0.004		607			0.011			46
Table E2 - Surface water quality objectives - Compliance Limits				0.05	0.05			2	1,300	6.0 - 8.0		0.02			250

Sample ID	Date	QA Type	Carb. Alka. as CaCO3	Chloride	Chromium Dissolved	Chromium Total	Cobalt Dissolved	Cobalt Total	Copper Dissolved	Copper Total	Electrical Conductivity	pH	Potassium	Selenium Dissolved	Selenium Total	Sodium	Sulphate
Julia Creek US	1/09/2023	Parallel Secondary	<1	8	<0.001	<0.001	<0.001	0.001	0.002	0.001	364	8.22	7	<0.01	<0.01	35	41
Spellary Creek US	1/09/2023		<1	13	<0.001	0.002	<0.001	0.002	0.004	0.004	344	8.26	5	<0.01	<0.01	64	16
Horse Creek DS	20/09/2023		<1	30	<0.001	<0.001	<0.001	0.001	0.003	0.005	1010	7.91	11	<0.01	<0.01	130	340
Tributary of Flinders river DS	20/09/2023		19	52	<0.001	0.009	<0.001	0.006	0.002	0.008	670	8.48	14	<0.01	<0.01	118	18
Alick Creek US	21/09/2023		<1	62	<0.001	0.002	<0.001	0.002	0.002	0.005	623	8.14	9	<0.01	<0.01	127	7
Flinders River DS	21/09/2023		16	15	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	568	8.36	6	<0.01	<0.01	57	30
Horse Creek US	21/09/2023		<1	43	<0.001	0.030	0.001	0.023	0.001	0.058	1070	7.50	11	<0.01	<0.01	156	263
Julia Creek DS	21/09/2023		11	10	<0.001	<0.001	<0.001	0.001	0.002	0.002	398	8.32	8	<0.01	<0.01	44	44
Julia Creek US	21/09/2023	Parallel Primary	<1	55	<0.001	0.011	<0.001	0.007	0.002	0.011	783	8.11	4	<0.01	<0.01	180	8
Julia Creek US	21/09/2023	Parallel Secondary	<1	54	<0.001	0.010	<0.001	0.007	0.002	0.011	795	8.25	4	<0.01	<0.01	176	7
Spellary Creek US	21/09/2023		<1	18	<0.001	0.004	<0.001	0.003	0.002	0.009	465	8.08	5	<0.01	<0.01	79	13
Alick Creek US	22/10/2023		<1	56	<0.001	0.005	<0.001	0.005	0.002	-	645	8.32	8	<0.01	<0.01	117	6
Flinders River DS	22/10/2023		<1	14	<0.001	<0.001	<0.001	<0.001	0.001	-	531	8.13	7	<0.01	<0.01	63	28
Horse Creek DS	22/10/2023		<1	119	<0.001	0.007	0.002	0.008	0.002	-	2360	7.32	14	<0.01	<0.01	305	994
Julia Creek DS	22/10/2023	Parallel Primary	<1	11	<0.001	0.005	<0.001	0.005	0.002	-	377	7.95	9	<0.01	<0.01	52	60
Julia Creek DS	22/10/2023	Parallel Secondary	<1	11	<0.001	0.006	<0.001	0.005	0.002	-	392	7.98	9	<0.01	<0.01	55	60
Julia Creek US	22/10/2023		<1	56	<0.001	0.022	<0.001	0.010	0.003	-	839	8.05	4	<0.01	<0.01	180	8
Tributary of Flinders river DS	22/10/2023		<1	49	<0.001	0.011	<0.001	0.005	0.002	-	672	8.16	14	<0.01	<0.01	122	18
Alick Creek US	23/11/2023	Parallel Primary	<1	60	<0.001	0.010	<0.001	0.008	0.001	0.014	591	8.13	9	<0.01	<0.01	129	8
Alick Creek US	23/11/2023	Parallel Secondary	<1	62	<0.001	0.009	0.001	0.006	0.003	0.009	593	8.09	10	<0.01	<0.01	134	9
Flinders River DS	23/11/2023		<1	17	<0.001	0.002	<0.001	<0.001	0.005	<0.001	517	8.17	8	<0.01	<0.01	68	25
Julia Creek DS	23/11/2023		<1	18	<0.001	0.007	<0.001	0.005	0.002	0.007	459	8.10	10	<0.01	<0.01	75	64
Julia Creek US	23/11/2023		<1	67	<0.001	0.027	<0.001	0.010	0.002	0.018	794	8.10	4	<0.01	<0.01	189	7
Tributary of Flinders river DS	23/11/2023		<1	47	<0.001	0.019	<0.001	0.007	0.001	0.012	531	8.21	13	<0.01	<0.01	107	15
Alick Creek US	19/12/2023		1	58	0.001	0.005	0.001	0.004	0.006	0.007	627	7.47	9	0.01	0.01	112	10
Julia Creek DS	19/12/2023		1	24	0.001	0.008	0.001	0.009	0.005	0.010	614	7.11	10	0.01	0.01	96	81
Julia Creek US	19/12/2023		1	66	0.001	0.013	0.001	0.007	0.002	0.011	857	8.05	4	0.01	0.01	190	8
Flinders River DS	19/12/2023	Parallel Primary	1	19	0.001	0.001	0.001	0.001	0.001	0.001	575	7.87	8	0.01	0.01	65	23
Flinders River DS	20/12/2023	Parallel Secondary	1	19	0.001	0.001	0.001	0.001	0.001	0.001	574	7.93	8	0.01	0.01	64	22
Tributary of Flinders river DS	20/12/2023		1	50	0.001	0.008	0.001	0.007	0.004	0.009	587	7.59	12	0.01	0.01	100	18
Alick Creek US	25/01/2024		1	1	0.001	0.028	0.001	0.010	0.002	0.021	82	7.37	3	0.01	0.01	5	1
Flinders River DS	25/01/2024		1	3	0.002	0.049	0.001	0.030	0.002	0.041	135	7.56	3	0.01	0.01	10	15
Flinders River US1	25/01/2024		1	4	0.002	0.030	0.001	0.014	0.005	0.022	133	7.54	4	0.01	0.01	8	10
Horse Creek DS	25/01/2024		1	2	0.001	0.003	0.001	0.001	0.003	0.007	190	7.67	4	0.01	0.01	13	12
Horse Creek US	25/01/2024		1	2	0.001	0.004	0.001	0.002	0.002	0.005	198	7.70	4	0.01	0.01	13	13
Julia Creek DS	25/01/2024		1	4	0.001	0.024	0.001	0.011	0.001	0.020	102	7.16	2	0.01	0.01	14	5
Julia Creek US	25/01/2024		1	4	0.001	0.011	0.001	0.004	0.001	0.009	208	7.45	4	0.01	0.01	20	23

Project Name: Multicom Saint Elmo REMP
 Job Number: SWS2400677.01
 Client: Multicom Resources
 Table: T1. Water Quality Results

	Carb. Alka. as CaCO3	Chloride	Chromium Dissolved	Chromium Total	Cobalt Dissolved	Cobalt Total	Copper Dissolved	Copper Total	Electrical Conductivity	pH	Potassium	Selenium Dissolved	Selenium Total	Sodium	Sulphate
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µS/cm	pH Unit	mg/L	mg/L	mg/L	mg/L	mg/L
LOR	1	1	0.001	0.001	0.001	0.001	0.001	0.001	1	0.01	1	0.01	0.01	1	1
Table E2 - Surface water quality objectives - Water Quality Objectives			0.001		0.0014		0.004		607			0.011			46
Table E2 - Surface water quality objectives - Compliance Limits				0.05	0.05			2	1,300	6.0 - 8.0		0.02			250

Sample ID	Date	QA Type	Carb. Alka. as CaCO3	Chloride	Chromium Dissolved	Chromium Total	Cobalt Dissolved	Cobalt Total	Copper Dissolved	Copper Total	Electrical Conductivity	pH	Potassium	Selenium Dissolved	Selenium Total	Sodium	Sulphate
Tributary of Flinders river DS	31/07/2024		1	69	0.001	0.002	0.001	0.001	0.005	0.003	674	8.14	13	0.01	0.01	118	72
Flinders River DS	15/08/2024		1	15	0.001	0.001	0.001	0.001	0.001	0.001	489	8.24	5	0.01	0.01	40	25
Flinders River US1	15/08/2024		1	21	0.001	0.001	0.002	0.002	0.002	0.001	865	8.17	19	0.01	0.01	82	31
Horse Creek DS	15/08/2024		1	16	0.001	0.024	0.001	0.010	0.004	0.023	594	7.92	7	0.01	0.01	82	67
Julia Creek DS	15/08/2024		1	18	0.001	0.001	0.001	0.001	0.002	0.002	292	8.09	5	0.01	0.01	39	9
Tributary of Flinders river DS	15/08/2024		1	85	0.001	0.015	0.001	0.005	0.004	0.010	786	8.15	15	0.01	0.01	132	65
Alick Creek US	16/08/2024		1	52	0.001	0.007	0.001	0.004	0.002	0.008	633	7.98	8	0.01	0.01	105	7
Julia Creek US	16/08/2024	Parallel Primary	1	59	0.001	0.013	0.001	0.006	0.002	0.009	754	8.16	5	0.01	0.01	176	7
Julia Creek US	15/08/2024	Parallel Secondary	1	57	0.001	0.013	0.001	0.006	0.002	0.009	770	8.15	5	0.01	0.01	177	7
Spellary Creek US	16/08/2024		1	10	0.001	0.008	0.001	0.005	0.002	0.009	377	7.53	5	0.01	0.01	59	14
Alick Creek US	04/09/2024		1	54	0.001	0.007	0.001	0.004	0.002	0.010	598	8.04	8	0.01	0.01	107	7
Horse Creek DS	04/09/2024		1	33	0.001	0.035	0.001	0.020	0.005	0.073	711	8.02	6	0.01	0.01	116	101
Spellary Creek US	04/09/2024		1	17	0.001	0.050	0.001	0.024	0.004	0.056	460	7.78	5	0.01	0.01	74	24
Tributary of Flinders river DS	04/09/2024		1	99	0.001	0.014	0.001	0.006	0.003	0.012	878	8.06	15	0.01	0.01	148	52
Flinders River DS	05/09/2024		1	16	0.001	0.001	0.001	0.001	0.001	0.001	486	8.19	5	0.01	0.01	40	24
Julia Creek DS	05/09/2024		12	20	0.001	0.003	0.001	0.002	0.002	0.004	283	8.32	5	0.01	0.01	42	9
Julia Creek US	05/09/2024	Parallel Primary	1	64	0.001	0.015	0.001	0.007	0.002	0.011	750	8.15	4	0.01	0.01	172	8
Julia Creek US	05/09/2024	Parallel Secondary	1	60	0.001	0.014	0.001	0.006	0.001	0.010	759	8.08	4	0.01	0.01	171	8
Alick Creek US	1/10/2024		22	51	0.001	0.007	0.001	0.004	0.003	0.010	619	8.48	9	0.01	0.01	116	7
Flinders River DS	1/10/2024		1	18	0.001	0.001	0.001	0.001	0.006	0.004	522	8.07	6	0.01	0.01	43	23
Julia Creek DS	1/10/2024		1	15	0.001	0.004	0.001	0.003	0.002	0.004	378	8.14	8	0.01	0.01	52	12
Julia Creek US	1/10/2024	Parallel Primary	1	62	0.001	0.015	0.001	0.007	0.002	0.012	857	8.05	6	0.01	0.01	193	7
Julia Creek US	1/10/2024	Parallel Secondary	1	65	0.001	0.012	0.001	0.007	0.005	0.010	854	8.03	5	0.01	0.01	186	8
Tributary of Flinders river DS	2/10/2024		1	170	0.001	0.028	0.001	0.019	0.003	0.030	1220	7.91	19	0.01	0.01	219	54
Julia Creek US	06/11/2024	Parallel Primary	1	67	0.001	0.008	0.001	0.005	0.009	0.042	781	7.83	4	0.01	0.01	164	7
Julia Creek US	06/11/2024	Parallel Secondary	1	68	0.001	0.009	0.001	0.005	0.005	0.042	758	7.86	4	0.01	0.01	166	7
Tributary of Flinders river DS	06/11/2024		1	62	0.001	0.001	0.001	0.002	0.004	0.026	655	7.47	14	0.01	0.01	104	67
Alick Creek US	07/11/2024		1	94	0.001	0.004	0.001	0.004	0.004	0.007	782	7.97	10	0.01	0.01	159	9
Flinders River DS	07/11/2024		1	21	0.001	0.001	0.001	0.001	0.001	0.001	530	7.87	6	0.01	0.01	48	20
Julia Creek DS	07/11/2024		1	44	0.001	0.010	0.001	0.007	0.004	0.011	511	7.57	8	0.01	0.01	76	21
Alick Creek US	05/12/2024	Parallel Primary	1	64	0.001	0.013	0.001	0.008	0.004	0.014	659	7.93	8	0.01	0.01	122	7
Alick Creek US	05/12/2024	Parallel Secondary	1	63	0.001	0.009	0.001	0.008	0.006	0.014	669	8.00	8	0.01	0.01	122	6
Flinders River DS	05/12/2024		1	20	0.001	0.001	0.001	0.001	0.001	0.001	535	7.53	6	0.01	0.01	48	17
Julia Creek DS	05/12/2024		1	43	0.001	0.009	0.001	0.005	0.004	0.010	582	8.15	9	0.01	0.01	86	26
Julia Creek US	05/12/2024		1	51	0.001	0.009	0.001	0.005	0.005	0.010	667	8.09	5	0.01	0.01	149	9
Spellary Creek US	05/12/2024		1	2	0.001	0.064	0.001	0.032	0.012	0.091	170	7.26	4	0.01	0.01	20	13
Tributary of Flinders river DS	05/12/2024		1	63	0.001	0.001	0.005	0.001	0.007	0.005	744	7.75	14	0.01	0.01	121	33

Red text denotes exceedance of the water quality objectives and reference site

Project Name: Multicom Saint Elmo REMP
 Job Number: SWS2400677.01
 Client: Multicom Resources
 Table: T1. Water Quality Results

	Sum of Anions	Sum of Cations	Uranium Dissolved	Uranium Total	Vanadium Dissolved	Vanadium Total	Zinc Dissolved	Zinc Total
Unit	meq/L	meq/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LOR	0.01	0.01	0.001	0.001	0.01	0.01	0.005	0.005
Table E2 - Surface water quality objectives - Water Quality Objectives			0.002		0.02		0.008	
Table E2 - Surface water quality objectives - Compliance Limits				0.017	0.1			3

Sample ID	Date	QA Type	Sum of Anions	Sum of Cations	Uranium Dissolved	Uranium Total	Vanadium Dissolved	Vanadium Total	Zinc Dissolved	Zinc Total
Julia Creek US	7/03/2023		2.36	2.37	<0.001	<0.001	0.02	0.03	<0.005	0.008
Flinders River US1	5/03/2023		2.46	2.5	<0.001	<0.001	0.01	0.01	<0.005	<0.005
Horse Creek US	7/03/2023		4.22	4.28	<0.001	<0.001	0.01	0.03	<0.005	0.011
Spellary Creek US	5/03/2023		2.99	3.04	<0.001	<0.001	0.02	0.02	<0.005	0.007
Alick Creek US	5/03/2023		1.85	1.82	<0.001	<0.001	0.02	0.04	<0.005	0.012
Julia Creek DS	6/03/2023		1.76	1.79	<0.001	<0.001	0.02	0.02	<0.005	<0.005
Flinders River DS	6/03/2023		2.24	2.28	<0.001	<0.001	0.02	0.04	<0.005	0.031
Horse Creek DS	5/03/2023		2.98	2.94	<0.001	<0.001	0.02	0.03	<0.005	<0.005
Tributary of Flinders river DS	6/03/2023		5.19	5.13	<0.001	<0.001	<0.01	<0.01	<0.005	<0.005
Julia Creek US	28/04/2023		5.27	5.95	<0.001	<0.001	0.01	0.03	<0.005	0.016
Julia Creek DS	23/04/2023		2.63	2.9	<0.001	<0.001	0.01	0.02	0.011	<0.005
Flinders River US1	26/04/2023	Parallel Primary	5.78	6.5	0.005	0.005	<0.01	<0.01	<0.005	<0.005
Flinders River US1	26/04/2023	Parallel secondary	6.28	6.45	0.005	0.005	<0.01	<0.01	<0.005	<0.005
Flinders River DS	23/04/2023		3.67	4.27	0.001	0.001	0.01	0.02	<0.005	<0.005
Tributary of Flinders River	26/04/2023		5.15	5.45	<0.001	<0.001	<0.01	0.07	<0.005	0.044
Horse Creek DS	26/04/2023		3.86	4.11	<0.001	0.001	0.03	0.04	<0.005	0.01
Horse Creek US	27/04/2023		5.62	6.56	<0.001	<0.001	0.01	0.02	<0.005	<0.005
Alick Creek US	23/04/2023		3.58	4.02	<0.001	<0.001	0.02	0.02	<0.005	0.007
Spellary Creek US	23/04/2023		3.29	3.99	<0.001	<0.001	0.02	0.02	<0.005	0.011
Julia Creek DS	20/05/2023		3.07	3.25	<0.001	<0.001	<0.01	0.01	<0.005	<0.005
Flinders River DS	20/05/2023		4.09	4.4	0.002	0.002	0.01	0.02	<0.005	<0.005
Julia Creek US	20/05/2023		6.25	6.68	<0.001	<0.001	0.01	0.04	<0.005	0.022
Horse Creek US	20/05/2023		6.55	7.04	0.001	0.001	<0.01	0.01	<0.005	0.005
Spellary Creek US	20/05/2023		4	4.25	<0.001	0.001	0.01	0.02	<0.005	<0.005
Alick Creek US	20/05/2023		3.46	3.68	0.001	0.002	0.01	0.02	<0.005	0.012
Horse Creek DS	21/05/2023		4.95	5.03	<0.001	0.002	0.01	0.08	<0.005	0.034
Tributary of Flinders river DS	21/05/2023		5.83	5.9	<0.001	<0.001	0.01	0.05	<0.005	0.04
Flinders River US1	21/05/2023	Parallel Primary	7.94	8.19	0.005	0.006	<0.01	0.01	<0.005	0.007
Flinders River US1	21/05/2023	Parallel Secondary	7.99	8.66	0.005	0.006	<0.01	0.01	<0.005	0.01
Flinders River DS	27/06/2023		6	5.79	0.002	0.002	<0.01	<0.01	<0.005	<0.005
Julia Creek DS	27/06/2023		3.38	3.34	<0.001	<0.001	<0.01	<0.01	<0.005	<0.005
Tributary of Flinders River	28/06/2023		6.14	6.39	<0.001	<0.001	0.01	0.04	<0.005	0.028
Flinders River US1	28/06/2023	Parallel Primary	8.47	8.4	0.005	0.006	<0.01	0.01	<0.005	0.008
Flinders River US1	28/06/2023	Parallel Secondary	7.36	7.56	<0.001	<0.001	0.01	0.04	<0.005	0.022
Horse Creek DS	28/06/2023		8.14	8.11	0.002	0.002	<0.01	0.02	<0.005	0.011
Alick Creek US	28/06/2023		6.01	6.02	<0.001	<0.001	0.01	0.03	<0.005	0.016
Spellary Creek US	28/06/2023		4.49	4.7	0.001	0.002	0.01	0.02	<0.005	<0.005
Julia Creek US	28/06/2023		7.37	7.82	<0.001	<0.001	<0.01	0.04	<0.005	0.029
Horse Creek US	28/06/2023		8.6	8.59	<0.001	0.001	<0.01	0.01	<0.005	0.006
Julia Creek Upstream	28/07/2023		6.46	7	<0.001	<0.001	0.02	0.04	<0.005	0.025
Julia Creek Downstream	27/07/2023		3.42	3.84	<0.001	<0.001	<0.01	0.01	<0.005	0.023
Flinders River Upstream 1	27/07/2023		8.81	9.39	0.007	0.008	<0.01	0.02	<0.005	0.009
Flinders River DS	27/07/2023		3.47	3.69	0.002	0.002	<0.01	<0.01	<0.005	<0.005
Tributary of Flinders River	27/07/2023		5.95	6.19	<0.001	<0.001	0.02	0.03	<0.005	0.018
Horse Creek Downstream	27/07/2023		5.63	5.91	0.001	0.002	0.02	0.02	<0.005	0.006
Horse Creek Upstream	28/07/2023	Parallel Primary	4.57	4.97	<0.001	<0.001	0.01	0.01	<0.005	<0.005
Horse Creek Upstream	28/07/2023	Parallel secondary	4.81	5.27	<0.001	<0.001	<0.01	0.01	<0.005	0.006
Alick Creek Upstream	28/07/2023		5.2	5.48	<0.001	<0.001	0.01	0.01	<0.005	0.006
Spellary Creek Upstream	28/07/2023		3.7	4.08	0.001	0.001	0.02	0.02	<0.005	<0.005
Horse Creek DS	31/08/2023		7.84	7.82	0.001	0.002	<0.01	0.01	<0.005	<0.005
Tributary of Flinders river DS	31/08/2023		6.67	6.66	<0.001	<0.001	0.02	0.06	<0.005	0.051
Alick Creek US	1/09/2023		6.27	6.27	<0.001	<0.001	<0.01	0.02	<0.005	0.005
Flinders River DS	1/09/2023		5.95	5.81	0.002	0.002	<0.01	<0.01	<0.005	<0.005
Horse Creek US	1/09/2023		6.78	6.87	<0.001	0.001	<0.01	0.02	<0.005	0.007
Julia Creek DS	1/09/2023		3.76	3.77	<0.001	<0.001	<0.01	<0.01	<0.005	<0.005
Julia Creek US	1/09/2023	Parallel Primary	7.56	7.95	<0.001	<0.001	<0.01	0.05	<0.005	0.036

Project Name: Multicom Saint Elmo REMP
 Job Number: SWS2400677.01
 Client: Multicom Resources
 Table: T1. Water Quality Results

	Sum of Anions	Sum of Cations	Uranium Dissolved	Uranium Total	Vanadium Dissolved	Vanadium Total	Zinc Dissolved	Zinc Total
Unit	meq/L	meq/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LOR	0.01	0.01	0.001	0.001	0.01	0.01	0.005	0.005
Table E2 - Surface water quality objectives - Water Quality Objectives			0.002		0.02		0.008	
Table E2 - Surface water quality objectives - Compliance Limits				0.017	0.1			3

Sample ID	Date	QA Type	Sum of Anions	Sum of Cations	Uranium Dissolved	Uranium Total	Vanadium Dissolved	Vanadium Total	Zinc Dissolved	Zinc Total
Julia Creek US	1/09/2023	Parallel Secondary	3.76	3.81	<0.001	<0.001	<0.01	<0.01	<0.005	<0.005
Spellary Creek US	1/09/2023		3.76	3.77	<0.001	0.002	0.02	0.02	<0.005	0.009
Horse Creek DS	20/09/2023		9.64	10.00	0.002	0.002	<0.01	0.01	<0.005	0.006
Tributary of Flinders river DS	20/09/2023		6.42	6.88	<0.001	<0.001	0.02	0.05	<0.005	0.032
Alick Creek US	21/09/2023		6.01	6.52	<0.001	<0.001	0.01	0.02	<0.005	0.009
Flinders River DS	21/09/2023		5.84	5.82	0.002	0.002	<0.01	<0.01	<0.005	<0.005
Horse Creek US	21/09/2023		10.10	9.76	0.001	0.003	0.02	0.16	<0.005	0.155
Julia Creek DS	21/09/2023		3.92	4.11	<0.001	<0.001	<0.01	0.01	<0.005	<0.005
Julia Creek US	21/09/2023	Parallel Primary	7.19	8.33	<0.001	<0.001	0.01	0.04	<0.005	0.034
Julia Creek US	21/09/2023	Parallel Secondary	7.52	8.16	<0.001	<0.001	0.01	0.04	<0.005	0.034
Spellary Creek US	21/09/2023		4.69	4.68	0.001	0.002	0.01	0.03	<0.005	0.021
Alick Creek US	22/10/2023		6.00	6.29	<0.001	<0.001	0.01	0.03	<0.005	0.016
Flinders River DS	22/10/2023		5.49	6.04	0.002	0.002	<0.01	<0.01	<0.005	<0.005
Horse Creek DS	22/10/2023		25.80	24.00	0.002	0.002	0.02	0.05	<0.005	0.021
Julia Creek DS	22/10/2023	Parallel Primary	3.68	3.85	<0.001	0.001	0.01	0.03	<0.005	0.012
Julia Creek DS	22/10/2023	Parallel Secondary	3.68	3.93	<0.001	0.001	0.02	0.03	<0.005	0.016
Julia Creek US	22/10/2023		7.92	8.51	<0.001	<0.001	0.02	0.08	<0.005	0.057
Tributary of Flinders river DS	22/10/2023		6.39	7.06	<0.001	<0.001	0.02	0.05	<0.005	0.032
Alick Creek US	23/11/2023	Parallel Primary	6.49	6.94	<0.001	<0.001	<0.01	0.06	<0.005	0.027
Alick Creek US	23/11/2023	Parallel Secondary	6.61	7.28	<0.001	<0.001	0.02	0.04	0.021	0.027
Flinders River DS	23/11/2023		6.09	6.53	0.002	0.002	<0.01	<0.01	<0.005	<0.005
Julia Creek DS	23/11/2023		5.00	5.36	<0.001	0.001	0.01	0.04	<0.005	0.016
Julia Creek US	23/11/2023		8.63	8.90	<0.001	<0.001	0.02	0.09	<0.005	0.067
Tributary of Flinders river DS	23/11/2023		5.73	6.28	<0.001	<0.001	0.02	0.05	<0.005	0.046
Alick Creek US	19/12/2023		6.24	5.96	0.001	0.001	0.02	0.03	0.005	0.015
Julia Creek DS	19/12/2023		6.08	6.04	0.001	0.002	0.02	0.06	0.005	0.025
Julia Creek US	19/12/2023		8.70	8.92	0.001	0.001	0.02	0.05	0.005	0.042
Flinders River DS	19/12/2023	Parallel Primary	6.31	6.55	0.001	0.002	0.01	0.01	0.005	0.005
Flinders River DS	20/12/2023	Parallel Secondary	6.29	6.36	0.001	0.002	0.01	0.01	0.005	0.005
Tributary of Flinders river DS	20/12/2023		5.86	5.90	0.001	0.001	0.02	0.04	0.005	0.032
Alick Creek US	25/01/2024		0.85	0.72	0.001	0.001	0.02	0.10	0.005	0.068
Flinders River DS	25/01/2024		1.56	1.32	0.001	0.002	0.02	0.15	0.005	0.130
Flinders River US1	25/01/2024		1.30	1.21	0.001	0.001	0.01	0.09	0.005	0.071
Horse Creek DS	25/01/2024		1.88	1.75	0.001	0.001	0.03	0.04	0.005	0.016
Horse Creek US	25/01/2024		2.00	1.90	0.001	0.001	0.02	0.03	0.005	0.009
Julia Creek DS	25/01/2024		1.18	0.91	0.001	0.001	0.01	0.09	0.005	0.054
Julia Creek US	25/01/2024		2.03	2.08	0.001	0.001	0.02	0.05	0.005	0.023

Project Name: Multicom Saint Elmo REMP
 Job Number: SWS2400677.01
 Client: Multicom Resources
 Table: T1. Water Quality Results

	Sum of Anions	Sum of Cations	Uranium Dissolved	Uranium Total	Vanadium Dissolved	Vanadium Total	Zinc Dissolved	Zinc Total
Unit	meq/L	meq/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LOR	0.01	0.01	0.001	0.001	0.01	0.01	0.005	0.005
Table E2 - Surface water quality objectives - Water Quality Objectives			0.002		0.02		0.008	
Table E2 - Surface water quality objectives - Compliance Limits				0.017	0.1			3

Sample ID	Date	QA Type								
Pigeon Creek DS	25/01/2024	Parallel Primary	3.26	3.01	0.001	0.002	0.05	0.19	0.005	0.124
Pigeon Creek DS	25/01/2024	Parallel Secondary	3.28	2.93	0.001	0.002	0.04	0.21	0.005	0.151
Spellary Creek US	25/01/2024		2.68	2.78	0.001	0.001	0.02	0.06	0.005	0.080
Alick Creek US	22/02/2024		0.90	0.70	0.001	0.002	0.04	0.16	0.005	0.130
Flinders River US1	22/02/2024	Parallel Primary	2.22	2.18	0.001	0.001	0.01	0.02	0.005	0.016
Flinders River US1	22/02/2024	Parallel Secondary	2.20	2.31	0.001	0.001	0.01	0.02	0.005	0.010
Horse Creek DS	22/02/2024		2.06	2.19	0.001	0.001	0.02	0.03	0.005	0.015
Horse Creek US	22/02/2024		2.69	2.77	0.001	0.001	0.02	0.02	0.005	0.012
Julia Creek US	22/02/2024		1.63	1.62	0.001	0.001	0.02	0.08	0.005	0.058
Spellary Creek US	22/02/2024		2.00	1.80	0.001	0.001	0.02	0.04	0.005	0.035
Alick Creek US	25/03/2024		2.25	2.02	0.001	0.001	0.03	0.06	0.005	0.029
Flinders River US1	25/03/2024	Parallel Primary	2.29	2.04	0.001	0.001	0.01	0.02	0.005	0.007
Flinders River US1	25/03/2024	Parallel Secondary	2.45	2.17	0.001	0.001	0.01	0.02	0.005	0.007
Horse Creek DS	25/03/2024		2.25	2.32	0.001	0.001	0.03	0.04	0.005	0.007
Horse Creek US	25/03/2024		3.26	3.12	0.001	0.001	0.01	0.02	0.005	0.007
Julia Creek US	25/03/2024		2.60	2.44	0.001	0.001	0.01	0.05	0.005	0.047
Spellary Creek US	25/03/2024		3.36	3.08	0.001	0.002	0.02	0.11	0.005	0.077
Flinders River DS	23/04/2024		2.56	2.54	0.001	0.001	0.01	0.02	0.005	0.005
Flinders River US1	23/04/2024		2.94	2.82	0.001	0.001	0.01	0.01	0.005	0.005
Horse Creek DS	23/04/2024		2.51	2.46	0.001	0.001	0.03	0.05	0.005	0.008
Julia Creek DS	23/04/2024	Parallel Primary	2.48	2.25	0.001	0.001	0.01	0.04	0.005	0.023
Julia Creek DS	23/04/2024	Parallel Secondary	2.51	2.35	0.001	0.001	0.01	0.03	0.005	0.015
Julia Creek US	23/04/2024		3.52	3.37	0.001	0.001	0.01	0.06	0.005	0.073
Pigeon Creek DS	23/04/2024		10.20	8.16	0.003	0.005	0.03	0.11	0.005	0.085
Tributary of Flinders river DS	23/04/2024		5.00	5.36	0.001	0.001	0.01	0.03	0.005	0.017
Alick Creek US	24/04/2024		3.90	3.53	0.001	0.001	0.01	0.01	0.005	0.005
Horse Creek US	24/04/2024		3.90	3.53	0.001	0.001	0.01	0.01	0.005	0.005
Spellary Creek US	24/04/2024		3.16	3.02	0.001	0.001	0.02	0.04	0.005	0.022
Alick Creek US	21/05/2024		4.84	4.70	0.001	0.001	0.01	0.02	0.005	0.005
Flinders River DS	21/05/2024		4.03	3.85	0.001	0.001	0.01	0.01	0.005	0.005
Flinders River US1	21/05/2024		6.36	6.44	0.002	0.003	0.01	0.01	0.005	0.005
Horse Creek DS	21/05/2024	Parallel Primary	4.43	4.05	0.002	0.002	0.01	0.05	0.005	0.029
Horse Creek DS	21/05/2024	Parallel Secondary	4.43	4.28	0.001	0.002	0.01	0.04	0.005	0.017
Horse Creek US	21/05/2024		4.31	4.13	0.001	0.001	0.01	0.01	0.005	0.005
Julia Creek DS	21/05/2024		3.23	3.02	0.001	0.001	0.02	0.04	0.005	0.021
Julia Creek US	21/05/2024		6.00	6.01	0.001	0.001	0.01	0.06	0.005	0.049
Spellary Creek US	21/05/2024		3.69	3.34	0.001	0.001	0.02	0.06	0.011	0.055
Tributary of Flinders river DS	21/05/2024		6.66	6.23	0.001	0.002	0.01	0.13	0.005	0.119
Alick Creek US	18/06/2024		5.36	5.53	0.001	0.001	0.01	0.02	0.005	0.013
Flinders River DS	18/06/2024		3.83	3.84	0.001	0.002	0.01	0.01	0.005	0.005
Horse Creek US	18/06/2024		5.24	5.01	0.001	0.001	0.01	0.02	0.005	0.005
Julia Creek DS	18/06/2024		3.20	2.95	0.001	0.001	0.01	0.01	0.005	0.005
Spellary Creek US	18/06/2024		3.43	3.55	0.001	0.002	0.02	0.04	0.005	0.027
Flinders River US1	19/06/2024		5.84	5.71	0.002	0.004	0.01	0.01	0.005	0.005
Horse Creek DS	19/06/2024		3.79	4.01	0.001	0.002	0.01	0.02	0.005	0.012
Julia Creek US	19/06/2024		6.93	7.34	0.001	0.001	0.01	0.05	0.005	0.045
Tributary of Flinders river DS	19/06/2024	Parallel Primary	7.70	7.43	0.001	0.003	0.01	0.17	0.005	0.109
Tributary of Flinders river DS	19/06/2024	Parallel Secondary	7.72	7.67	0.001	0.002	0.01	0.13	0.005	0.122
Alick Creek US	31/07/2024		6.28	6.45	0.001	0.001	0.01	0.02	0.005	0.016
Flinders River DS	31/07/2024		3.35	3.15	0.001	0.001	0.01	0.01	0.005	0.009
Flinders River US1	31/07/2024		9.04	8.29	0.004	0.005	0.01	0.01	0.005	0.007
Horse Creek DS	31/07/2024		5.66	5.44	0.002	0.003	0.01	0.06	0.005	0.041
Julia Creek DS	31/07/2024		5.03	4.95	0.001	0.002	0.01	0.01	0.005	0.005
Julia Creek US	31/07/2024		8.21	8.56	0.001	0.001	0.01	0.06	0.005	0.057
Spellary Creek US	31/07/2024	Parallel Primary	4.19	4.02	0.001	0.002	0.01	0.02	0.005	0.011
Spellary Creek US	31/07/2024	Parallel Secondary	4.22	4.00	0.001	0.002	0.01	0.02	0.005	0.012

Project Name: Multicom Saint Elmo REMP
 Job Number: SWS2400677.01
 Client: Multicom Resources
 Table: T1. Water Quality Results

	Sum of Anions	Sum of Cations	Uranium Dissolved	Uranium Total	Vanadium Dissolved	Vanadium Total	Zinc Dissolved	Zinc Total
Unit	meq/L	meq/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LOR	0.01	0.01	0.001	0.001	0.01	0.01	0.005	0.005
Table E2 - Surface water quality objectives - Water Quality Objectives			0.002		0.02		0.008	
Table E2 - Surface water quality objectives - Compliance Limits				0.017	0.1			3

Sample ID	Date	QA Type	Sum of Anions	Sum of Cations	Uranium Dissolved	Uranium Total	Vanadium Dissolved	Vanadium Total	Zinc Dissolved	Zinc Total
Tributary of Flinders river DS	31/07/2024		6.66	6.71	0.001	0.001	0.01	0.01	0.005	0.007
Flinders River DS	15/08/2024		5.76	5.52	0.002	0.002	0.01	0.01	0.005	0.005
Flinders River US1	15/08/2024		9.69	9.12	0.004	0.005	0.01	0.01	0.005	0.005
Horse Creek DS	15/08/2024		6.52	6.02	0.002	0.004	0.01	0.08	0.005	0.056
Julia Creek DS	15/08/2024		3.19	3.33	0.001	0.001	0.01	0.01	0.005	0.005
Tributary of Flinders river DS	15/08/2024		8.35	7.95	0.001	0.001	0.01	0.04	0.005	0.036
Alick Creek US	16/08/2024		6.77	6.35	0.001	0.001	0.01	0.03	0.005	0.018
Julia Creek US	16/08/2024	Parallel Primary	8.28	8.41	0.001	0.001	0.01	0.04	0.005	0.033
Julia Creek US	15/08/2024	Parallel Secondary	8.25	8.46	0.001	0.001	0.01	0.04	0.005	0.032
Spellary Creek US	16/08/2024		4.29	4.19	0.001	0.002	0.01	0.04	0.005	0.029
Alick Creek US	04/09/2024		6.78	6.25	0.001	0.001	0.01	0.02	0.005	0.018
Horse Creek DS	04/09/2024		7.83	7.27	0.003	0.004	0.02	0.13	0.005	0.128
Spellary Creek US	04/09/2024		5.16	4.79	0.002	0.002	0.01	0.15	0.005	0.178
Tributary of Flinders river DS	04/09/2024		9.17	9.03	0.001	0.002	0.01	0.05	0.005	0.039
Flinders River DS	05/09/2024		5.97	5.47	0.002	0.002	0.01	0.01	0.005	0.005
Julia Creek DS	05/09/2024		3.21	3.08	0.001	0.001	0.01	0.02	0.005	0.007
Julia Creek US	05/09/2024	Parallel Primary	8.76	8.22	0.001	0.001	0.02	0.04	0.005	0.038
Julia Creek US	05/09/2024	Parallel Secondary	8.65	8.12	0.001	0.001	0.01	0.04	0.005	0.036
Alick Creek US	1/10/2024		6.72	6.67	0.001	0.001	0.02	0.03	0.005	0.029
Flinders River DS	1/10/2024		6.28	6.10	0.001	0.002	0.01	0.01	0.010	0.017
Julia Creek DS	1/10/2024		3.99	4.12	0.001	0.001	0.01	0.02	0.005	0.010
Julia Creek US	1/10/2024	Parallel Primary	9.43	9.36	0.001	0.001	0.01	0.05	0.005	0.041
Julia Creek US	1/10/2024	Parallel Secondary	9.55	8.80	0.001	0.001	0.01	0.05	0.005	0.043
Tributary of Flinders river DS	2/10/2024		13.30	12.00	0.002	0.004	0.02	0.12	0.005	0.109
Julia Creek US	06/11/2024	Parallel Primary	8.23	7.54	0.001	0.001	0.01	0.03	0.005	0.053
Julia Creek US	06/11/2024	Parallel Secondary	8.20	7.67	0.001	0.001	0.01	0.03	0.005	0.051
Tributary of Flinders river DS	06/11/2024		6.72	6.14	0.001	0.001	0.03	0.04	0.005	0.094
Alick Creek US	07/11/2024		8.41	8.22	0.001	0.001	0.01	0.02	0.005	0.019
Flinders River DS	07/11/2024		6.04	5.92	0.001	0.002	0.01	0.01	0.005	0.005
Julia Creek DS	07/11/2024		5.31	5.12	0.001	0.002	0.01	0.04	0.005	0.029
Alick Creek US	05/12/2024	Parallel Primary	6.29	6.32	0.001	0.001	0.01	0.05	0.005	0.033
Alick Creek US	05/12/2024	Parallel Secondary	6.28	6.27	0.001	0.001	0.01	0.04	0.005	0.032
Flinders River DS	05/12/2024		5.49	5.12	0.001	0.002	0.01	0.01	0.005	0.005
Julia Creek DS	05/12/2024		5.43	5.43	0.001	0.002	0.02	0.04	0.006	0.022
Julia Creek US	05/12/2024		6.48	7.14	0.001	0.001	0.02	0.04	0.005	0.032
Spellary Creek US	05/12/2024		1.98	1.85	0.001	0.001	0.02	0.21	0.005	0.297
Tributary of Flinders river DS	05/12/2024		7.10	7.40	0.001	0.001	0.05	0.02	0.014	0.005

Red text denotes exceedance of the water quality objectives and reference site



A Montrose Environmental Company

Project Name: Multicom Saint Elmo REMP

Job Number: SWS2400677.01

Client: Multicom Resources

Table: T3. Water Quality RPD Results

	Aluminium Dissolved	Aluminium Total	Arsenic Dissolved	Arsenic Total	Barium Dissolved	Barium Total	Bicarb. Alka. as CaCO3	Bicarbonate	Boron Dissolved	Boron Total	Cadmium Dissolved	Cadmium Total	Calcium	Carb. Alka. as CaCO3
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LOR	0.01	0.01	0.001	0.001	0.001	0.001	1	0.05	0.05	0.05	0.0001	0.0001	1	1
10x LOR	0.1	0.1	0.01	0.01	0.01	0.01	10	0.5	0.5	0.5	0.001	0.001	10	10
20x LOR	0.2	0.2	0.02	0.02	0.02	0.02	20	1	1	1	0.002	0.002	20	20

Sample ID	Date	QA Type	Aluminium Dissolved	Aluminium Total	Arsenic Dissolved	Arsenic Total	Barium Dissolved	Barium Total	Bicarb. Alka. as CaCO3	Bicarbonate	Boron Dissolved	Boron Total	Cadmium Dissolved	Cadmium Total	Calcium	Carb. Alka. as CaCO3
Alick Creek US	23/11/2023	Parallel Primary	0.03	13.20	0.003	0.006	0.052	0.199	232	-	0.09	0.09	<0.0001	<0.0001	17	<1
Alick Creek US	23/11/2023	Parallel Secondary	1.61	12.80	0.004	0.005	0.086	0.187	234	-	0.09	0.08	<0.0001	<0.0001	19	<1
RPD %			193	3	29	18	49	6	1	N/C	0	12	N/C	N/C	11	N/C
Criteria			No Limit	20	No Limit	No Limit	20	20	20	No Data	No Limit	No Limit	<LOR	<LOR	50	<LOR

Flinders River DS	19/12/2023	Parallel Primary	0.01	0.15	0.003	0.004	0.099	0.128	265	-	0.13	0.13	0.0001	0.0001	54	1
Flinders River DS	20/12/2023	Parallel Secondary	0.01	0.16	0.004	0.004	0.096	0.124	265	-	0.13	0.12	0.0001	0.0001	51	1
RPD %			0	6	29	0	3	3	0	N/C	0	8	0	0	6	0
Criteria			No Limit	50	No Limit	No Limit	20	20	20	No Data	No Limit	No Limit	No Limit	No Limit	20	No Limit

Flinders River US1	22/02/2024	Parallel Primary	0.02	3.90	0.001	0.002	0.058	0.078	91	-	0.05	0.05	0.0001	0.0001	23	1
Flinders River US1	22/02/2024	Parallel Secondary	0.01	3.92	0.001	0.002	0.049	0.074	90	-	0.05	0.05	0.0001	0.0001	23	1
RPD %			67	1	0	0	17	5	1	N/C	0	0	0	0	0	0
Criteria			No Limit	20	No Limit	No Limit	20	20	20	No Data	No Limit	No Limit	No Limit	No Limit	20	No Limit

Flinders River US1	25/03/2024	Parallel Primary	0.01	3.69	0.001	0.001	0.041	0.063	94	-	0.05	0.05	0.0001	0.0001	20	1
Flinders River US1	25/03/2024	Parallel Secondary	0.01	3.61	0.001	0.001	0.044	0.061	102	-	0.05	0.05	0.0001	0.0001	21	1
RPD %			0	2	0	0	7	3	8	N/C	0	0	0	0	5	0
Criteria			No Limit	20	No Limit	No Limit	20	20	20	No Data	No Limit	No Limit	No Limit	No Limit	50	No Limit

Horse Creek DS	21/05/2024	Parallel Primary	0.01	14.50	0.003	0.004	0.045	0.129	188	-	0.12	0.16	0.0001	0.0001	33	1
Horse Creek DS	21/05/2024	Parallel Secondary	0.01	15.40	0.003	0.004	0.047	0.136	187	-	0.13	0.15	0.0001	0.0001	31	1
RPD %			0	6	0	0	4	5	1	N/C	8	6	0	0	6	0
Criteria			No Limit	20	No Limit	No Limit	20	20	20	No Data	No Limit	No Limit	No Limit	No Limit	20	No Limit

Julia Creek DS	22/10/2023	Parallel Primary	0.01	11.80	0.002	0.003	0.044	0.115	106	-	0.11	0.11	<0.0001	<0.0001	19	<1
Julia Creek DS	22/10/2023	Parallel Secondary	0.01	11.60	0.002	0.004	0.045	0.115	106	-	0.11	0.14	<0.0001	<0.0001	18	<1
RPD %			0	2	0	29	2	0	0	N/C	0	24	N/C	N/C	5	N/C
Criteria			No Limit	20	No Limit	No Limit	20	20	20	No Data	No Limit	No Limit	<LOR	<LOR	50	<LOR

Julia Creek DS	23/04/2024	Parallel Primary	0.02	9.24	0.003	0.005	0.039	0.094	100	-	0.06	0.07	0.0001	0.0001	19	1
Julia Creek DS	23/04/2024	Parallel Secondary	0.01	8.74	0.004	0.005	0.039	0.093	100	-	0.06	0.06	0.0001	0.0001	20	1
RPD %			67	6	29	0	0	1	0	N/C	0	15	0	0	5	0
Criteria			No Limit	20	No Limit	No Limit	20	20	20	No Data	No Limit	No Limit	No Limit	No Limit	50	No Limit

Julia Creek US	1/09/2023	Parallel Primary	<0.01	23.10	0.005	0.008	0.020	0.140	295	-	-	-	<0.0001	0.0002	10	<1
Julia Creek US	1/09/2023	Parallel Secondary	<0.01	2.36	0.001	0.002	0.060	0.072	134	-	-	-	<0.0001	<0.0001	34	<1
RPD %			N/C	163	133	120	100	64	75	N/C	N/C	N/C	N/C	N/C	109	N/C
Criteria			<LOR	20	No Limit	No Limit	50	20	20	No Data	No Data	No Data	<LOR	No Limit	No Limit	<LOR

Julia Creek US	21/09/2023	Parallel Primary	<0.01	21.80	0.006	0.010	0.015	0.151	264	-	0.10	0.10	<0.0001	<0.0001	8	<1
Julia Creek US	21/09/2023	Parallel Secondary	<0.01	20.00	0.006	0.010	0.016	0.146	293	-	0.09	0.10	<0.0001	<0.0001	8	<1
RPD %			N/C	9	0	0	6	3	10	N/C	11	0	N/C	N/C	0	N/C
Criteria			<LOR	20	No Limit	No Limit	50	20	20	No Data	No Limit	No Limit	<LOR	<LOR	No Limit	<LOR

Julia Creek US	16/08/2024	Parallel Primary	0.01	22.90	0.005	0.008	0.022	0.145	324	-	0.13	0.12	0.0001	0.0001	11	1
Julia Creek US	15/08/2024	Parallel Secondary	0.01	22.90	0.005	0.008	0.022	0.147	325	-	0.13	0.12	0.0001	0.0001	11	1
RPD %			0	0	0	0	0	1	0	N/C	0	0	0	0	0	0
Criteria			No Limit	20	No Limit	No Limit	20	20	20	No Data	No Limit	No Limit	No Limit	No Limit	50	No Limit

Julia Creek US	05/09/2024	Parallel Primary	0.01	26.60	0.008	0.010	0.019	0.136	340	-	0.13	0.13	0.0001	0.0001	11	1
Julia Creek US	05/09/2024	Parallel Secondary	0.01	25.20	0.006	0.009	0.020	0.136	340	-	0.12	0.12	0.0001	0.0001	10	1
RPD %			0	5	29	11	5	0	0	N/C	7	8	0	0	10	0
Criteria			No Limit	20	No Limit	No Limit	50	20	20	No Data	No Limit	No Limit	No Limit	No Limit	50	No Limit



A Montrose Environmental Company

Project Name: Multicom Saint Elmo REMP

Job Number: SWS2400677.01

Client: Multicom Resources

Table: T3. Water Quality RPD Results

	Aluminium Dissolved	Aluminium Total	Arsenic Dissolved	Arsenic Total	Barium Dissolved	Barium Total	Bicarb. Alka. as CaCO3	Bicarbonate	Boron Dissolved	Boron Total	Cadmium Dissolved	Cadmium Total	Calcium	Carb. Alka. as CaCO3
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LOR	0.01	0.01	0.001	0.001	0.001	0.001	1	0.05	0.05	0.05	0.0001	0.0001	1	1
10x LOR	0.1	0.1	0.01	0.01	0.01	0.01	10	0.5	0.5	0.5	0.001	0.001	10	10
20x LOR	0.2	0.2	0.02	0.02	0.02	0.02	20	1	1	1	0.002	0.002	20	20

Sample ID	Date	QA Type													
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Julia Creek US	1/10/2024	Parallel Primary	0.01	28.70	0.008	0.011	0.024	0.163	377	-	0.15	0.15	0.0001	0.0001	13	1
Julia Creek US	1/10/2024	Parallel Secondary	0.02	29.00	0.008	0.012	0.021	0.159	378	-	0.15	0.15	0.0001	0.0001	10	1
RPD %			67	1	0	9	13	2	0	N/C	0	0	0	0	26	0
Criteria			No Limit	20	No Limit	50	20	20	20	No Data	No Limit	No Limit	No Limit	No Limit	50	No Limit

Julia Creek US	06/11/2024	Parallel Primary	0.01	16.30	0.011	0.013	0.014	0.103	310	-	0.11	0.14	0.0001	0.0001	6	1
Julia Creek US	06/11/2024	Parallel Secondary	0.01	16.40	0.012	0.013	0.014	0.105	307	-	0.13	0.14	0.0001	0.0001	7	1
RPD %			0	1	9	0	0	2	1	N/C	17	0	0	0	15	0
Criteria			No Limit	20	50	50	50	20	20	No Data	No Limit	No Limit	No Limit	No Limit	No Limit	No Limit

Pigeon Creek DS	25/01/2024	Parallel Primary	0.06	65.60	0.004	0.009	0.014	0.774	130	-	0.11	0.11	0.0001	0.0002	14	1
Pigeon Creek DS	25/01/2024	Parallel Secondary	0.01	66.00	0.003	0.008	0.015	0.745	129	-	0.12	0.12	0.0001	0.0002	12	1
RPD %			143	1	29	12	7	4	1	N/C	9	9	0	0	15	0
Criteria			No Limit	20	No Limit	No Limit	50	20	20	No Data	No Limit	No Limit	No Limit	No Limit	50	No Limit

Spellary Creek US	31/07/2024	Parallel Primary	0.01	9.55	0.002	0.003	0.027	0.067	166	-	0.12	0.12	0.0001	0.0001	26	19
Spellary Creek US	31/07/2024	Parallel Secondary	0.01	9.54	0.002	0.002	0.025	0.062	165	-	0.10	0.11	0.0001	0.0001	26	19
RPD %			0	0	0	40	8	8	1	N/C	18	9	0	0	0	0
Criteria			No Limit	20	No Limit	No Limit	20	20	20	No Data	No Limit	No Limit	No Limit	No Limit	20	50

Tributary of Flinders river DS	19/06/2024	Parallel Primary	0.01	53.30	0.001	0.008	0.154	1.060	211	-	0.07	0.10	0.0001	0.0003	28	1
Tributary of Flinders river DS	19/06/2024	Parallel Secondary	0.01	54.00	0.001	0.006	0.151	0.972	210	-	0.07	0.09	0.0001	0.0002	28	1
RPD %			0	1	0	29	2	9	0	N/C	0	11	0	40	0	0
Criteria			No Limit	20	No Limit	No Limit	20	20	20	No Data	No Limit	No Limit	No Limit	No Limit	20	No Limit



A Montrose Environmental Company

Project Name: Multicom Saint Elmo REMP

Job Number: SWS2400677.01

Client: Multicom Resources

Table: T3. Water Quality RPD Results

			Chloride	Chromium Dissolved	Chromium Total	Cobalt Dissolved	Cobalt Total	Copper Dissolved	Copper Total	Electrical Conductivity	Fluoride Total	Hydroxide Alka. as CaCO3	Ionic Balance	Iron Dissolved	Iron Total	Lead Dissolved
	Unit		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
	LOR		1	0.001	0.001	0.001	0.001	0.001	0.001	1	0.1	1	0.01	0.05	0.05	0.001
	10x LOR		10	0.01	0.01	0.01	0.01	0.01	0.01	10	1	10	0.1	0.5	0.5	0.01
	20x LOR		20	0.02	0.02	0.02	0.02	0.02	0.02	20	2	20	0.2	1	1	0.02
Sample ID	Date	QA Type														
Alick Creek US	23/11/2023	Parallel Primary	60	<0.001	0.010	<0.001	0.008	0.001	0.014	591	0.3	<1	3.29	<0.05	11.40	<0.001
Alick Creek US	23/11/2023	Parallel Secondary	62	<0.001	0.009	0.001	0.006	0.003	0.009	593	0.3	<1	4.81	1.21	11.10	0.052
RPD %			3	N/C	11	N/C	29	100	43	0	0	N/C	38	N/C	3	N/C
Criteria			20	<LOR	No Limit	<LOR	No Limit	No Limit	50	20	No Limit	<LOR	20	<LOR	20	<LOR
Flinders River DS	19/12/2023	Parallel Primary	19	0.001	0.001	0.001	0.001	0.001	0.001	575	0.4	1	1.87	0.05	0.21	0.001
Flinders River DS	20/12/2023	Parallel Secondary	19	0.001	0.001	0.001	0.001	0.001	0.001	574	0.4	1	0.54	0.05	0.17	0.001
RPD %			0	0	0	0	0	0	0	0	0	0	110	0	21	0
Criteria			50	No Limit	No Limit	No Limit	No Limit	No Limit	No Limit	20	No Limit	No Limit	20	No Limit	No Limit	No Limit
Flinders River US1	22/02/2024	Parallel Primary	7	0.001	0.005	-	-	0.002	0.004	189	0.1	1	-	0.05	3.98	0.001
Flinders River US1	22/02/2024	Parallel Secondary	7	0.001	0.004	-	-	0.001	0.004	193	0.1	1	-	0.05	3.38	0.001
RPD %			0	0	22	N/C	N/C	67	0	2	0	0	N/C	0	16	0
Criteria			No Limit	No Limit	No Limit	No Data	No Data	No Limit	No Limit	20	No Limit	No Limit	No Data	No Limit	20	No Limit
Flinders River US1	25/03/2024	Parallel Primary	8	0.001	0.004	-	-	0.005	0.003	233	0.2	1	-	0.05	3.08	0.001
Flinders River US1	25/03/2024	Parallel Secondary	8	0.001	0.003	-	-	0.002	0.003	224	0.1	1	-	0.05	3.03	0.001
RPD %			0	0	29	N/C	N/C	86	0	4	67	0	N/C	0	2	0
Criteria			No Limit	No Limit	No Limit	No Data	No Data	No Limit	No Limit	20	No Limit	No Limit	No Data	No Limit	20	No Limit
Horse Creek DS	21/05/2024	Parallel Primary	9	0.001	0.011	0.001	0.006	0.005	0.012	386	0.4	1	4.40	0.05	10.30	0.001
Horse Creek DS	21/05/2024	Parallel Secondary	10	0.001	0.010	0.001	0.004	0.003	0.009	386	0.4	1	1.79	0.05	10.90	0.001
RPD %			11	0	10	0	40	50	29	0	0	0	84	0	6	0
Criteria			No Limit	No Limit	50	No Limit	No Limit	No Limit	50	20	No Limit	No Limit	20	No Limit	20	No Limit
Julia Creek DS	22/10/2023	Parallel Primary	11	<0.001	0.005	<0.001	0.005	0.002	-	377	0.4	<1	2.31	<0.05	8.14	<0.001
Julia Creek DS	22/10/2023	Parallel Secondary	11	<0.001	0.006	<0.001	0.005	0.002	-	392	0.4	<1	3.35	<0.05	7.25	<0.001
RPD %			0	N/C	18	N/C	0	0	N/C	4	0	N/C	37	N/C	12	N/C
Criteria			50	<LOR	No Limit	<LOR	No Limit	No Limit	No Data	20	No Limit	<LOR	20	<LOR	20	<LOR
Julia Creek DS	23/04/2024	Parallel Primary	12	0.001	0.006	-	-	0.002	0.008	210	0.2	1	-	0.05	5.76	0.001
Julia Creek DS	23/04/2024	Parallel Secondary	13	0.001	0.006	-	-	0.002	0.006	211	0.2	1	-	0.05	5.88	0.001
RPD %			8	0	0	N/C	N/C	0	29	0	0	0	N/C	0	2	0
Criteria			50	No Limit	No Limit	No Data	No Data	No Limit	No Limit	20	No Limit	No Limit	No Data	No Limit	20	No Limit
Julia Creek US	1/09/2023	Parallel Primary	54	<0.001	0.014	<0.001	0.007	0.004	0.010	737	3.3	<1	2.48	<0.05	16.10	<0.001
Julia Creek US	1/09/2023	Parallel Secondary	8	<0.001	<0.001	<0.001	0.001	0.002	0.001	364	0.3	<1	0.70	<0.05	1.64	<0.001
RPD %			148	N/C	N/C	N/C	150	67	164	68	167	N/C	112	N/C	163	N/C
Criteria			20	<LOR	50	<LOR	No Limit	No Limit	No Limit	20	20	<LOR	20	<LOR	20	<LOR
Julia Creek US	21/09/2023	Parallel Primary	55	<0.001	0.011	<0.001	0.007	0.002	0.011	783	3.7	<1	7.51	<0.05	16.00	<0.001
Julia Creek US	21/09/2023	Parallel Secondary	54	<0.001	0.010	<0.001	0.007	0.002	0.011	795	3.7	<1	4.04	<0.05	15.20	<0.001
RPD %			2	N/C	10	N/C	0	0	0	2	0	N/C	60	N/C	5	N/C
Criteria			20	<LOR	50	<LOR	No Limit	No Limit	50	20	20	<LOR	20	<LOR	20	<LOR
Julia Creek US	16/08/2024	Parallel Primary	59	0.001	0.013	0.001	0.006	0.002	0.009	754	3.5	1	0.78	0.05	15.60	0.001
Julia Creek US	15/08/2024	Parallel Secondary	57	0.001	0.013	0.001	0.006	0.002	0.009	770	3.4	1	1.26	0.05	15.60	0.001
RPD %			3	0	0	0	0	0	0	2	3	0	47	0	0	0
Criteria			20	No Limit	50	No Limit	No Limit	No Limit	No Limit	20	20	No Limit	20	No Limit	20	No Limit
Julia Creek US	05/09/2024	Parallel Primary	64	0.001	0.015	0.001	0.007	0.002	0.011	750	4.0	1	3.24	0.05	17.00	0.001
Julia Creek US	05/09/2024	Parallel Secondary	60	0.001	0.014	0.001	0.006	0.001	0.010	759	4.0	1	3.16	0.05	16.20	0.001
RPD %			6	0	7	0	15	67	10	1	0	0	3	0	5	0
Criteria			20	No Limit	50	No Limit	No Limit	No Limit	50	20	20	No Limit	20	No Limit	20	No Limit



A Montrose Environmental Company

Project Name: Multicom Saint Elmo REMP

Job Number: SWS2400677.01

Client: Multicom Resources

Table: T3. Water Quality RPD Results

	Chloride	Chromium Dissolved	Chromium Total	Cobalt Dissolved	Cobalt Total	Copper Dissolved	Copper Total	Electrical Conductivity	Fluoride Total	Hydroxide Alka. as CaCO3	Ionic Balance	Iron Dissolved	Iron Total	Lead Dissolved
Unit	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
LOR	1	0.001	0.001	0.001	0.001	0.001	0.001	1	0.1	1	0.01	0.05	0.05	0.001
10x LOR	10	0.01	0.01	0.01	0.01	0.01	0.01	10	1	10	0.1	0.5	0.5	0.01
20x LOR	20	0.02	0.02	0.02	0.02	0.02	0.02	20	2	20	0.2	1	1	0.02

Sample ID	Date	QA Type														
Julia Creek US	1/10/2024	Parallel Primary	62	0.001	0.015	0.001	0.007	0.002	0.012	857	4.4	1	0.35	0.05	18.60	0.001
Julia Creek US	1/10/2024	Parallel Secondary	65	0.001	0.012	0.001	0.007	0.005	0.010	854	4.2	1	4.10	0.06	18.70	0.001
RPD %			5	0	22	0	0	86	18	0	5	0	169	18	1	0
Criteria			20	No Limit	50	No Limit	No Limit	No Limit	50	20	20	No Limit	20	No Limit	20	No Limit
Julia Creek US	06/11/2024	Parallel Primary	67	0.001	0.008	0.001	0.005	0.009	0.042	781	4.0	1	4.40	0.05	10.70	0.001
Julia Creek US	06/11/2024	Parallel Secondary	68	0.001	0.009	0.001	0.005	0.005	0.042	758	4.1	1	3.31	0.05	10.80	0.001
RPD %			1	0	12	0	0	57	0	3	2	0	28	0	1	0
Criteria			20	No Limit	No Limit	No Limit	No Limit	No Limit	20	20	20	No Limit	20	No Limit	20	No Limit
Pigeon Creek DS	25/01/2024	Parallel Primary	5	0.001	0.050	0.001	0.030	0.009	0.049	300	1.0	1	4.02	0.07	42.00	0.001
Pigeon Creek DS	25/01/2024	Parallel Secondary	5	0.001	0.070	0.001	0.033	0.003	0.058	305	1.0	1	5.60	0.05	43.00	0.001
RPD %			0	0	33	0	10	100	17	2	0	0	33	33	2	0
Criteria			No Limit	No Limit	20	No Limit	20	No Limit	20	20	No Limit	No Limit	20	No Limit	20	No Limit
Spellary Creek US	31/07/2024	Parallel Primary	8	0.001	0.002	0.001	0.002	0.003	0.006	372	0.4	1	2.15	0.05	6.22	0.001
Spellary Creek US	31/07/2024	Parallel Secondary	9	0.001	0.003	0.001	0.002	0.003	0.006	373	0.4	1	2.72	0.05	6.04	0.001
RPD %			12	0	40	0	0	0	0	0	0	0	23	0	3	0
Criteria			No Limit	No Limit	No Limit	No Limit	No Limit	No Limit	No Limit	20	No Limit	No Limit	20	No Limit	20	No Limit
Tributary of Flinders river DS	19/06/2024	Parallel Primary	83	0.001	0.037	0.001	0.020	0.002	0.035	777	0.7	1	1.79	0.05	42.30	0.001
Tributary of Flinders river DS	19/06/2024	Parallel Secondary	86	0.001	0.038	0.001	0.022	0.005	0.037	774	0.7	1	0.33	0.05	43.80	0.001
RPD %			4	0	3	0	10	86	6	0	0	0	138	0	3	0
Criteria			20	No Limit	20	No Limit	50	No Limit	20	20	No Limit	No Limit	20	No Limit	20	No Limit



A Montrose Environmental Company

Project Name: Multicom Saint Elmo REMP

Job Number: SWS2400677.01

Client: Multicom Resources

Table: T3. Water Quality RPD Results

	Lead Total	Magnesium	Manganese Dissolved	Manganese Total	Mercury Inorg. Dissolved	Mercury Inorg. Total	Molybdenum Dissolved	Molybdenum Total	Nickel Dissolved	Nickel Total	pH	Potassium	Selenium Dissolved	Selenium Total
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	pH Unit	mg/L	mg/L	mg/L
LOR	0.001	1	0.001	0.001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.01	9	0.01	0.01
10x LOR	0.01	10	0.01	0.01	0.001	0.001	0.01	0.01	0.01	0.01	0.1	10	0.1	0.1
20x LOR	0.02	20	0.02	0.02	0.002	0.002	0.02	0.02	0.02	0.02	0.2	20	0.2	0.2

Sample ID	Date	QA Type	Lead Total	Magnesium	Manganese Dissolved	Manganese Total	Mercury Inorg. Dissolved	Mercury Inorg. Total	Molybdenum Dissolved	Molybdenum Total	Nickel Dissolved	Nickel Total	pH	Potassium	Selenium Dissolved	Selenium Total
Alick Creek US	23/11/2023	Parallel Primary	0.007	3	0.002	0.488	<0.0001	<0.0001	0.001	0.001	<0.001	0.010	8.13	9	<0.01	<0.01
Alick Creek US	23/11/2023	Parallel Secondary	0.005	3	0.142	0.438	<0.0001	<0.0001	<0.001	0.001	<0.001	0.009	8.09	10	<0.01	<0.01
RPD %			33	0	194	11	N/C	N/C	N/C	0	N/C	11	0	11	N/C	N/C
Criteria			No Limit	No Limit	No Limit	20	<LOR	<LOR	No Limit	No Limit	<LOR	No Limit	20	No Limit	<LOR	<LOR

Flinders River DS	19/12/2023	Parallel Primary	0.001	10	0.027	0.162	0.0001	0.0001	0.008	0.007	0.001	0.001	7.87	8	0.01	0.01
Flinders River DS	20/12/2023	Parallel Secondary	0.001	10	0.025	0.144	0.0001	0.0001	0.008	0.007	0.001	0.001	7.93	8	0.01	0.01
RPD %			0	0	8	12	0	0	0	0	0	0	1	0	0	0
Criteria			No Limit	No Limit	20	20	No Limit	No Limit	No Limit	No Limit	No Limit	No Limit	20	No Limit	No Limit	No Limit

Flinders River US1	22/02/2024	Parallel Primary	0.002	5	0.001	0.073	0.0001	0.0001	0.001	0.001	0.001	0.005	7.92	4	0.01	0.01
Flinders River US1	22/02/2024	Parallel Secondary	0.001	6	0.001	0.074	0.0001	0.0001	0.001	0.001	0.001	0.004	7.91	4	0.01	0.01
RPD %			67	18	0	1	0	0	0	0	22	0	0	0	0	0
Criteria			No Limit	No Limit	No Limit	20	No Limit	No Limit	No Limit	No Limit	No Limit	No Limit	20	No Limit	No Limit	No Limit

Flinders River US1	25/03/2024	Parallel Primary	0.001	4	0.009	0.052	0.0001	0.0001	0.002	0.001	0.001	0.003	7.84	4	0.01	0.01
Flinders River US1	25/03/2024	Parallel Secondary	0.001	5	0.010	0.049	0.0001	0.0001	0.001	0.001	0.001	0.003	7.85	4	0.01	0.01
RPD %			0	22	11	6	0	0	67	0	0	0	0	0	0	0
Criteria			No Limit	No Limit	No Limit	20	No Limit	No Limit	No Limit	No Limit	No Limit	No Limit	20	No Limit	No Limit	No Limit

Horse Creek DS	21/05/2024	Parallel Primary	0.005	3	0.003	0.329	0.0001	0.0001	0.008	0.008	0.002	0.010	7.94	5	0.01	0.01
Horse Creek DS	21/05/2024	Parallel Secondary	0.004	4	0.003	0.346	0.0001	0.0001	0.007	0.007	0.001	0.007	7.98	5	0.01	0.01
RPD %			22	29	0	5	0	0	13	13	67	35	1	0	0	0
Criteria			No Limit	No Limit	No Limit	20	No Limit	No Limit	No Limit	No Limit	No Limit	No Limit	20	No Limit	No Limit	No Limit

Julia Creek DS	22/10/2023	Parallel Primary	0.004	5	0.001	0.526	<0.0001	<0.0001	0.002	0.002	0.001	0.005	7.95	9	<0.01	<0.01
Julia Creek DS	22/10/2023	Parallel Secondary	0.003	5	<0.001	0.525	<0.0001	<0.0001	0.002	0.002	0.001	0.007	7.98	9	<0.01	<0.01
RPD %			29	0	N/C	0	N/C	N/C	0	0	0	33	0	0	N/C	N/C
Criteria			No Limit	No Limit	No Limit	20	<LOR	<LOR	No Limit	No Limit	No Limit	No Limit	20	No Limit	<LOR	<LOR

Julia Creek DS	23/04/2024	Parallel Primary	0.003	3	0.001	0.142	0.0001	0.0001	0.001	0.002	0.001	0.008	7.79	4	0.01	0.01
Julia Creek DS	23/04/2024	Parallel Secondary	0.002	3	0.001	0.134	0.0001	0.0001	0.001	0.001	0.001	0.006	7.79	4	0.01	0.01
RPD %			40	0	0	6	0	0	0	67	0	29	0	0	0	0
Criteria			No Limit	No Limit	No Limit	20	No Limit	No Limit	No Limit	No Limit	No Limit	No Limit	20	No Limit	No Limit	No Limit

Julia Creek US	1/09/2023	Parallel Primary	0.008	1	0.002	0.319	<0.0001	<0.0001	0.004	0.003	<0.001	0.011	8.14	4	<0.01	<0.01
Julia Creek US	1/09/2023	Parallel Secondary	<0.001	5	0.003	0.096	<0.0001	<0.0001	0.001	0.001	<0.001	0.002	8.22	7	<0.01	<0.01
RPD %			N/C	133	40	107	N/C	N/C	120	100	N/C	138	1	55	N/C	N/C
Criteria			No Limit	No Limit	No Limit	20	<LOR	<LOR	No Limit	No Limit	<LOR	50	20	No Limit	<LOR	<LOR

Julia Creek US	21/09/2023	Parallel Primary	0.008	<1	<0.001	0.414	<0.0001	<0.0001	0.004	0.003	<0.001	0.011	8.11	4	<0.01	<0.01
Julia Creek US	21/09/2023	Parallel Secondary	0.008	<1	0.001	0.407	<0.0001	<0.0001	0.004	0.002	<0.001	0.011	8.25	4	<0.01	<0.01
RPD %			0	N/C	N/C	2	N/C	N/C	0	40	N/C	0	2	0	N/C	N/C
Criteria			No Limit	<LOR	<LOR	20	<LOR	<LOR	No Limit	No Limit	<LOR	50	20	No Limit	<LOR	<LOR

Julia Creek US	16/08/2024	Parallel Primary	0.006	1	0.001	0.282	0.0001	0.0001	0.003	0.003	0.001	0.009	8.16	5	0.01	0.01
Julia Creek US	15/08/2024	Parallel Secondary	0.006	1	0.001	0.274	0.0001	0.0001	0.003	0.003	0.001	0.009	8.15	5	0.01	0.01
RPD %			0	0	0	3	0	0	0	0	0	0	0	0	0	0
Criteria			No Limit	No Limit	No Limit	20	No Limit	No Limit	No Limit	No Limit	No Limit	No Limit	20	No Limit	No Limit	No Limit

Julia Creek US	05/09/2024	Parallel Primary	0.006	1	0.001	0.343	0.0001	0.0001	0.003	0.003	0.001	0.011	8.15	4	0.01	0.01
Julia Creek US	05/09/2024	Parallel Secondary	0.006	1	0.001	0.333	0.0001	0.0001	0.004	0.003	0.001	0.010	8.08	4	0.01	0.01
RPD %			0	0	0	3	0	0	29	0	0	10	1	0	0	0
Criteria			No Limit	No Limit	No Limit	20	No Limit	No Limit	No Limit	No Limit	No Limit	50	20	No Limit	No Limit	No Limit



A Montrose Environmental Company

Project Name: Multicom Saint Elmo REMP

Job Number: SWS2400677.01

Client: Multicom Resources

Table: T3. Water Quality RPD Results

	Lead Total	Magnesium	Manganese Dissolved	Manganese Total	Mercury Inorg. Dissolved	Mercury Inorg. Total	Molybdenum Dissolved	Molybdenum Total	Nickel Dissolved	Nickel Total	pH	Potassium	Selenium Dissolved	Selenium Total		
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	pH Unit	mg/L	mg/L	mg/L		
LOR	0.001	1	0.001	0.001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.01	1	0.01	0.01		
10x LOR	0.01	10	0.01	0.01	0.001	0.001	0.01	0.01	0.01	0.01	0.1	10	0.1	0.1		
20x LOR	0.02	20	0.02	0.02	0.002	0.002	0.02	0.02	0.02	0.02	0.2	20	0.2	0.2		
Sample ID	Date	QA Type														
Julia Creek US	1/10/2024	Parallel Primary	0.007	2	0.005	0.341	0.0001	0.0001	0.004	0.003	0.001	0.011	8.05	6	0.01	0.01
Julia Creek US	1/10/2024	Parallel Secondary	0.007	1	0.005	0.327	0.0001	0.0001	0.004	0.003	0.001	0.011	8.03	5	0.01	0.01
RPD %			0	67	0	4	0	0	0	0	0	0	0	18	0	0
Criteria			No Limit	No Limit	No Limit	20	No Limit	No Limit	No Limit	No Limit	No Limit	50	20	No Limit	No Limit	No Limit
Julia Creek US	06/11/2024	Parallel Primary	0.007	1	0.024	0.338	0.0001	0.0001	0.004	0.003	0.001	0.007	7.83	4	0.01	0.01
Julia Creek US	06/11/2024	Parallel Secondary	0.008	1	0.010	0.326	0.0001	0.0001	0.004	0.003	0.001	0.007	7.86	4	0.01	0.01
RPD %			13	0	82	4	0	0	0	0	0	0	0	0	0	0
Criteria			No Limit	No Limit	20	20	No Limit	No Limit	No Limit	No Limit	No Limit	No Limit	20	No Limit	No Limit	No Limit
Pigeon Creek DS	25/01/2024	Parallel Primary	0.031	1	0.002	1.500	0.0001	0.0001	0.009	0.002	0.002	0.050	7.88	2	0.01	0.01
Pigeon Creek DS	25/01/2024	Parallel Secondary	0.032	1	0.001	1.560	0.0001	0.0001	0.006	0.002	0.002	0.062	7.81	3	0.01	0.01
RPD %			3	0	67	4	0	0	40	0	0	21	1	40	0	0
Criteria			20	No Limit	No Limit	20	No Limit	No Limit	No Limit	No Limit	No Limit	20	20	No Limit	No Limit	No Limit
Spellary Creek US	31/07/2024	Parallel Primary	0.002	4	0.001	0.136	0.0001	0.0001	0.006	0.005	0.001	0.003	8.44	5	0.01	0.01
Spellary Creek US	31/07/2024	Parallel Secondary	0.002	4	0.001	0.132	0.0001	0.0001	0.006	0.005	0.001	0.004	8.43	6	0.01	0.01
RPD %			0	0	0	3	0	0	0	0	29	0	18	0	0	0
Criteria			No Limit	No Limit	No Limit	20	No Limit	No Limit	No Limit	No Limit	No Limit	No Limit	20	No Limit	No Limit	No Limit
Tributary of Flinders river DS	19/06/2024	Parallel Primary	0.025	3	0.016	0.637	0.0001	0.0001	0.013	0.009	0.001	0.035	7.36	12	0.01	0.01
Tributary of Flinders river DS	19/06/2024	Parallel Secondary	0.027	3	0.016	0.667	0.0001	0.0001	0.014	0.009	0.002	0.039	7.40	13	0.01	0.01
RPD %			8	0	0	5	0	0	7	0	67	11	1	8	0	0
Criteria			20	No Limit	50	20	No Limit	No Limit	50	No Limit	No Limit	20	20	50	No Limit	No Limit



A Montrose Environmental Company

Project Name: Multicom Saint Elmo REMP

Job Number: SWS2400677.01

Client: Multicom Resources

Table: T3. Water Quality RPD Results

	Sodium	Sulphate	Sum of Anions	Sum of Cations	Uranium Dissolved	Uranium Total	Vanadium Dissolved	Vanadium Total	Zinc Dissolved	Zinc Total
Unit	mg/L	mg/L	meq/L	meq/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LOR	1	1	0.01	0.01	0.001	0.001	0.01	0.01	0.005	0.005
10x LOR	10	10	0.1	0.1	0.01	0.01	0.1	0.1	0.05	0.05
20x LOR	20	20	0.2	0.2	0.02	0.02	0.2	0.2	0.1	0.1

Sample ID	Date	QA Type										
Julia Creek US	1/10/2024	Parallel Primary	193	7	9.43	9.36	0.001	0.001	0.01	0.05	0.005	0.041
Julia Creek US	1/10/2024	Parallel Secondary	186	8	9.55	8.80	0.001	0.001	0.01	0.05	0.005	0.043
RPD %			4	13	1	6	0	0	0	0	0	5
Criteria			20	No Limit	20	20	No Limit	No Limit	No Limit	No Limit	No Limit	No Limit

Julia Creek US	06/11/2024	Parallel Primary	164	7	8.23	7.54	0.001	0.001	0.01	0.03	0.005	0.053
Julia Creek US	06/11/2024	Parallel Secondary	166	7	8.20	7.67	0.001	0.001	0.01	0.03	0.005	0.051
RPD %			1	0	0	2	0	0	0	0	0	4
Criteria			20	No Limit	20	20	No Limit	No Limit	No Limit	No Limit	No Limit	50

Pigeon Creek DS	25/01/2024	Parallel Primary	50	25	3.26	3.01	0.001	0.002	0.05	0.19	0.005	0.124
Pigeon Creek DS	25/01/2024	Parallel Secondary	50	27	3.28	2.93	0.001	0.002	0.04	0.21	0.005	0.151
RPD %			0	8	1	3	0	0	22	10	0	20
Criteria			20	20	20	20	No Limit	No Limit	No Limit	50	No Limit	20

Spellary Creek US	31/07/2024	Parallel Primary	52	13	4.19	4.02	0.001	0.002	0.01	0.02	0.005	0.011
Spellary Creek US	31/07/2024	Parallel Secondary	51	14	4.22	4.00	0.001	0.002	0.01	0.02	0.005	0.012
RPD %			2	7	1	0	0	0	0	0	0	9
Criteria			20	50	20	20	No Limit	No Limit	No Limit	No Limit	No Limit	No Limit

Tributary of Flinders river DS	19/06/2024	Parallel Primary	126	55	7.70	7.43	0.001	0.003	0.01	0.17	0.005	0.109
Tributary of Flinders river DS	19/06/2024	Parallel Secondary	131	53	7.72	7.67	0.001	0.002	0.01	0.13	0.005	0.122
RPD %			4	4	0	3	0	40	0	27	0	11
Criteria			20	20	20	20	No Limit	No Limit	No Limit	50	No Limit	20

APPENDIX A SURFACE WATER FIELD DATA



Surface Water Datasheet

Date	Time	Sample ID		QA/QC ID	DRY	Field Parameters											Lab Report No. (ALS REPORT)
						°C	DO (%) (MG/L)		EC (µs/cm)	TDS	Sal	pH	NTU	Colour	Clarity	Hydrocarbons	
27/07/2023	8:34am	PC-DS	JUL-23			16.6	2.2	9.21	911.0	706	0.54	7.92	1600.00	Brown/Cloudy	Low		No flow, cattle activity, muddy, trees on banks
27/07/2023	9:50am	JC-DS	JUL-23			20.1	73.7	6.68	345.4	247	0.18	8.58	75.00	Brown	High		No flow, strady water, algae on river bed
27/07/2023	11:12am	FR-DS	JUL-23			13.6	94.9	8.86	321.3	238	0.18	8.30	64.35	Green/Brown	Med		Stadry water, no flow, birds and aquatic plants
27/07/2023	1:52pm	FR-TRIB	JUL-23			22.5	99.1	8.56	600.0	410	0.31	8.21	199.90	Milky Brown	Low		No flow, Scattered bones, cattle activity aquatic plants
27/07/2023	3:16pm	FR-US1	JUL-23			23.5	54.2	4.59	727.0	486	0.36	7.56	414.40	Green/Brown	Low		Isolated puddles, sandy, lots of cattle activity, base of tree steep banks
27/07/2023	4:02pm	HC-DS	JUL-23			22.6	218.3	18.85	543.0	370	0.28	9.11	231.21	Green/Brown	Low		Algae, no flow, cloudy, cattle activity
28/07/2023	8:52am	JC-US	JUL-23			13.2	74.9	7.05	427.7	319	0.24	8.22	34.15	Green/Brown	Med		No flow, standing timber, organic odour
28/07/2023	9:51am	AC-US	JUL-23			19.0	53.5	5.42	485.7	357	0.27	7.96	80.43	Brown	Med		No flow, standing timber
28/07/2023	10:24am	SC-US	JUL-23			18.5	109.0	9.45	284.3	211	0.16	8.55	20.52	Brown	Med		No flow, muddy roots, standing water
28/07/2023	2:38pm	HC-US	JUL-23	QC01		11.5	48.0	4.39	608.0	441	0.33	7.78	264.11	Brown	Low		No flow, standing water, fish
31/08/2023	2:50pm	FR-TRIB	AUG-31			21.9	78.1	6.74	659.0	429	0.32	8.40	-	Med Brown	Murky		No flow
31/08/2023	3:00pm	HC-DS	AUG-31			23.2	91.1	7.70	760.0	494	0.37	8.55	-	Med Brown	Low		Standing water, no odour, cattle present, organics
1/09/2023	9:00am	FR-DS	SEP-1			17.0	78.6	7.54	450.9	346	0.26	8.70	-	Green / Brown	Med		Standing trees, wildlife, no flow
1/09/2023	10:10am	JC-DS	SEP-1	QC1		18.0	100.7	9.31	345.1	224	0.17	9.01	-	Green / Brown	Low		Standing trees, cattle activity
1/09/2023	1:00pm	AC-US	SEP-1			20.8	78.6	6.97	601.0	390	0.29	9.25	-	Green / Brown	Low		Standing trees, water weeds, dead cow
1/09/2023	1:20pm	SC-US	SEP-1			17.8	115.2	10.88	348.0	226	0.17	9.57	-	Green/Brown	Low		Rocky, muddy, pigs, insect activity
1/09/2023	1:40pm	HC-US	SEP-1			17.0	108.9	10.55	647.0	423	0.32	9.16	-	Green/Brown	Low		Small pools, birds, mud, dead wildlife, roots
1/09/2023	2:10pm	JC-US	SEP-1				32.4	3.14	739.0	481	0.36	8.21	-	Light Brown	Low		High sediment load, standing water, no odour, reeds
1/09/2023		QC1															
20/09/2023	2:00pm	HC-DS	SEP-20			27.4	104.7	8.38	978.0	611	0.46	11.21	-	Green/Brown	Low		Satanding water, cattle present, medium sediment load, organic odour
20/09/2023	4:05pm	FR-TRIB	SEP-20			29.1	79.4	6.08	708.0	429	0.32	10.94	-	Green/Brown	Low		Standing water, bore fed?, reeds and vegetation

ET2304409

Surface Water Datasheet

Date	Time	Sample ID		QA/QC ID	DRY	Field Parameters											Lab Report No. (ALS REPORT)
						°C	DO (%) (MG/L)	EC (µs/cm)	TDS	Sal	pH	NTU	Colour	Clarity	Hydrocarbons	Notes	
23/11/2023	11:10am	JC-US	NOV - 23			29.4	53.6	4.09	978.0	586	0.44	7.73	425.50	Green/Brown	Low		Standing trees, no flow, aquatic plants, animal activity
23/11/2023	10:10am	AC-US	NOV - 23	QC01		26.6	2.2	0.17	670.0	423	0.31	7.80	418.72	Green/Brown	Low		Standing trees, no flow, aquatic plants, animal activity
23/11/2023	9:55am	SC-US	NOV - 23		DRY												
23/11/2023	9:40am	HC-US	NOV - 23		DRY												
19/12/2023	9:25am	PC-DS	DEC-23		DRY												
19/12/2023	10:05am	JC-DS	DEC-23			29.3	143.3	10.95	646.0	389	0.29	8.50	434.91	Green/Brown	Low	No	No flow, logs in water and cattle activity
19/12/2023	11:00am	FR-DS	DEC-23	QC01		30.8	40.1	2.98	657.0	384	0.28	7.55	5.92	Clean/Green	Med	No	No flow, standing trees and cattle activity
20/12/2023	11:20am	FR-TRIB	DEC-23			32.2		3.06	640.0	366	0.27	7.69	502.82	Brown	Low	No	Standing trees, cattle, no flow, aquatic plants, bird life and bones
20/12/2023	12:10am	FR-US1	DEC-23		DRY												
20/12/2023	10:50am	HC-DS	DEC-23		DRY												
19/12/2023	12:50pm	JC-US	DEC-23			29.5	33.2	2.52	904.0	541	0.40	7.71	289.61	Brown	Low	No	No flow, aquatic plants, birdlife, tourists and trees
19/12/2023	1:30pm	AC-US	DEC-23			34.4	228.4	16.01	740.0	408	0.30	8.87	199.70	Brown	Low	No	No flow, animals and trees
19/12/2023	1:20pm	SC-US	DEC-23		DRY												
20/12/2023	1:10pm	HC-US	DEC-23		DRY												
25/01/2024	9.45am	PC-DS	JAN - 24	QC01		31.2	71.0	5.21	353.4	205	0.15	7.94	1774.10	Brown	Low	No	Recent Heavy Rainfall, Standing Trees, No Flow, Cattle Activity
25/01/2024	11:20am	JC-DS	JAN - 24			30.6	32.3	2.41	118.3	69	0.05	7.03	810.27	Brown	Low	No	Recent Heavy Rainfall, Standing Trees, Aquatic Plants, Strong Flow, Cattle Activity
25/01/2024	12:00pm	FR-DS	JAN - 24			32.6	92.8	6.69	215.0	114	0.08	7.51	1448.98	Brown	Low	No	Recent Heavy Rainfall, Sample taken at alternate location, Strong Flow
N/A		FR-TRIB	JAN - 24														Recent Heavy Rainfall Prevented Access, No Sample Taken
25/01/2024	2:30pm	FR-US1	JAN - 24			34.8	100.8	7.02	157.8	86	0.06	7.47	655.56	Brown	Low	No	Recent Heavy Rainfall, Sample taken at alternate location, Very Strong Flow

FR2404860

Surface Water Datasheet

Date	Time	Sample ID		QA/QC ID	DRY	Field Parameters											Lab Report No. (ALS REPORT)	
						°C	DO (%) (MG/L)	EC (µs/cm)	TDS	Sal	pH	NTU	Colour	Clarity	Hydrocarbons	Notes		
25/01/2024	2:00pm	HC-DS	JAN - 24			35.5	83.4	5.74	285.5	155	0.11	8.12	112.60	Brown	Low	No	Recent Heavy Rainfall, No Flow, cattle, Trees on edge	ET2401250
25/01/2024	1:45pm	JC-US	JAN - 24			35.3	9.9	0.69	283.2	154	0.11	6.73	261.52	Brown	Low	No	Recent Heavy Rainfall No Flow, Aquatic Plants & Wildlife, No flow	
25/01/2024	4:00pm	AC-US	JAN - 24			34.6	87.9	6.14	101.4	56	0.04	7.33	670.80	Brown	Low Medium	No	Recent Heavy Rainfall, No flow, Plants, Wildlife	
25/01/2024	3:20pm	SC-US	JAN - 24			40.2	89.1	5.69	309.7	156	0.11	7.47	42.98	Clear Brown	Medium	No	Recent Heavy Rainfall No flow, Plants, Wildlife	
25/01/2024	4:30pm	HC-US	JAN - 24			35.2	80.6	5.77	244.9	133	0.09	7.69	140.80	Brown	Low	No	Recent Heavy Rainfall, No flow Standing trees, Water trees	
22/02/2024	8:45am	JC-US	FEB - 24			27.5	67.3	5.31	165.0	102	0.07	7.44	401.69	Brown	Low	No	Recent Heavy Rain Fall, Wildlife, Water Grass, Standing Trees, No Flow	ET2401250
22/02/2024	9:10am	HC-DS	FEB - 24			28.3	101.6	7.93	246.5	151	0.11	8.00	1824.00	Brown	Low	No	Recent Heavy Rain Fall, Wildlife, Water Grass, Standing Trees, Cattle, No Flow	
22/02/2024	10:00am	FR-US1	FEB - 24	QA/QC		30.2	108.3	8.16	240.9	142	0.10	8.01	68.50	Brown	Low	No	Recent Heavy Rain Fall, Wildlife, Water Grass, Standing Trees, Flow	
NA		FR-TRIB	FEB - 24														Recent Heavy Rainfall Prevented Access, No Sample Taken	
22/02/2024	10:50am	HC-US	FEB - 24			29.0	94.4	7.22	295.6	184	0.13	7.82	133.18	Brown	Low	No	.	
22/02/2024	11:10am	SC-US	FEB - 24			28.0	63.5	4.89	214.8	130	0.09	7.41	220.45	Brown	Low	No	Recent Heavy Rain Fall, Wildlife, Water Grass, Standing Trees, No Flow	
22/02/2024	11:35am	AC-US	FEB - 24			28.7	83.5	64.45	90.4	55	0.04	7.04	1526.20	Brown	Low	No	Recent Heavy Rain Fall, Wildlife, Water Grass, Standing Trees, Flow	
NA		PC-DS	FEB - 24														Recent Heavy Rainfall Prevented Access, ROAD CLOSURE No Sample Taken	
NA		JC-DS	FEB - 24														Recent Heavy Rainfall Prevented Access, ROAD CLOSURE No Sample Taken	
NA		FR-DS	FEB - 24														Recent Heavy Rainfall Prevented Access, ROAD CLOSURE No Sample Taken	
25/03/2024	12:00pm	JC-US	Mar-24			27.9	22.0	1.69	313.2	193	0.14	7.27	233.67	Brown Green	Low		Algae, no flow, water plants, Tourist activity, standing trees, animal activity	

Surface Water Datasheet

Date	Time	Sample ID		QA/QC ID	DRY	Field Parameters											Lab Report No. (ALS REPORT)
						°C	DO (%) (MG/L)	EC (µs/cm)	TDS	Sal	pH	NTU	Colour	Clarity	Hydrocarbons	Notes	
25/03/2024	12:32pm	HC-DS	Mar-24			30.2	126.4	9.51	280.2	165	0.12	8.70	32.47	Green	Low		Algae, standing trees, cattle activity, no flow, recent heavy rainfall
25/03/2024	1:30pm	FR-USI	Mar-24	QA/QC		30.0	100.0	7.56	263.0	157	0.11	7.72	37.36	Brown Green	Low		Standing trees, no flow, aquatic plants, animal activity, recent heavy rainfall
NA		FR-TRIB	Mar-24														
25/03/2024	2:15pm	HC-US	Mar-24			29.3	91.0	6.95	383.0	230	0.17	7.88	100.67	Brown Green	Low		Standing trees, no flow, aquatic life, Recent heavy rainfall.
25/03/2024	3:05pm	SC-US	Mar-24			30.6	162.3	12.17	385.7	226	0.16	8.65	277.38	Brown	Low		Standing trees, flow recent heavy rainfall, aquatic life
25/03/2024	2:45pm	AC-US	Mar-24			30.6	107.5	8.03	238.2	140	0.10	7.70	175.45	Brown Green	Low		Standing trees, animal activity, no flow, recent heavy rainfall
NA		PC-DS	Mar-24														
NA		JC-DS	Mar-24														
NA		FR-DS	Mar-24														
23/04/2024	12:10pm	JC-US	Apr-24			22.5	784.0	6.79	348.6	238	0.17	7.50	334.36	Brown	Low	No	Bull Rush, Ducks, No Flow, Tourist Activity
23/04/2024	12:30pm	HC-DS	Apr-24			26.9	175.0	13.97	261.3	164	0.12	9.02	79.53	Brown Green	Low	No	Butterflies, No flow, Cattle Activity Rocky
23/04/2024	2:20pm	FR-USI	Apr-24			27.4	118.2	9.35	296.1	184	0.13	7.91	10.00	Green Clear	High	No	Bullrush, lots of water birds, Aquatic, Cattle and Pigs, No Flow.
23/04/2024	1:10pm	FR-TRIB	Apr-24			27.0	135.3	10.76	507.0	317	0.23	8.23	159.81	Brown Green	Low	No	Aquatic life, birds, Standing trees, Cattle Activity, animals, No Flow
24/04/2024	10:30am	HC-US	Apr-24			23.5	106.3	9.03	354.9	237	0.17	7.84	54.57	Brown Green	Low	No	Aquatic life, birds, Standing trees, Cattle Activity, animals, No Flow
24/04/2024	9:30am	SC-US	Apr-24			21.5	853.0	7.53	297.0	207	0.15	7.81	168.27	Brown Green	Low	No	Aquatic plants, Cattle Activity, Wildlife, rocks, no flow
24/04/2024	10:00am	AC-US	Apr-24			22.7	97.8	8.43	195.8	133	0.10	7.51	196.73	Brown	Low	No	Standing trees, wildlife, flow, logs in water

ET2402121

ET2402483

Surface Water Datasheet

Date	Time	Sample ID		QA/QC ID	DRY	Field Parameters											Lab Report No. (ALS REPORT)	
						°C	DO (%) (MG/L)		EC (µs/cm)	TDS	Sal	pH	NTU	Colour	Clarity	Hydrocarbons		Notes
23/04/2024	8:00am	PC-DS	Apr-24			17.1	11.0	1.05	819.0	626	0.48	7.53	2893.49	Brown	Low	No	Small puddle, standing trees, cattle activity, no flow	
23//04/2024	9:30am	JC-DS	Apr-24	QA/QC		21.8	100.4	8.78	231.4	160	0.12	7.48	146.49	Brown Green	Medium	No	Water Grass, Birds, rocky, shale, standing trees, Strong flow	
23/04/2024	10:15am	FR-DS	Apr-24			23.1	103.4	8.85	24.5	165	0.12	7.45	30.36	Brown	Medium	No	Flow, Standing trees, cattle activity, animals, birds, fish, rocks etc	
21/05/2024	11:20am	JC-US	May-24			17.2	89.5	8.54	512.0	391	0.29	8.03	317.32	Brown	Low	No	Aqautic life, wildlife, ducks, standing trees,Tourist activity, No flow	
21/05/2024	11:30AM	HC-DS	May-24	QC/QA		16.4	120.7	11.80	344.8	268	0.20	8.21	214.00	Brown	Low	No	Standign trees, no flow, cattle activity, bird life, No flow	
21/05/2024	1:30AM	FR-US1	May-24			24.5	142.4	11.85	570.0	374	0.28	8.05	2.43	Brown Clear	Medium	No	Standing trees, wildlife, bird life, cattle activity, No flow.	
21/05/2024	12:20PM	FR-TRIB	May-24			15.7	60.6	5.98	562.0	444	0.33	8.32	372.08	Brown Green	Low	No	Aqautic life, wildlife, cattle activity, standing trees, No flow.	
21/05/2024	4:20PM	HC-US	May-24			17.7	122.5	11.64	409.7	308	0.23	8.79	44.43	Brown Green	Low	No	Standing trees, wildlife, no flow	
21/05/2024	3:00PM	SC-US	May-24			18.9	156.8	14.56	298.4	219	0.16	8.57	197.8	Brown	Low	No	Cattle activity, standing trees, wildlife, No flow	
21/05/2024	3:45PM	AC-US	May-24			23	161.8	13.86	341	228	0.17	8.48	114.54	Brown Green	Low	No	Slit on water, cattle activity, standing strees, No flow.	
21/05/2024	7:50AM	PC-DS	May-24		Dry												Dry	
21/05/2024	9:00AM	JC-DS	May-24			12.8	81.2	8.6	225.5	191	0.14	8.08	163.1	Brown	Low	No	Standing trees, bird life, rocks, No flow	
21/05/2024	10:00AM	FR-DS	May-24			16.6	84.5	8.21	345.5	267	0.2	7.96	6	Clear/ Green	Medium	No	Green algae, rocks, standing trees, birdlife, No flow.	
19/06/2024	8:00am	JC-US	Jun-24			14	67.8	6.95	544	447	0.34	7.65	230.63	Brown Green	Low	No	Standing trees, water grass, ducks,tourist aciivity, No flow	
19/06/2024	8:30am	HC-DS	Jun-24			13.8	109.2	11.28	284.9	235	0.17	8.21	47.93	Brown Green	Low	No	Standing trees, birds, cattle activity, no flow	
19/06/2024	10:10am	FR-US1	Jun-24			17.9	113.4	10.76	6.5	65	0	8.15	0.16	Clear	High	No	Standing trees, birds, rocks, no flow	

ET2403057

Surface Water Datasheet

Date	Time	Sample ID		QA/QC ID	DRY	Field Parameters											Lab Report No. (ALS REPORT)	
						°C	DO (%) (MG/L)	EC (µs/cm)	TDS	Sal	pH	NTU	Colour	Clarity	Hydrocarbons	Notes		
19/06/2024	9:00am	FR-TRIB	Jun-24			11.7	41.3	4.45	8.5	8	0	7.64	966.81	Brown Green	Low	No	Standing trees, water glass, cattle activity, pigs, birds, no flow	ET2403576
18/06/2024	1:30pm	HC-US	Jun-24			19.2	111.4	10.31	8.3	6	0	8.44	2.27	Brown Green	Low	No	Standing trees, birds, rocks, no flow	
18/06/2024	1:10pm	SC-US	Jun-24			20.4	150.2	13.53	302.1	215	0.16	8.77	230.99	Brown Green	Low	No	Standing trees, birds, pig tracks, organic scum, rocks, no flow	
18/06/2024	1:00pm	AC-US	Jun-24			17.3	101.6	9.73	469.1	357	0.27	8.36	72.68	Brown Green	Low	No	Standing trees, birds, water plants, no flow	
18/06/2024	11:46am	PC-DS	Jun-24		Dry												Dry	
18/06/2024	10:00am	JC-DS	Jun-24			16.9	108.6	10.52	236.4	182	0.13	8.01	19.33	Brown Green	Medium	No	Standing trees, birds, water grass, cattle activity, no flow	
18/06/2024	11:00am	FR-DS	Jun-24			19.1	128	11.84	330.8	243	0.18	8.22	0.98	Clear	High	No	Standing trees, birds, water bugs, tadpoles, healthy ecosystem, no flow	
30/07/2024	11:50am	JC-US	Jul-24			15.1	69	6.91	613	419	0.37	8.12	261.79	Brown Green	Low	No	No flow, bull rush, ducks, tourist activity, standing trees, fish.	
31/07/2024	10:45am	HC-DS	Jul-24			13	103.3	10.86	382.9	322	0.24	8.36	332.6	Yellow Brown	Low	No	No flow, cattle activity, standing trees, muddy, ducks	
31/07/2024	9:45am	FR-US1	Jul-24			14.5	42.4	4.31	621	505	0.38	7.95	65.3	Brown Green	Low	No	Heavy cattle activity, standing trees, sandy, loomy soil, pigs, birds.	
31/07/2024	9:00am	FR-TRIB	Jul-24			10.8	84.2	9.27	489.4	436	0.33	8.52	46.5	Brown Green	Low	No	No flow, cattle activity, standing trees, wildlife, bore fed water grass.	
30/07/2024	12:05am	HC-US	Jul-24		DRY													
30/07/2024	12:20am	SC-US	Jul-24	QA/QC		14.5	89.9	9.31	289.8	236	0.17	8.67	132.77	Brown Green	Low	No	No flow, standing trees, rocks, birds, pigs.	
30/07/2024	12:45am	AC-US	Jul-24			16.7	134.1	130.2	494.6	382	0.29	8.56	154.6	Green		No	No flow, dead trees, cattle activity, scum on the water.	
30/07/2024	10:50am	PC-DS	Jul-24		DRY										Low			
30/07/2024	10:15am	JC-DS	Jul-24			17.4	102.4	9.81	4.415	3.15	0.24	8.19	3.75	Brown Green	Medium	No	No flow, standing trees, cattle activity, pigs, emus, birds, fish, organic matter on matter.	

Surface Water Datasheet

Date	Time	Sample ID		QA/QC ID	DRY	Field Parameters											Lab Report No. (ALS REPORT)	
						°C	DO (%) (MG/L)	EC (µs/cm)	TDS	Sal	pH	NTU	Colour	Clarity	Hydrocarbons	Notes		
30/07/2024	9:30am	FR-DS	Jul-24			15.5	109.3	10.89	234.6	186	0.14	8.59	18.08	Aqau	Medium	No	No flow, standing trees, rocks, bird life, pigs, cattle activity.	
16/08/2024	8:00am	JC-US	Aug-24			18.4	36.7	3.43	669	497	0.38	7.87	273.75	Brown Green	Low	No	Aqautic Plants, wildlife, standing trees, no flow, heavy tourist activity.	ET2404637
15/08/2024	11:50am	HC-DS	Aug-24			23.4	130.8	11.15	562	377	0.28	8.59	495.34	Brown	Low	No	Heavy cattle activity, scum, muddy, standing trees, no flow	
15/08/2024	2:00pm	FR-US1	Aug-24			29.8	97.9	7.4	928	552	0.41	8.08	45.01	Brown Green	Low	No	Sandy, cattle, small muddy pool, no flow, organic matter	
15/08/2024	12:50pm	FR-TRIB	Aug-24			24.8	113.8	9.41	787	513	0.39	8.28	172.1	Brown	Low	No	Fed bore, no flow, pigs, cattle, standing trees, muddy	
16/08/2024	11:00am	HC-US	Aug-24		YES													
16/08/2024	9:00am	SC-US	Aug-24			17.1	60.5	5.82	314.3	241	0.18	8.14	4049.5	Brown Green	Low	No	Standing trees, wildlife, rocks, muddy, dirty, no flow	
16/08/2024	8:45am	AC-US	Aug-24			17.8	33	3.12	538	406	0.3	7.99	158.62	Brown Green	Low	No	Cattle activity, standing trees, no flow, aquatic plants, standing trees.	
15/08/2024	11:00am	PC-DS	Aug-24		YES													
15/08/2024	9:20am	JC-DS	Aug-24	QA/QC		20.4	109.1	9.83	259.3	185	0.14	8.6	24.11	Clear Green	Medium	No	Wildlife, standing trees, rocky, sandy, no flow	
15/08/2024	10:15am	FR-DS	Aug-24			20.2	94.7	8.55	452.25	3.24	0.24	8.13	8.6	Green	Medium	No	Wildlife, scum on water, no flow, standing trees	
5/09/2024	8.00	JC-US	Sep-24	QA/QC		20.2	50.4	4.56	361.3	258	0.19	7.91	303.19	Brown	Low	No	No Flow, Bore Fed, Tourists, Water Birds, Water Plants	
5/09/2024	1.30	HC-DS	Sep-24			20.6	115.7	9.38	774	494	0.37	8.67	942.67	Brown	Low	No	No Flow, shallow muddy pool, cattle activity	
4/09/2024	1.00	FR-US1			YES													
4/09/2024	12.00	FR-TRIB	Sep-24			23.3	101.9	8.67	898	602	0.46	8.4	330.34	Brown	Low	No	No Flow, bore fed, fallen trees, cattle activity, water plants	

Surface Water Datasheet

Date	Time	Sample ID	QA/QC ID	DRY	Field Parameters												Lab Report No. (ALS REPORT)	
					°C	DO (%) (MG/L)	EC (µs/cm)	TDS	Sal	pH	NTU	Colour	Clarity	Hydrocarbons	Notes			
4/09/2024	8.00	HC-US			YES													ET2405030
4/09/2024	8.45	SC-US	Sep-24			18.2	109.2	103.2	9.5	7	0	7.75	65.09	Brown	Low	No	No Flow, Shallow muddy pool, stagnant, wildlife	
4/09/2024	9.20	AC-US	Sep-24			22.7	122.3	10.64	9.2	13	0.01	9.93	42.34	Brown/ Green	Low	No	No Flow, fallen trees, water grass, small pools, wildlife, algae	
5/09/2024	11.00	PC-DS			YES													
5/09/2024	9.15	JC-DS	Sep-24			23.3	104.6	8.91	148.4	100	0.07	8.07	55.63	Brown	Low	No	No Flow, cattle activity, fallen trees, wildlife	
5/09/2024	10.15	FR-DS	Sep-24			23.2	90.8	7.73	3.1	2	0	7.75	2.57	Blue/ Green	Medium -High	No	No flow, standing trees, wildlife, resonably clear	
1/10/2024	12:20	JC-US	Oct-24	QA/QC		25.7	6.54	5.32	9.02	579	0.44	8.43	338.2	Brown	Low	no	water,plants,tourists, birds	ET2405499
2/10/2024	8:10am	HC-DS	Oct-24		YES												Dry	
2/10/2024	11:10am	FR-US1	Oct-24		YES												Dry	
2/10/2024	10:10am	FR-TRIB	Oct-24			20.9	85.3	7.6	1085	766	0.59	8.4	849.26	Brown	Low	No	no flow, cattle, water birds	
1/10/2024	12:50	HC-US	Oct-24		YES												dry, rocky	
1/10/2024	1:05pm	SC-US	Oct-24		YES												dry, rocky	
1/10/2024	1:20pm	AC-US	Oct-24			32	165.9	12.09	726	416	0.31	9	180.85	Brown	Low	No	stagnent, cattle, no flow	
1/10/2024	11:30am	PC-DS	Oct-24		YES												Dry	
1/10/2024	9:30am	JC-DS	Oct-24			24.2	116.2	9.76	193.4	128	0.09	8,74	149.22	Brown	Low	No	No Flow, cattle activity, fallen trees	

Surface Water Datasheet

Date	Time	Sample ID		QA/QC ID	DRY	Field Parameters											Lab Report No. (ALS REPORT)	
						°C	DO (%) (MG/L)	EC (µs/cm)	TDS	Sal	pH	NTU	Colour	Clarity	Hydrocarbons	Notes		
1/10/2024	10:30am	FR-DS	Oct-24			26.6	103.4	8.29	281.4	177	0.13	8.31	279	Clear	High	No	wildlife standing, trees, No flow	
6/11/2024	13:00	JC-US	Nov-24	QA/QC ID		29.60	69.8	5	426.80	255.00	0.19	8.76	188.6	Green/Brown	Low	No	No flow, birdlife, aquatic plants, tourists	EB2439360
6/11/2024	9:30	HC-DS	Nov-24		Yes												Dry	
6/11/2024	12:00	FR-US1	Nov-24		Yes												Dry	
6/11/2024	11:20	FR-TRIB	Nov-24			30.4	195.70	14.7	726	426.00	0.31	8.60	42.49	Green/Brown	Low	No	Wildlife, cattle activity, low level water, bore fed, wild pigs, algae	
7/11/2024	12:45	HC-US	Nov-24		Yes												Dry	
7/11/2024	13:00	SC-US	Nov-24		Yes												Dry	
7/11/2024	13:15	AC-US	Nov-24			32.4	120.90	8.8	460	261.00	0.19	9.00	163.5	Green/Brown	Low	No	Algae, water plants, dead trees, cattle, stagnant, no flow, film on water top	
7/11/2024	12:00	PC-DS	Nov-24		Yes												Dry	
7/11/2024	10:00	JC-DS	Nov-24			27.7	74.60	5.9	239	148.00	0.11	8.02	264.74	Brown	Low	No	Low water, no flow, wildlife, dead tree in water	
7/11/2024	11:10	FR-DS	Nov-24			30.7	81.40	6.1	11	6.00	0.00	8.65	4.57	Clear	Clear	No	Wildlife, standing and dead trees, erosion	
5/12/2024	10:45	JC-US	Dec-24			30.40	44.50	3.33	297.7	175	0.13	7.41	240.6	Brown	Low	No	No flow, wildlife, aqua plants, tourist activities	
5/12/2024	11:00	HC-DS	Dec-24		Yes												Dry	
5/12/2024	6:00	FR-US1	Dec-24		Yes												Dry	
5/12/2024	11:30	FR-TRIB	Dec-24			29.20	70.50	5.35	1.5	1	0	7.45	502	Brown	Low	No	No flow, water birds, pigs	

Surface Water Datasheet

Date	Time	Sample ID		QA/QC ID	DRY	Field Parameters											Notes	Lab Report No. (ALS REPORT)	
						°C	DO (%) (MG/L)	EC (µs/cm)	TDS	Sal	pH	NTU	Colour	Clarity	Hydrocarbons				
5/12/2024	10:05	HC-US	Dec-24		Yes													Dry	
5/12/2024	9:30	SC-US	Dec-24			32.1	62.70	4.6	95	54.00	0.04	7.27	1848	Brown	Low	No	No flow, puddle from recent rainfall, muddy		
5/12/2024	9:15	AC-US	Dec-24	Yes		27.70	92.40	7.27	1.7	1	0	7.98	377.08	Brown	Low	No	No flow, Stagnant, nearby roadworks, film on water, wildlife, Odour		
4/12/2024	12:15	PC-DS	Dec-24		Yes													Dry	
4/12/2024	11:00	JC-DS	Dec-24			32.40	110.50	8.00	638	362	0.27	7.8	258.55	Brown	Low	No	Cattle, no flow, recent rain, tadpoles, water plants, invertebrates		
4/12/2024	13:00	FR-DS	Dec-24			31.60	104.30	7.67	295.7	171	0	7.35	7.3	Clear	High	No	Water birds, standing trees, fish, cattle,		

APPENDIX B SEDIMENT FIELD DATA



Epic

22-October-2023

Date	Sample ID		QA/QC ID	Depth (M)	Field Parameters				
					Soil Type (Primary/Secondary)	Colour	Plasticity	Moisture	Odour
23/10/2023	PC-DS-R	Pigeon Creek Downstream		0.2	Clay (with fine sand)	Brown	low/medium	Dry	No
	PC-DS-B				Clay (with fine sand)	Brown	low/medium	Dry	No
23/10/2023	JC-DS-R	Julia Creek Downstream	QA/QC-R	0.2	Clay (with coarse sand)	Brown	low	Wet	No
	JC-DS-B		QA/QC-B		Clay (with coarse sand)	Brown	low	Dry	No
23/10/2023	FR-DS-R	Flinders River Downstream		0.2	Sand, Medium to coarse	Brown/black		Wet	No
	FR-DS-B				Sand, Medium to coarse	Brown/black		Dry	No
22/10/2023	FR-TRIB-R	Flinders River Tributary		0.2	Sand, Fine to medium (with clay)	Brown/grey	medium/high	Wet	No
	FR-TRIB-B				Sand, Fine to medium (with clay)	Brown/grey	medium/high	Dry	No
22/10/2023	FR-US-R	Flinders River Upstream 1		0.2	Sand, Medium to coarse	Light Brown		Dry	No
	FR-US-B				Sand, Medium to coarse	Light Brown		Dry	No
22/10/2023	HC-DS-R	Horse Creek Downstream		0.2	Clay (with trace gravel)	Brown/grey	medium/high	Wet	Cattle smell
	HC-DS-B				Sand fine to medium (with clay & trace gravels)	Brown	low	Dry	Cattle smell
22/10/2023	JC-US-R	Julia Creek Upstream		0.2	Clay (fine trace sand)	Grey	high	Wet	No
	JC-US-B				Clay (with coarse sand)	Brown	low	Dry	No
22/10/2023	AC-US-R	Alic Creek Upstream		0.2	Clay ² , fine to medium	Brown/Grey	medium/high	Wet	No
	AC-US-B				Clay, fine to medium	Brown/Grey	medium/high	Dry	No
22/10/2023	SC-US-R	Spellary Creek Upstream		0.2	Clay (with fine trace gravel)	Brown	low/medium	Wet	Cattle smell
	SC-US-B				Clay (with fine trace gravel)	Brown	low/medium	Dry	Cattle smell
22/10/2023	HC-US-R	Horse Creek Upstream		0.2	Clay (with fine sand)	Brown	low	Dry	No
	HC-US-B				Clay (with fine sand)	Brown	low	Dry	No

Epic

22-October-2023

Date	Sample ID		Hardness						
				Moisture Content %	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Lead (mg/kg)
23/10/2023	PC-DS-R	Pigeon Creek Downstream	Loose	1.2	5	<1	11	15	16
	PC-DS-B		Loose	3.1	<5	<1	13	16	10
23/10/2023	JC-DS-R	Julia Creek Downstream	Loose	27.3	5	<1	13	12	8
	JC-DS-B		Loose	5.3	<5	<1	12	14	10
23/10/2023	FR-DS-R	Flinders River Downstream	Loose	20.7	<5	1	5	<5	<5
	FR-DS-B		Loose	3.4	<5	<1	16	19	10
22/10/2023	FR-TRIB-R	Flinders River Tributary	Loose	6.1	5	<1	11	18	10
	FR-TRIB-B		Loose	4.2	<5	<1	11	17	10
22/10/2023	FR-US-R	Flinders River Upstream 1	Loose	0.5	<5	<1	4	<5	<5
	FR-US-B		Loose	0.6	<5	<1	5	<5	<5
22/10/2023	HC-DS-R	Horse Creek Downstream	Soft	26.6	6	<1	13	22	20
	HC-DS-B		Loose	8.8	6	<1	14	19	10
22/10/2023	JC-US-R	Julia Creek Upstream	Soft	41.1	6	<1	12	19	10
	JC-US-B		Loose	4	<5	<1	13	19	10
22/10/2023	AC-US-R	Alic Creek Upstream	Loose	26.3	6	<1	11	20	11
	AC-US-B		Soft	20	7	<1	11	19	11
22/10/2023	SC-US-R	Spellary Creek Upstream	Loose	49.8	6	<1	17	34	12
	SC-US-B		Soft	8.4	<5	<1	15	14	6
22/10/2023	HC-US-R	Horse Creek Upstream	Loose	3	<5	<1	15	28	11
	HC-US-B		Loose	3.6	6	<1	13	27	14

Epic

22-October-2023

Date	Sample ID		ALS Lab Results					
			Nickel (mg/kg)	Zinc (mg/kg)	Mercury (mg/kg)	Total Petroleum		
						C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction
23/10/2023	PC-DS-R	Pigeon Creek Downstream	13	30	<0.1	<10	<50	<100
	PC-DS-B		15	35	<0.1	<10	<50	<100
23/10/2023	JC-DS-R	Julia Creek Downstream	13	29	<0.1	<10	<50	<100
	JC-DS-B		13	31	<0.1	<10	<50	220
23/10/2023	FR-DS-R	Flinders River Downstream	5	12	<0.1	<10	<50	<100
	FR-DS-B		19	45	<0.1	<10	<50	<100
22/10/2023	FR-TRIB-R	Flinders River Tributary	12	29	<0.1	<10	<50	<100
	FR-TRIB-B		12	29	<0.1	<10	<50	<100
22/10/2023	FR-US-R	Flinders River Upstream 1	3	6	<0.1	<10	<50	<100
	FR-US-B		4	10	<0.1	<10	<50	<100
22/10/2023	HC-DS-R	Horse Creek Downstream	18	42	<0.1	<10	<50	<100
	HC-DS-B		16	41	<0.1	<10	<50	<100
22/10/2023	JC-US-R	Julia Creek Upstream	14	43	<0.1	<10	<50	<100
	JC-US-B		15	42	<0.1	<10	<50	<100
22/10/2023	AC-US-R	Alic Creek Upstream	16	47	<0.1	<10	<50	<100
	AC-US-B		16	50	<0.1	<10	<50	<100
22/10/2023	SC-US-R	Spellary Creek Upstream	18	84	<0.1	<10	<50	<100
	SC-US-B		14	44	<0.1	<10	<50	<100
22/10/2023	HC-US-R	Horse Creek Upstream	18	61	<0.1	<10	<50	<100
	HC-US-B		18	61	<0.1	<10	<50	<100

Epic

22-October-2023

Date	Sample ID		Total Hydrocarbons (mg/kg)	
			C29-C36 Fraction	C10-36 Fraction (Sum)
23/10/2023	PC-DS-R	Pigeon Creek Downstream	<100	<50
	PC-DS-B		<100	<50
23/10/2023	JC-DS-R	Julia Creek Downstream	<100	<50
	JC-DS-B		360	580
23/10/2023	FR-DS-R	Flinders River Downstream	<100	<50
	FR-DS-B		<100	<50
22/10/2023	FR-TRIB-R	Flinders River Tributary	<100	<50
	FR-TRIB-B		100	100
22/10/2023	FR-US-R	Flinders River Upstream 1	<100	<50
	FR-US-B		<100	<50
22/10/2023	HC-DS-R	Horse Creek Downstream	<100	<50
	HC-DS-B		<100	<50
22/10/2023	JC-US-R	Julia Creek Upstream	<100	<50
	JC-US-B		<100	<50
22/10/2023	AC-US-R	Alic Creek Upstream	<100	<50
	AC-US-B		<100	<50
22/10/2023	SC-US-R	Spellary Creek Upstream	120	120
	SC-US-B		<100	<50
22/10/2023	HC-US-R	Horse Creek Upstream	<100	<50
	HC-US-B		<100	<50

23 April 2024

Date	Sample ID		QA/QC ID	Depth (M)	
					Colour
23/04/2024	PC-DS-R	Pigeon Creek Downstream		0.2	Brown
	PC-DS-B				Brown
23/04/2024	JC-DS-R	Julia Creek Downstream	QA/QC-R	0.2	Brown
	JC-DS-B		QA/QC-B		Brown
23/04/2024	FR-DS-R	Flinders River Downstream		0.2	Brown/Grey
	FR-DS-B				Brown
23/04/2024	FR-TRIB-R	Flinders River Tributary		0.2	Brown
	FR-TRIB-B				Brown
23/04/2024	FR-US1-R	Flinders River Upstream 1		0.2	Yellow/ Brown
	FR-US1-B				Yellow/ Brown
23/04/2024	HC-DS-R	Horse Creek Downstream		0.2	Brown
	HC-DS-B				Brown
23/04/2024	JC-US-R	Julia Creek Upstream		0.2	Brown
	JC-US-B				Brown
24/04/2024	AC-US-R	Alic Creek Upstream		0.2	Brown
	AC-US-B				Brown
24/04/2024	SC-US-R	Spellary Creek Upstream		0.2	Brown/ Green
	SC-US-B				Brown
24/04/2024	HC-US-R	Horse Creek Upstream		0.2	Brown
	HC-US-B				Brown

23 April 2024

Date	Sample ID				
			Particle Size (sand, clay, silt)	Inclusions (gravel, organics, waste)	Moisture (dry, (humid, moist, wet)
23/04/2024	PC-DS-R	Pigeon Creek Downstream	Clay/ Fine Sand	Organics	Wet
	PC-DS-B		Clay	Organics	Dry
23/04/2024	JC-DS-R	Julia Creek Downstream	Clay/ Coarse Sand	Gravel	Wet
	JC-DS-B		Clay/ Coarse Sand	Gravel	Dry
23/04/2024	FR-DS-R	Flinders River Downstream	Clay/ Fine Sand	Organics/ Gravel	Wet
	FR-DS-B		Clay	Organics/ Gravel	Moist
23/04/2024	FR-TRIB-R	Flinders River Tributary	Sand/Clay	Shells/ Organics	Dry
	FR-TRIB-B		Sand/Clay	Shells/ Organics	Wet
23/04/2024	FR-US1-R	Flinders River Upstream 1	Sand/ Some Clay	Large Rock Shales	Wet
	FR-US1-B		Sand/ Some Clay	Shale Rocks	Dry
23/04/2024	HC-DS-R	Horse Creek Downstream	Clay/ Gravel	Organics/ Gravel	Dry
	HC-DS-B		Clay/ Gravel	Organics/ Gravel	Dry
23/04/2024	JC-US-R	Julia Creek Upstream	Clay	Organics	Dry
	JC-US-B		Clay	Organics/ Gravel	Dry
24/04/2024	AC-US-R	Alic Creek Upstream	Clay/ Fine Sand	Organics	Wet
	AC-US-B		Clay/ Fine Sand	Organics	Wet
24/04/2024	SC-US-R	Spellary Creek Upstream	Clay	Gravel/ Organics	Wet
	SC-US-B		Clay	Gravel/ Oragnics	Dry
24/04/2024	HC-US-R	Horse Creek Upstream	Clay/ Coarse Sand	Gravel	Wet
	HC-US-B		Clay/ Coarse Sand	Gravel	Dry

23 April 2024

Date	Sample ID		Field Paramaters	
			Consistency (very soft, soft, stiff, very stiff, firm, hard, friable)	Denisty (loose, very loose, dense, very dense, medium dense)
23/04/2024	PC-DS-R	Pigeon Creek Downstream	Soft	Loose
	PC-DS-B		Friable	Loose
23/04/2024	JC-DS-R	Julia Creek Downstream	Soft	Loose
	JC-DS-B		Soft	Loose
23/04/2024	FR-DS-R	Flinders River Downstream	Soft	Dense
	FR-DS-B		Firm	Dense
23/04/2024	FR-TRIB-R	Flinders River Tributary	Firm	Loose
	FR-TRIB-B		Friable/ Hard	Loose/ Dense
23/04/2024	FR-US1-R	Flinders River Upstream 1	Soft	Loose
	FR-US1-B		Hard	Loose
23/04/2024	HC-DS-R	Horse Creek Downstream	Firm	Loose
	HC-DS-B		Hard	Loose
23/04/2024	JC-US-R	Julia Creek Upstream	Hard	Dense
	JC-US-B		Hard	Dense
24/04/2024	AC-US-R	Alic Creek Upstream	Soft	Loose
	AC-US-B		Soft	Loose
24/04/2024	SC-US-R	Spellary Creek Upstream	Friable	Loose
	SC-US-B		Soft	Loose
24/04/2024	HC-US-R	Horse Creek Upstream	Soft	Loose
	HC-US-B		Soft	Loose

23 April 2024

Date	Sample ID			
			Plasticity (low, medium, high)	Notes
23/04/2024	PC-DS-R	Pigeon Creek Downstream	Medium	Small puddle, standing trees, cattle activity, no flow
	PC-DS-B		Medium	
23/04/2024	JC-DS-R	Julia Creek Downstream	High	Water Grass, Birds, rocky, shale, standing trees, Strong flow
	JC-DS-B		Low	
23/04/2024	FR-DS-R	Flinders River Downstream	High	Flow, Standing trees, cattle activity, animals, birds, fish, rocks etc
	FR-DS-B		High	
23/04/2024	FR-TRIB-R	Flinders River Tributary	High	Aqautic life, birds, Standing trees, Cattle Activity, animals, No Flow
	FR-TRIB-B		Medium	
23/04/2024	FR-US1-R	Flinders River Upstream 1	High	Bullrush, lots of water birds, Aqautic, Cattle and Pigs, No Fow.
	FR-US1-B		Low	
23/04/2024	HC-DS-R	Horse Creek Downstream	High	Butterfiles, No flow, Cattle Activity Rocky
	HC-DS-B		High	
23/04/2024	JC-US-R	Julia Creek Upstream	High	Bull Rush, Ducks, No Flow, Tourist Activity
	JC-US-B		High	
24/04/2024	AC-US-R	Alic Creek Upstream	High	Standing trees, wildlife, flow, logs in water
	AC-US-B		High	
24/04/2024	SC-US-R	Spellary Creek Upstream	High	Aquatic plants, Cattle Activity, Wildlife, rocks, no flow
	SC-US-B		High	
24/04/2024	HC-US-R	Horse Creek Upstream	Medium	Aqautic life, birds, Standing trees, Cattle Activity, animals, No Flow
	HC-US-B		Medium	

23 April 2024

Date	Sample ID		Photo	Lab Report No. (ALS REPORT)
			Y/N	
23/04/2024	PC-DS-R	Pigeon Creek Downstream	Y	EB2414437
	PC-DS-B		Y	
23/04/2024	JC-DS-R	Julia Creek Downstream	Y	
	JC-DS-B		Y	
23/04/2024	FR-DS-R	Flinders River Downstream	Y	
	FR-DS-B		Y	
23/04/2024	FR-TRIB-R	Flinders River Tributary	Y	
	FR-TRIB-B		Y	
23/04/2024	FR-US1-R	Flinders River Upstream 1	Y	
	FR-US1-B		Y	
23/04/2024	HC-DS-R	Horse Creek Downstream	Y	
	HC-DS-B		Y	
23/04/2024	JC-US-R	Julia Creek Upstream	Y	
	JC-US-B		Y	
24/04/2024	AC-US-R	Alic Creek Upstream	Y	
	AC-US-B		Y	
24/04/2024	SC-US-R	Spellary Creek Upstream	Y	
	SC-US-B		Y	
24/04/2024	HC-US-R	Horse Creek Upstream	Y	
	HC-US-B		Y	

1 October 2024

Date	Sample ID		QA/QC ID	Depth (M)	
					Colour
1/10/2024	PC-DS-R	Pigeon Creek Downstream		0.2	Brown
	PC-DS-B				Brown
1/10/2024	JC-DS-R	Julia Creek Downstream	QA/QC-R	0.2	Brown
	JC-DS-B		QA/QC-B		Brown
1/10/2024	FR-DS-R	Flinders River Downstream		0.2	Brown
	FR-DS-B				Brown
1/10/2024	FR-TRIB-R	Flinders River Tributary		0.2	Brown
	FR-TRIB-B				Brown
1/10/2024	FR-US1-R	Flinders River Upstream 1		0.2	Cream
	FR-US1-B				Brown
1/10/2024	HC-DS-R	Horse Creek Downstream		0.2	Brown
	HC-DS-B				Brown
1/10/2024	JC-US-R	Julia Creek Upstream		0.2	Brown
	JC-US-B				Brown
1/10/2024	AC-US-R	Alic Creek Upstream		0.2	Brown
	AC-US-B				Brown
1/10/2024	SC-US-R	Spellary Creek Upstream		0.2	Brown/ Green
	SC-US-B				Brown
1/10/2024	HC-US-R	Horse Creek Upstream		0.2	Brown
	HC-US-B				Brown

1 October 2024

Date	Sample ID				
			Particle Size (sand, clay, silt)	Inclusions (gravel, organics, waste)	Moisture (dry, (humid, moist, wet))
1/10/2024	PC-DS-R	Pigeon Creek Downstream	Clay/ Fine Sand	Organics	Dry
	PC-DS-B		Clay	Organics	Dry
1/10/2024	JC-DS-R	Julia Creek Downstream	Clay/ Coarse Sand	Gravel	Wet
	JC-DS-B		Clay/ Coarse Sand	Gravel	Dry
1/10/2024	FR-DS-R	Flinders River Downstream	Medium Sand	Organics/ Gravel	Wet
	FR-DS-B		Clay	Organics/ Gravel	Dry
1/10/2024	FR-TRIB-R	Flinders River Tributary	Sand/Clay	Shells/ Organics	Dry
	FR-TRIB-B		Sand/Clay	Shells/ Organics	Wet
1/10/2024	FR-US1-R	Flinders River Upstream 1	Sand	Large Rock Shales	Wet
	FR-US1-B		Sand/ Some Clay	Shale Rocks	Dry
1/10/2024	HC-DS-R	Horse Creek Downstream	Clay/ Gravel	Organics/ Gravel	Dry
	HC-DS-B		Clay/ Gravel	Organics/ Gravel	Dry
1/10/2024	JC-US-R	Julia Creek Upstream	Clay	Organics	Wet
	JC-US-B		Clay	Organics/ Gravel	Dry
1/10/2024	AC-US-R	Alic Creek Upstream	Clay/ Fine Sand	Organics	Wet
	AC-US-B		Clay/ Fine Sand	Organics	Dry
1/10/2024	SC-US-R	Spellary Creek Upstream	Clay	Gravel/ Organics	Dry
	SC-US-B		Clay	Gravel/ Organics	Dry
1/10/2024	HC-US-R	Horse Creek Upstream	Clay/ Coarse Sand	Gravel	Dry
	HC-US-B		Clay/ Coarse Sand	Gravel	Dry

1 October 2024

Date	Sample ID		Field Paramaters	
			Consistency (very soft, soft, stiff, very stiff, firm, hard, friable)	Denisty (loose, very loose, dense, very dense, medium dense)
1/10/2024	PC-DS-R	Pigeon Creek Downstream	Friable	Loose
	PC-DS-B		Friable	Loose
1/10/2024	JC-DS-R	Julia Creek Downstream	Friable	Loose
	JC-DS-B		Friable	Loose
1/10/2024	FR-DS-R	Flinders River Downstream	Soft	Loose
	FR-DS-B		Firm	Dense
1/10/2024	FR-TRIB-R	Flinders River Tributary	Firm	Loose
	FR-TRIB-B		Friable/ Hard	Dense
1/10/2024	FR-US1-R	Flinders River Upstream 1	Soft	Loose
	FR-US1-B		Hard	Loose
1/10/2024	HC-DS-R	Horse Creek Downstream	Firm	Loose
	HC-DS-B		Hard	Loose
1/10/2024	JC-US-R	Julia Creek Upstream	Hard	Dense
	JC-US-B		Hard	Dense
1/10/2024	AC-US-R	Alic Creek Upstream	Firm	Loose
	AC-US-B		Firm	Loose
1/10/2024	SC-US-R	Spellary Creek Upstream	Friable	Loose
	SC-US-B		Friable	Loose
1/10/2024	HC-US-R	Horse Creek Upstream	Soft	Loose
	HC-US-B		Soft	Loose

1 October 2024

Date	Sample ID				
			Plasticity (low, medium, high)	Notes	Photo Y/N
1/10/2024	PC-DS-R	Pigeon Creek Downstream	Medium	Dry, wildlife, nearby cattle activity	Y
	PC-DS-B		Medium		Y
1/10/2024	JC-DS-R	Julia Creek Downstream	High	No flow, water grass, wildlife, standing trees,	Y
	JC-DS-B		High		Y
1/10/2024	FR-DS-R	Flinders River Downstream	Medium-High	No flow, wildlife, nearby cattle activity, standing trees	Y
	FR-DS-B		High		Y
1/10/2024	FR-TRIB-R	Flinders River Tributary	High	No flow, wildlife, standing trees, cattle activity, bore fed	Y
	FR-TRIB-B		Medium		Y
1/10/2024	FR-US1-R	Flinders River Upstream 1	High	Dry, wildlife, nearby cattle activity	Y
	FR-US1-B		Low		Y
1/10/2024	HC-DS-R	Horse Creek Downstream	High	Dry, wildlife, nearby cattle activity	Y
	HC-DS-B		High		Y
1/10/2024	JC-US-R	Julia Creek Upstream	High	No flow, tourists, bull rush, wildlife, bore fed	Y
	JC-US-B		High		Y
1/10/2024	AC-US-R	Alic Creek Upstream	High	No flow, standing trees, wildlife, logs in water, stagnant puddles	Y
	AC-US-B		High		Y
1/10/2024	SC-US-R	Spellary Creek Upstream	High	Dry, wildlife, nearby cattle activity	Y
	SC-US-B		High		Y
1/10/2024	HC-US-R	Horse Creek Upstream	Medium	Dry, wildlife, nearby cattle activity	Y
	HC-US-B		Medium		Y


1 October 2024


Date	Sample ID		Lab Report No. (ALS REPORT)
1/10/2024	PC-DS-R	Pigeon Creek Downstream	EB2434244
	PC-DS-B		
1/10/2024	JC-DS-R	Julia Creek Downstream	
	JC-DS-B		
1/10/2024	FR-DS-R	Flinders River Downstream	
	FR-DS-B		
1/10/2024	FR-TRIB-R	Flinders River Tributary	
	FR-TRIB-B		
1/10/2024	FR-US1-R	Flinders River Upstream 1	
	FR-US1-B		
1/10/2024	HC-DS-R	Horse Creek Downstream	
	HC-DS-B		
1/10/2024	JC-US-R	Julia Creek Upstream	
	JC-US-B		
1/10/2024	AC-US-R	Alic Creek Upstream	
	AC-US-B		
1/10/2024	SC-US-R	Spellary Creek Upstream	
	SC-US-B		
1/10/2024	HC-US-R	Horse Creek Upstream	
	HC-US-B		




A Montrose Environmental Company

CONTACT US

 www.epicenvironmental.com.au

 <https://www.linkedin.com/company/epic-environmental-pty-ltd/>

 1800 779 363

 enquiries@epicenvironmental.com.au