Annual Environmental Monitoring Report – 2024-25

Kangaroo Flat Former Gold Mine Site Victoria

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Acronyms

ADWG	Australian Drinking Water Guidelines
ALS	Australian Laboratory Services
ANZECC	Australian and New Zealand Environment and Conservation Council
ANZG	Australian and New Zealand Guidelines
APACs	air pollution assessment criteria
AS/NZS	Australian Standard/New Zealand Standard
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 Amended
BOM	Bureau of Meteorology
BTEXN	benzene, toluene, ethylbenzene, xylenes, and naphthalene
CCTV	closed-circuit television
CIL	Carbon-in-leach
CoPC	Contaminant of Potential Concern
CTD	coarse tailings dam
CSM	Conceptual Site Model
DEECA	Department of Energy, Environment and Climate Action
DO	dissolved oxygen
DSI	Detailed Site Investigation
DWER	Department of Water and Environmental Regulation
EC	electrical conductivity
EHS Support	EHS Support Pty Ltd
EIL	Ecological Investigation Level
EMP	Environmental Monitoring Plan
EPA	Environment Protection Authority
ERR	Earth Resource Regulator
ERS	Environmental Reference Standard
ESA	Environmental Site Assessment
EVAP	evaporation pond
EVC	Ecological Vegetation Classes
FRP	Functional Rehabilitation Plan
FTD	fine tailings dam
GG	Golden Gully
GME	Groundwater Monitoring Event
GMWL	global meteoric water line
HIL	Health Investigation Level
HSEP	Health, Safety and Environment Plan
IP	interface probe
LSIO	Land Subject to Inundation Overlay
MAHs	monocyclic aromatic hydrocarbons
mAHD	metres Australian Height Datum
NATA	National Accredited Testing Authorities
NEPC	National Environment Protection Council

NHMRC	National Health and Medical Research Council
NTU	Nephelometric Turbidity Unit
PAHs	polycyclic aromatic hydrocarbons
PFAS	per- and polyfluoroalkyl substances
PSI	Preliminary Site Investigation
PPSWD	processing plant stormwater dam
PVC	polyvinyl chloride
QA/QC	Quality Assurance/Quality Control
SU	standard unit
SWD	stormwater dam
SWL	standing water level
TDS	total dissolved solids
TPH	total petroleum hydrocarbon
TRH	total recoverable hydrocarbon
TSF	Tailings Storage Facility
VVG	Visualising Victoria's Groundwater
WMC	Western Mining Corporation

Units of Measure

Area	
ha	hectare
m^2	square metres
Density	
kg/m^3	kilograms per cubic metre
Electrical Conductance	
µS/cm	microsiemen per centimetre
dS/m	decisiemen per metre
mS/cm	millisiemen per centimetre
mV	millivolt
Length	
µm	micrometres
cm	centimetres
km	kilometres
m	metres
mm	millimetres
Mass	
µg	micrograms
g	grams
kg	kilograms
mg	milligrams
t	metric tonnes
Concentration by Mass	
µg/kg	microgram per kilogram
mg/kg	milligram per kilogram

Pressure	
kPa	kilopascals
Pa	Pascals
Temperature	
°C	degrees Celsius
K	kelvin
Velocity	
m/s	metres per second
Volume	
µL	microlitres
cL	centilitres
cm^3	cubic centimetre
GL	gigalitre
L	litres
m^3	cubic metre
mL	millilitres
ML	megalitre
Concentration by Volume	
µg/L	microgram per litre
mg/L	milligram per litre
ppmv	parts per million by volume
ppbv	parts per billion by volume

Executive Summary

EHS Support Pty Ltd ("EHS Support") was engaged by the Department of Energy, Environment and Climate Action (DEECA)/Earth Resource Regulator (ERR) to undertake environmental monitoring at the Kangaroo Flat Former Gold Mine Site located in Kangaroo Flat, Victoria (herein referred to as the 'site').

This Annual Environmental Monitoring Report outlines the results of the environmental monitoring completed at the site between 1 June 2024 and 31 May 2025 (12 months). The environmental monitoring conducted at the site is described in detailed in "*Environmental Monitoring Plan – Kangaroo Flat Former Mine, Kangaroo Flat, Victoria*" dated 17 May 2024 (EHS Support, 2024).

Based on the results of the environmental monitoring completed between June 2024 and May 2025, the following key conclusions and recommendations are made. A full list of recommendations are provided in **Section 11**, **Table 11-1** of this report. Overall, several significant data-gaps have been identified which need to be assessed to confirm that the risk to environmental values posed by the site is low and acceptable.

Surface Water

- On-site ponds/dams include the Stormwater Dam, Processing Plant Stormwater Dam, Carbon-in-Leach Dam 1 and 2, Coarse Tailings Dam, Fine Tailings Dam and Evaporation Pond. Water within the Stormwater Dam is transferred to the Carbon-in-Leach Dam 2 once it reaches a certain level and is used for dust suppression. Water within the Carbon-in-Leach Dam 1 is transferred to the Processing Plant Stormwater Dam. Water within the Coarse and Fines Tailings Dam (which includes rainwater, leachate, and historical bleed water) is transferred to the Processing Plant Stormwater Dam via the Fine Tailings Dam Sump or to the Evaporation Pond via subsurface perforated pipes. Water within both the Processing Plant Stormwater Dam and Evaporation Pond is connected to groundwater via mine shafts.
- Elevated concentrations of various metals (antimony, arsenic, cadmium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, and zinc), total dissolved solids (TDS), sulphate and pH exceeded the adopted criteria for environmental values in the ponds/dams on-site. The elevated concentrations of metals, TDS, sulphate and possibly pH are likely associated with historical mining activities at the site.
- Although in accordance with the Environmental Reference Standard (ERS) (2021), the environmental values of surface water do not apply to constructed waterways which would include the on-site ponds/dams, as water from some ponds/dams are used for dust suppression or discharged to groundwater via the mine shafts, the potential risk of harm to environmental values of land and groundwater requires further assessment to assess the potential risk via these pathways.
- Off-site waterways in the vicinity of the site include Golden Gully and Unnamed Creek 1 and 2. These are all ephemeral waterways which are inferred to discharge into Bendigo Creek located approximately 1.4 km from the site. Unnamed Creek 1 and 2 form informal drainage channels following heavy rainfall and have been heavily modified downgradient of the site. During the annual reporting period, water was only present in Unnamed Creek 1 and 2 following significant rainfall.
- Elevated concentrations of arsenic, copper, iron, lead, manganese, nickel, zinc, turbidity, and pH were reported in Unnamed Creek 1 and 2 above the adopted criteria for several environmental values. The environmental values in these unnamed creeks are unlikely to be relevant, realised or supported. Furthermore, as there is no direct connection via overland flow between on-site ponds/dams and off-site adjacent waterways, the elevated concentrations of metals reported are likely associated with the mobilisation of metals in colloidal matter as stormwater forms over surrounding off-site areas following heavy rainfall events.

- Several recommendations have been provided in relation to the surface water at the site, including preventing discharge of surface water to groundwater via the mine shafts unless appropriate approvals are obtained, developing an interim water management plan/strategy and undertaking a beneficial re-use assessment to confirm water within Carbon-in-Leach Dam 2 is suitable for dust suppression.

Groundwater

- Groundwater beneath the site is expected to exist within the Castlemaine Group. A shallower aquifer may also naturally be present to the east of the site formed by the Shepparton Formation/Alluvium Formations associated with Golden Gully.
- Although a limited groundwater monitoring well network exists at the site, the majority of existing groundwater monitoring wells are not appropriately constructed or positioned to provide a robust assessment of the risk to groundwater beneath the site.
- Data from CTD_SEEP01, which is installed within the base of the coarse tailings dam indicates that there is approximately 3 m of leachate at the base of the Tailings Storage Facility (TSF) which contains high concentrations of various analytes including arsenic. Although leachate is inferred to migrate/be transferred to the Evaporation Pond, there is a potential that direct seepage to groundwater via fractures and porous sandstone lenses may occur directly beneath the TSFs.
- During the annual monitoring period, groundwater was present in only two of the existing groundwater monitoring wells located along the northern site boundary.
- Based on analytical results, KFGW-2B which is inferred to screen the Shepparton Formation contains elevated concentrations of arsenic, iron, manganese, nickel, zinc, TDS, sulphate, sodium, chloride, and pH variably above the adopted criteria for environmental values of groundwater. This well has likely been impacted by seepage from the adjacent Evaporation Pond.
- KFGW-2A is inferred to screen the Castlemaine Group and also contains elevated concentrations of arsenic, copper, iron, manganese, nickel, zinc, TDS, sulphate, sodium, chloride, and pH variably above the adopted criteria for environmental values of groundwater. The reported metals may potentially be representative of background conditions within the Castlemaine Group, however, may also be associated with on-site sources such as the TSFs.
- Based on the reported concentrations in groundwater at the site, there is evidence to suggest that activities undertaken at the site have impacted groundwater. However, the extent of this impact and whether it poses a risk to environmental values is unclear.
- Several recommendations have been provided in relation to the groundwater, including undertaking additional groundwater assessments to target key areas of concern (such as the TSFs). Further groundwater assessments can be incorporated into the targeted environmental site assessment.

Dust

- Continuous real-time dust monitoring at the site did not identify elevated concentrations of $PM_{2.5}$ or PM_{10} above air quality criteria defined in the ERS, 2021. There was one exceedance of the Environment Protection Authority (EPA) Publication 1961 criteria for nuisance dust, however, this was associated with a weather event and did not correspond to any activity been undertaken at the site to warrant the implementation of adaptive dust mitigation measures.
- Exceedances of total insoluble solids in depositional dust gauges were only reported at KFDD01, KFDD03 and KF-DD05-BG. Prevailing wind direction during months when exceedances were reported suggested that the exceedances were likely associated with ambient sources of dust (such as agricultural activities, industrial/commercial areas, and residential construction).
- Analysis of depositional dust samples reported various metals (arsenic, barium, chromium, cobalt, copper, lead, iron, manganese, molybdenum, and zinc), and sulphate above the laboratory limit of reporting. Arsenic was only reported on one occasion at the background monitoring gauge (KFDD05-BG). The percentage of all other analytes in dust was comparable to the background monitoring gauge, suggesting that the reported metals and sulphate in depositional dust may be associated with ambient sources of dust.

- Concentrations of metals and sulphate in air was estimated based on the depositional dust monitoring results and PM_{10} concentrations reported by the real-time dust monitors. All estimated air concentrations were below the human health and environmental criteria defined in EPA Publication 1961.
- Overall, based on the depositional dust and real-time dust monitoring obtained during this monitoring period, combined with the results of previous environmental investigations, the current understanding of the risk posed to receptors due to dust has not changed and is generally considered low.
- Several recommendations have been provided in relation to the dust monitoring program at the site, including continuation of real-time and depositional dust monitoring, and consideration of undertaking tank water and dam/pool water sampling.

Soils and Sediments

- Although sampling and analysis of on-site soils and sediments is not within the scope of the Environmental Monitoring Plan, the contamination status of soils and sediments across the site has not previously been assessed. Given the site is considered to represent a high potential for contamination, it is strongly recommended that a targeted environmental site assessment be completed at the site. This will ensure DEECA/ERR are meeting its obligations under the Environment Protection Act, 2017, and will also aid in the developing of the rehabilitation strategy/plan for the site.

1 Introduction

EHS Support Pty Ltd ("EHS Support") was engaged by the Department of Energy, Environment and Climate Action (DEECA)/Earth Resource Regulator (ERR) to undertake environmental monitoring at the Kangaroo Flat Former Gold Mine Site (Kangaroo Flat), located in Kangaroo Flat, Victoria (herein referred to as the 'site').

The environmental monitoring program is described in detailed in "*Environmental Monitoring Plan – Kangaroo Flat Former Mine, Kangaroo Flat, Victoria*" dated 17 May 2024 (EHS Support, 2024).

The following Annual Environmental Monitoring Report outlines the results of the monitoring completed between 1 June 2024 and 31 May 2025 (12 months). This document must be read in conjunction with the assumptions and limitations outlined in **Section 12** and throughout this report.

1.1 Background

Kralcopic Pty Ltd (Kralcopic) had historically held mining licenses across the Bendigo region, including at the Kangaroo Flat Former Mine. Kralcopic went into liquidation in 2021 and the ERR inherited the responsibility to manage and rehabilitate the site under Section 83 of the Mineral Resources (Sustainable Development) Act 1990.

To manage potential impacts associated with the site prior to, during, and after rehabilitation, DEECA/ERR require environmental monitoring of surface water, groundwater, and dust to be undertaken at the site. This is required to ensure that DEECA/ERR are meeting their environmental duties specified in the Environment Protection Act (2017) including the general environmental duty and duty to manage contaminated land.

In May 2024, EHS Support prepared an Environmental Monitoring Plan (EMP) for the site titled "*Environmental Monitoring Plan – Kangaroo Flat Former Mine, Kangaroo Flat, Victoria*" dated 17 May 2024 (EHS Support, 2024). The EMP provides a framework for environmental monitoring which is currently completed at the site to ensure that potential risk to the environment are appropriately monitored and was approved by the then-appointed Environment Protection Authority (EPA) environmental auditor.

1.2 Objectives

The objective of the environmental monitoring completed at the site is to monitor and manage potential environmental risk associated with the site prior to, during and after rehabilitation.

1.3 Scope of Works

The following environmental monitoring activities were undertaken during this annual reporting period (June 2024 – May 2025):

- **Surface Water Monitoring** undertaken quarterly in July 2024, October 2024, January 2025, and April 2025, including:
  - Collection and analysis of water samples from various ponds/dams and sumps (total of nine pond/dam/sump samples) when water was present;
  - Collection and analysis of an upgradient, downgradient, and a site sample from Golden Gully (total of three samples) when water was present;
  - Collection and analysis of an upgradient, downgradient, and a site sample from an Unnamed Creek 1 (total of three samples) when water was present;
  - Collection and analysis of an upgradient, downgradient, and a site sample from an Unnamed Creek 2 (total of three samples) when water was present;

  - Collection of field water quality parameters during sampling using a calibrated water quality meter including pH, electrical conductivity (EC), total dissolved solids (TDS), redox potential, dissolved oxygen, turbidity, and temperature; and
  - Analysis of all surface water samples for cyanide, sulfate, alkalinity, total and dissolved metals (antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, tin, vanadium, and zinc) and total recoverable hydrocarbons (TRHs) at some locations.
- **Groundwater Monitoring** undertaken quarterly in July 2024, October 2024, January 2025, and April 2025, including:
  - Downhole camera survey of accessible wells prior to first groundwater monitoring event (GME);
  - Groundwater gauging, sampling, and analysis of all 6 existing monitoring wells using low flow sampling methods where sufficient water was present;
  - Gauging and sampling of one seepage bore (1) using waterra foot valve sampling methods;
  - Collection of field water quality parameters during sampling using a calibrated water quality meter including pH, EC, TDS, redox potential, dissolved oxygen, turbidity, and temperature;
  - Analysis of all groundwater samples for dissolved metals (antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, tin, vanadium, and zinc), cyanide, major anions, and cations (sulfate, chloride, calcium, magnesium, sodium, potassium), alkalinity. Analysis of stable isotopes ^{18}O and ^{2}H was also completed during the July 2024 GME.
- **Depositional and Real-Time Dust Monitoring, including**:
  - Monthly depositional dust monitoring from five existing dust deposition gauges. Depositional dust samples were analysed for metals (antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, tin, vanadium, and zinc), sulfate, cyanide, and deposited dust (ash content, combustible material, total insoluble solids, soluble solids, and total solids).
  - Establishment and continuous real-time dust monitoring at two (2) locations and monitoring for PM_{10} and $PM_{2.5}$.

The monitoring was undertaken in accordance with the following legislation, regulations, guidelines, and standard (to the extent possible based on the scope):

- General legislation, regulations, guidelines, and standards:
  - Environment Protection Act (2017).
  - Environment Protection Regulations (2021).
  - National Environment Protection Council (NEPC) (2013). *National Environment Protection (Assessment of Site Contamination) Measure* (ASC NEPM)*, 2013 Amended*. National Environment Protection Council Service Corporation, Canberra, ACT.
  - Standards Australia (2005). *AS 4482.1-2005 Guide to the investigation and sampling of sites with potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds*. Standards Australia, Sydney, NSW. (*Note: This has now been superseded; however, several other guidance documents continue to reference this standard).*
  - Victorian Government (2021). *Environmental Reference Standard* (ERS), Gazette No. S245, Wednesday 26 May 2021.
- Surface Water/Groundwater related legislation, regulations, guidelines, and standards:
  - Australian and New Zealand Environment and Conservation Council (ANZECC) & Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) (2000). *Guidelines for Fresh and Marine Water Quality*.
  - Australian and New Zealand Guidelines (ANZG) (2018).
  - EPA (2022). *Groundwater Sampling Guidelines (Publication 669.1).*
- Dust monitoring related legislation, regulations, guidelines, and standards:
  - EPA (2002). *A Guide to the Sampling and Analysis of Air Emissions and Air Quality (Publication 440.1).*

- EPA (2007). *Protocol for Environmental Management: Mining and Extractive Industries (Publication 1191).*
- EPA (2022). *Guideline for Assessing and Minimising Air Pollution (Publication 1961).*
- Standards Australia (2016). *AS/NZS 3580.10.1-2016 – Methods for Sampling and Analysis of Ambient Air: Method 10.1: Determination of Particulate Matter – Deposited Matter – Gravimetric Method*. Standards Australia, Sydney, NSW.
- Standards Australia (2014). *AS/NZS 3580.9.15-2014 – Methods for Sampling and Analysis of Ambient Air: Determination of Suspended Particulate Matter – Particulate Metals High or Low Volume Sampler Gravimetric Collection – Inductively Coupled Plasma (ICP) Spectrometric Method.* Standards Australia, Sydney, NSW.

1.4 Supporting Information

Only limited environmental investigations are known to have been completed at the site. Information provided in the following reports was used during the preparation of this report. Data from ad-hoc environmental monitoring events completed by the operator prior to going into liquidation is also available, however, details of the monitoring are generally sparse.

Table 1-1 Summary of Supporting Information

Consultant	Year	Report Title	Reference
AECOM	2022	Draft Former Kangaroo Flat Mine: Functional Rehabilitation Plan	(AECOM, 2022)
Australian Laboratory Services Pty Ltd (ALS)	2023	Department of Energy, Environment and Climate Action – Kangaroo Flat Dust Monitoring Report Q2 2023	(ALS, 2023)

2 Site Description and Environmental Setting

2.1 Site Identification Information

The site is located approximately 130 km north of Melbourne Central Business District and 4.5 km south of Bendigo in the regional town of Golden Gully, Victoria.

It is understood that the Kangaroo Flat Former Mine Site was historically key to mining in Bendigo. The site includes the now rehabilitated Swan Decline which provided access to Bendigo's underground mine network. Other infrastructure and features at the site included processing plant, mechanical workshop, administration building, drilling workshop, mine storage areas, rock storage areas, tailings storage facilities (TSFs) and multiple ponds/dams.

A summary of important site information is presented in **Table 2-1** below. The location of the site and is shown in **Figure 1** (attached). A photolog of the site is provided in **Appendix A**.

Table 2-1 Site Identification Information

Items	Details
Site Address[1]	Ham Street and Diamond Hill Road, Golden Gully, 3555.
Parcels	18-H1\PP3473A, 2\PS332034, 2063\PP3473A, 2054\PP3473A, 2033\PP3473, 2053\PP3473A, 2039\PP3051, 2055\PP3473A, 2056\PP3473A, 57-C\PP3473A, 58-C\PP3473A.
Local Government Administration (LGA)	• Greater Bendigo.
Zoning of Site and Surrounding Area	The site is predominantly zoned Public Conservation and Resource Zone (PCRZ), however some portions of the site are also zoned Low Density Residential Zone (LDRZ1) and General Residential Zone (GRZ). The surrounding land zoning includes Public Conservation and Resource Zone (PCRZ), Low Density Residential Zone (LDRZ1), General Residential Zone (GRZ), Public Use Zone (PUZ), and Industrial 3 Zone (I3Z).
Site Overlays	The following overlays exists at the site: • Bushfire Management Overlay (BMO). • Heritage Overlay (HO425). • Significant Landscape Overlay (SLO1) (small area in western portion of site). • Development Plan Overlay (DPO) (small area in western portion of site). Areas along Golden Gully are also identified as areas of Aboriginal cultural heritage sensitivity.
Current Site Use	The site is currently not activity used.

Current Site Features	The site is not actively used, however remnants of former mining infrastructure remains, including:
	• Processing plant (currently been dismantled);
	• Mechanical workshop;
	• Administration building and technical offices;
	• Drilling workshop;
	• Mine storage areas;
	• Rock and tailing storage areas; and
	• Multiple ponds/dams including:
	  ○ The TSFs comprising fines tailing dam and coarse sand dam
	  ○ Carbon-in-Leach Dams 1 and 2
	  ○ Stormwater dam in southern portion of site
	  ○ Processing Plant Stormwater Dam

Items	Details
	• Evaporation pond. The location of current site features are shown on **Figure 1** (attached).
Future Site Use	EHS Support understands that DEECA and ERR are current exploring future land uses for the beneficial re-use of the site. As the future use of the site is yet to be formally determined, it is assumed that any future land use will be in accordance with the current site zoning. It is noted that a draft Functional Rehabilitation Plan (FRP) prepared for the site suggest that the final land use will be restored Ironbark forest and an extension to the Bendigo Regional Park.
Adjacent Site Uses	• **North:** Park and bushlands, industrial and commercial/industrial uses, rural residential uses. • **East:** Rural residential, agricultural, and Bendigo Regional Park. • **South**: Bendigo Regional Park. • **West:** Park and bushlands, rural residential, general residential, and minor agricultural uses.

2.2 Site History and Operations

It is understood that significant development occurred at the site following the Deborah Reef Environmental Effects Statement in 1998 and 2004, including the construction of the Swan Decline, processing plant, mechanical workshop, administration building, drilling workshop, and mine storage areas. In addition, the tailings storage facilities (TSFs) such as the fines tailing dam and coarse tailings sand dam were constructed in 2006.

Mining was undertaken between 2006 and 2011. The underground mine was formally dewatered via several shafts in the area and pumped via above ground pipeline to the New Moon site where the water was treated and then pumped to the Woodvale Evaporation Pond Complex.

Ore was brought to the surface via the Swan Decline and box cut directly adjacent to the processing plant. The processing of gold from ore comprised several stages, including crushing and gravitational separation and flotation; carbon-in-leach (CIL), which uses cyanide to leach gold from the ore and then capture it using activated carbon; electrowinning; and smelting. Cyanide was generally recovered and reused in a cyanide circuit, and the tailings from the CIL process were disposed of in CIL Dam 1 only (CIL Dam 2 was never formally used). In 2012 and 2013, it is understood that CIL Dam 1 was excavated and tailings were removed and transported to Maldon for re-processing. Rainwater that now accumulates in CIL Dam 1 is transferred to the Processing Plant Storm Water Dam.

It is understood that the tailings were produced in two sizes including coarse and fine grained slurries. The slurries (or tailings) was disposed of in the TSFs. Coarse tailings were disposed of in the southern portion of the TSF (referred to as the Coarse Tailings Dam) whilst finer materials were disposed of in the northern end (referred to as the Fines Tailings Dam). It is understood that the TSFs are underlined by sub-surface perforated pipelines which collect run-off and seepage from within the TSFs, however, only limited details of the design of this system are available. Rainfall is allowed to percolate through the tailings generating “leachate”, which intern flows under gravity to the north, where a TSF seepage well exists (refer to as the Fine Tailings Dam Sump). The fine tailings dam sump collected the leachate and accumulated rainwater (and historical bleed from the tailings), and during operation water within the sump was pumped back to the process plant for reuse. Sub-surface perforated pipelines along the eastern embankments discharge into the Evaporation Pond located to the north of the TSF. It is understood water within the Evaporation Pond is now currently transferred and disposed of via the Carshalton Shaft when required.

2.3 Topography

The topography at the site varies and has been altered during historical mining activities. Topographical maps for the area indicate that the site has an approximate elevation of between 270 and 310 metres Australian Height Datum (mAHD), with the landscape defined by undulating slopes. The areas of highest elevation on the site are in the south and western boundary of the site. The processing plant and Swan Decline have been constructed in low lying basins, and individual ponds/dams are defined by tall and steep embankments. Areas which house the administration buildings, drilling, and mechanical workshops are typically flat. Several mounds have been artificially formed by rock and tailings produced during mining activities in the past.

2.4 Surface Conditions and Vegetation

The site is predominantly unsealed with sealed areas generally only proximate to buildings (i.e., administration building). Large areas of the site are occupied by remnant mining infrastructure including the ponds and dams, rock and tailing storage areas, and general laydown areas. Vegetation across the site varies and is generally sparse in former operational areas, however the site boundaries along with the southernmost portion of the site are more densely vegetated with tall grasses, bushes, and native trees.

Ecological Vegetation Classes (EVCs) modelled by the DEECA indicate that the site is characterised by Box Ironbark Forest (EVC: 61, Goldfields Bioregion).

2.5 Climate and Weather

A weather monitoring station (Site Number - 407811A) was installed at the site in 2023. The station is located to the southeast of the site office and measures rainfall, wind direction, wind speed, air temperature and relative humidity, however, has been damaged on multiple occasions which compromised the quality of data obtained for wind speed and wind direction. Where data is deemed not suitable for use, data from Bureau of Metrology (BOM), Bendigo Airport Weather Station (081123) has been used. Monthly wind data between June and October 2024 from the BOM station is only available for 9am and 3pm (rather than at 30-minute intervals which is available for the remaining months during the annual reporting period).

During quarterly monitoring events, data from the weather monitoring station was downloaded. A detailed summary of weather monitoring data including monthly summaries of temperature, humidity and rainfall are provided in **Appendix B**. Wind direction and wind speed based on the 30 minute wind data between November 2024 and May 2025 from the Bendigo Airport Weather Station are also included in **Appendix B**.

Monthly rainfall and temperatures recorded during the annual monitoring period are shown in **Chart 2-1** below. Highest monthly rainfall typically occurred between June and November 2024, with May 2025 receiving the lowest total rainfalls of 0.7 mm.

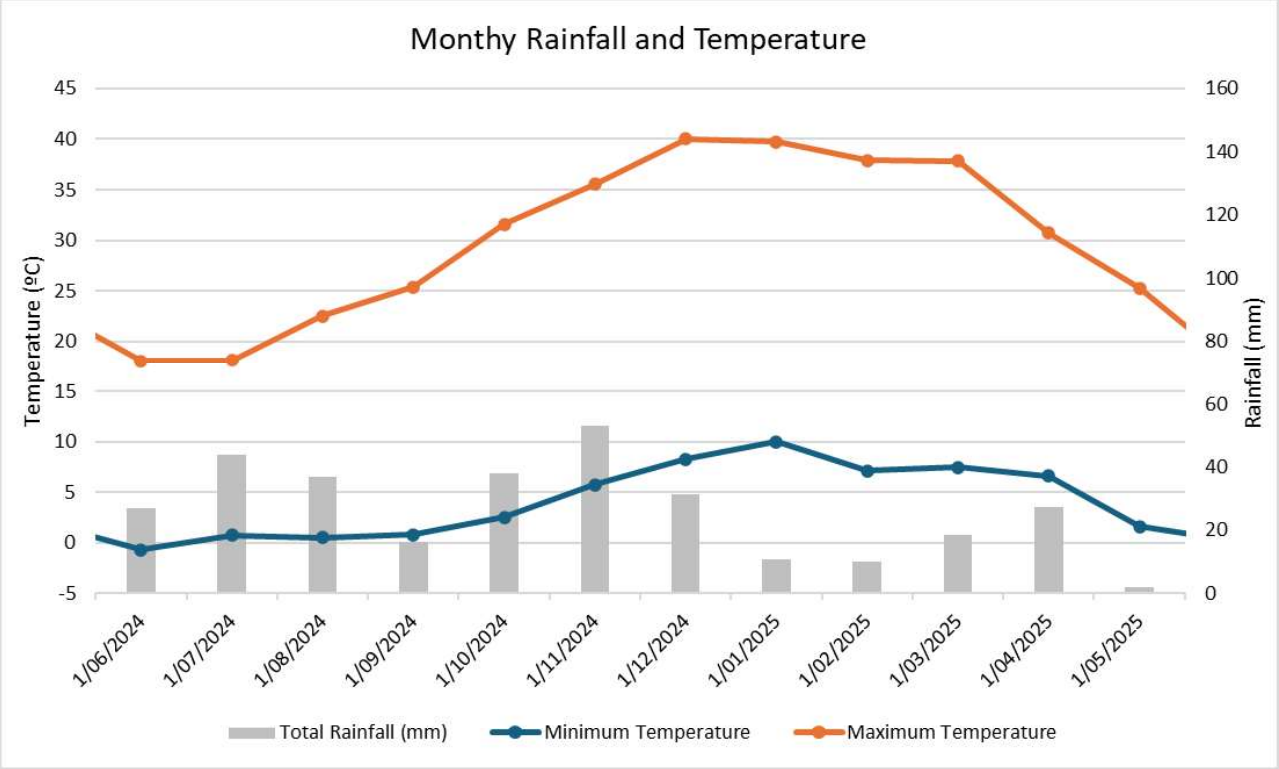


Chart 2-1 Monthly Temperature and Rainfall

Based on the annual wind rose (refer to **Chart 2-2**) which excludes data between June – October 2024, the prevailing annual wind direction is south-southeast for 25% of the time.

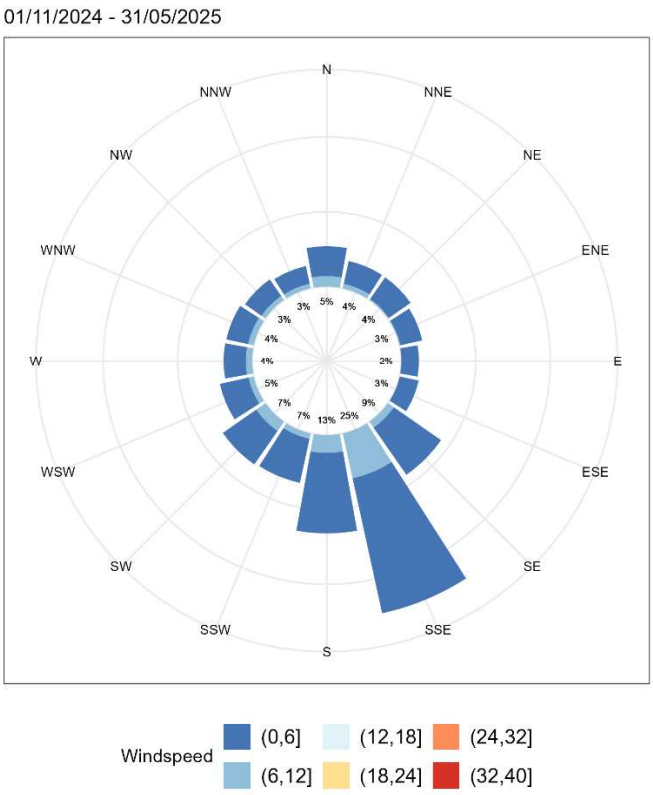


Chart 2-2 Annual Wind Rose (November 2024 – May 2025)

2.6 Pond/Dam Network

The pond/dam network at the site is summarised in **Table 2-2**. The location of each pond/dam is shown in **Figure 2** (appended). Of the ponds/dam networks, only the carbon-in-leach dam 1 is known to have been historically lined, with the liner since removed.

Table 2-2 Summary of Pond/Dam Network

Pond	ID	Description
Stormwater Dam	SWD	The Stormwater Dam, also known as the South Carshalton Stormwater Dam, is in the southwestern portion of site and is part of the site stormwater management system. There is a natural drainage feature immediately west of the dam (off-site). No discharge is currently allowed off-site and therefore once stormwater in this dam reaches a defined level, it is pumped to Carbon-in-Leach Dam 2 and then used for dust suppression.
Carbon-in-Leach Dam 1	CIL1	The tailings from the carbon-in-leach process were disposed of in Carbon-in-Leach Dam 1 which is located to the south of the Mine Storage Area, north of Carbon-in-Leach Dam 2. Carbon-in-Leach Dam 1 has been rehabilitated in part. All material in the dam has been excavated and transported to a processing plant in Maldon, Victoria for mineral extraction. The high-density polyethylene liner has been largely removed and is presently being stored adjacent to the dam ahead of disposal. It is understood that water collected in Carbon-in-Leach Dam 1 (mostly rainfall) is now transferred to the Processing Plant Stormwater Dam.
Carbon-in-Leach Dam 2	CIL2	Carbon-in-Leach Dam 2 is located to the south of Carbon-in-Leach Dam 1. Carbon-in-Leach Dam 2 has only ever stored accumulated rainwater and receives excess water from the Stormwater Dam which is subsequently used for dust suppression.
Process Plant Stormwater Dam	PPSWD	The Process Plant Stormwater Dam was historically used to manage stormwater that came off the buildings in and around the processing plant. In more recent times the dam has been used to store water for use in dust suppression activities. The dam is not lined. As outlined above, the Process Plant Stormwater Dam also receive excess water from Carbon-in-Leach Dam 1, and water from the TSFs via the Fine Tailings Dam Sump. The Hansel Mundy Shaft is located adjacent to the Process Plant Stormwater Dam and is in hydraulic connection with the dam. Surface water from the dam discharges into the shaft if the water level reaches the shaft connection point. The Hansel Mundy Shaft is not directly connected to the surface except via the dam connection point.
Coarse Tailings Dam	CTD	The Coarse Tailings Dam was developed for rock, coarse flotation tails (sand), and fine flotation tails (fines). The rock storage incorporated the starter embankments and formed the Northern, Eastern and Southern perimeter shell of the fines and sand storage. Sand storage commenced at the southern end of the Coarse Tailings Dam and extended eastwards towards the Fines Tailings Dam with containment provided by roughly parallel embankments of rock and fill. This arrangement provided for drainage (bleed and rainfall) from the sand placement to flow under gravity to the Fine Tailings Dam. A seepage bore (CTD_SEEP01) is located towards the north of the Coarse Tailings Dam. Although no construction details are available, based on total depth and discussions with site representatives, it is likely that the seepage bore intersects bleed water from the tailings at the base of the Coarse Tailings Dam.
Fine Tailings Dam	FTD	The Fine Tailings Dam was developed to deal with the sand and fines tailing produced by the mine processing facilities. The Fine Tailings Dam Sump was designed to pump water from the Fine Tailings Dam to the Processing Plant Stormwater Dam. Water collected in subsurface perforated pipes located along the eastern embankment of the TSFs are directed to the Evaporation Pond located to the north of the TSF.

Pond	ID	Description
Evaporation Pond	EVAP	The Evaporation Pond, also known as the East Carshalton Dam, is part of the site stormwater management system. There are two sumps to the north of the Pond, sampled as EVAP_SW01 (west sump) and EVAP_SW03 (east sump). Water collected in the subsurface perforated pipes located along the eastern embankment of the TSFs is discharged into the evaporation pond via EVAP_SW01. When water reaches a certain level in the Evaporation Pond, it is understood that water is then pumped from the pond via EVAP_SW03 to the Carshalton Shaft.

2.7 Hydrology

Surface water across the site is understood to be predominantly directed towards existing ponds/dams as described above. With the exception of the on-site ponds/dams, the nearest surface water bodies to the site are described in **Table 2-3**. Waterways located off-site and on surrounding land are shown in **Figure 3** (appended).

Table 2-3 Summary of Waterways

Waterway	ID	Description
Golden Gully	GG	An ephemeral creek which flows from south to north along the eastern site boundary of the site before eventually discharging into Bendigo Creek approximately 2.5 km north of the site.
Unnamed Creek 1	UNC1	An ephemeral creek which flows from the south to northwest through the eastern portions of the site. This creek forms from stormwater run-off from a bund wall along the western boundary of the site and the surrounding area. With the exception of the bund, stormwater in this unnamed creek does not interact with previously operational areas of the site. Down gradient of the site, this unnamed creek has been heavily modified and now forms an informal drainage channel which has been diverted in off-site areas. It is likely that this waterway/drainage channel eventually discharges into Bendigo Creek.
Unnamed Creek 2	UNC2	An ephemeral creek which flows west in the southern portion of the site. It is understood historically water in the Stormwater Dam discharged to this creek in accordance with a previous license condition. EHS Support has not verified this license condition. Currently, no water discharges from the Stormwater Dam as water in the dam is now transferred to Carbon-in-Lead Dam for storage and use in dust suppression. Unnamed Creek 2 eventually discharges into Tipperary Gully located approximately 1 km from the site. Tipperary Gully eventually discharges into Bendigo Creek.
Tipperary Gully	-	A modified ephemeral creek which flows south to north approximately 1 km west of the site. Tipperary Gully ultimately discharges into Bendigo Creek.
Bendigo Creek	-	A modified creek which flows south to north approximately 1.4 km west of the site.
Spring Gully Reservoir	-	Reservoir (drinking water supply) located approximately 1.3 km southeast of the site.

2.8 Geology

According to the 1:10,000 Bendigo Gold Field Map Series, Spring Gully Map, and the 1:50,000 Geological Map Series, Bendigo Map, geology underlying the site predominantly comprises Ordovician aged Castlemaine Group, with the Shepparton Formation present in existing and paleo valleys. A summary of the underlying geology is provided in **Table 2-4**.

As a result of significant geological deformation which occurred in the Bendigonian and Chewtonian stages of the Ordovician period (435 – 500 million years ago), layers of sediments of different ages within the

Castlemaine Group underwent extensive folding and reverse faulting resulting in thick sequencing of turbiditic siltstones, sandstones, and mudstones.

The more recent Shepparton Formation subsequently developed during the late Neogene to Quaternary period, however the Gold Field Map Series indicates that this formation has been heavily impacted by mining activities and in some gullies, eroded completely to expose bedrock.

Groundwater monitoring bores installed at the site (refer to **Section 2.10**) have generally only encountered siltstones, sandstones, shale, and mudstone consistent with the Ordovician aged Castlemaine Group. The exception to this is one groundwater monitoring well installed near Golden Gully which identified lithology consistent with the Shepparton Formation.

Table 2-4 Summary of Geology

Age	Formation/Unit	Description
Quaternary - Neogene	Shepparton Formation (Nsw) (Qa and Tp)	Prior stream deposits and minor alluvium: shoestring channel sand deposits, fine-grained sandy clay; levee bank deposits: clay, silt. Fine- to coarse-grained sand/sandstone of quartz, mica, feldspar, and ironstone; quartz gravel/conglomerate; well to poorly sorted, variably consolidated. The 1:10,000 Bendigo Gold Field Map Series, Spring Gully Map, further described subsections of the Shepparton Formation: Qa: Undifferentiated alluvium of goldfields area, including small gully alluvium. Original terracing largely destroyed by mining activity but would have predominantly been upper stream terraces comprising gravel, sand, silt, and clay. Many gullies have been sluiced or eroded to bedrock, hence the apparent anomaly of bedrock outcrop within alluvial gullies. Tp: high level terrace deposits; gravel, sand, silt, and clay: remnant of more extensive deposits partially or wholly removed by alluvial mining.
Ordovician	Castlemaine Group (Ocb and OcC)	Deep-marine turbidites and hemipelagic sediments: sandstone, mudstone, black shale, minor granule quartz conglomerate; sandstone mostly thick-bedded, coarse- to fine-grained, often graded, diffusely stratified to cross-laminated, moderately to well sorted; black shale richly fossiliferous with graptolites and phyllocarids. The 1:10,000 Bendigo Gold Field Map Series, Spring Gully Map, further described the Bendigonian stages of the Castlemaine Group as sand rich sequences dominated by thick sandstone beds (<2 m) including coarse channel sandstone units interbedded with fine to medium grained turbiditic sandstone.

2.9 Hydrogeology

A generalised summary of the site and regional hydrogeology is provided in **Table 2-5**.

The main aquifer beneath the site is located in the Castlemaine Group. This is considered the regional aquifer and is characterised as both unconfined (in areas where it outcrops) and semi-confined to confined. Groundwater flow and storage within this aquifer is via both primary porosity through permeable sandstone layers and secondary porosity between fractures and turbiditic layers. Groundwater flow and storage is also influenced by mining shafts across the region.

Several existing groundwater monitoring bores which have been installed at the site are inferred to screen the Castlemaine Group aquifer, however, the majority of have only been installed to 5-6 m below ground level and are dry. Only one groundwater monitoring well, which is inferred to screen the Castlemaine Aquifer, has reported groundwater, which is KFGW-2A located along the northern site boundary adjacent

to the evaporation pond and installed to a depth of 12.7 m bgl. Depth to water in this bore ranged between 8 – 9.9 m bTOC during this annual monitoring period.

A shallower aquifer is also likely to be present at the site, which likely exists within shallow alluvial formed by Golden Gully or the Shepparton Formation (where present). This aquifer is characterised as an unconfined to semi-confined aquifer. Groundwater in the Shepparton Formation is, broadly, known to be variable, with yield largely dependent on individual lithological layers within the formation (such as sandy lenses) in a specific area. Groundwater flow and storage within this aquifer is predominantly via primary porosity in porous sand lenses.

This aquifer is likely to be limited and discontinuous at the site. Only one groundwater monitoring bore installed at the site (KFGW-2B) is inferred to have been installed within this aquifer. This bore is located near the Golden Gully ephemeral waterway and the evaporation pond adjacent to the northern site boundary and is screened between 2 and 5 m bgl. Based on groundwater monitoring conducted during this annual monitoring period, there is evidence to suggest that the groundwater encountered in this well may be a result of seepage from the evaporation pond rather than naturally occurring groundwater. This is discussed in **Section 7.5**.

Statewide groundwater maps (provided on Visualising Victoria's Groundwater [VVG] website) suggest that groundwater is situated as shallow as less than 5 m bgl and up to 50 m bgl in the area. It is known that dewatering in Bendigo for mining operations has significantly influenced the water table, therefore depth to groundwater may be deeper in certain areas.

Groundwater flow direction has not been measured at the site. On a regional scale, groundwater flow direction within the Castlemaine Group aquifer is expected to be towards north; however, this may not be representative of groundwater flow conditions at the site which have likely been impacted by previous mining activities. The 2022 FRP suggests that groundwater discharge likely occurs in creeks to the north of Bendigo, and previously the aquifer in the Castlemaine Group is known to have discharged into Bendigo Creek.

Groundwater flow direction in the Shepparton Formation aquifer (where present) is likely to be towards topographically low lying areas and/or adjacent waterways. Given that Golden Gully has been dry during the annual monitoring period, it is unlikely to be hydraulically connected to groundwater.

According to the Statewide groundwater salinity map (provided on VVG website), groundwater salinity beneath the site is expected to range between 1,000 to 3,500 mg/L. Groundwater salinity (as inferred by total dissolved solid concentrations) measured in the KFGW-2B which screens the Shepparton Formation has ranged from 2,140 to 4,632 mg/L, noting that salinity in this bore may be impacted by seepage from the evaporation pond. Groundwater salinity in KFGW-2A which screens the Castlemaine Group ranged from 1,430 mg/L to 2,652 mg/L. Furthermore, monitoring conducted from water accumulated in the Carshalton Shaft (former mine shaft) reported a TDS of 960 mg/L in March 2025 (VVG, 2025). Therefore, the most conservative groundwater segment would be considered Segment A2 in accordance with the ERS, 2021.

Table 2-5 Summary of Hydrogeology and Surrounding Groundwater Bores

Item	Details
Depth to water	Variable – Statewide maps indicate it may be less than 5 bgl and up to 50 m bgl.
Aquifer(s)	Main aquifer is considered the Castlemaine Group, however an aquifer within the Shepparton Formation may also be present where this formation exists and is likely limited and discontinuous.
Groundwater flow direction	Unknown – Regional groundwater flow direction in the Castlemaine Group is expected to be in a northerly direction, however this has not been confirmed. Groundwater flow in the Shepparton Formation aquifer is likely to follow topography.

Item	Details
Groundwater salinity and segment[1]	Segment A2 – C based on measured TDS in groundwater monitoring wells at the site.
Environmental values of groundwater to be protected (based on Segment A2) in accordance with the ERS (2021)	• Water dependent ecosystems and species (Murray and Western Catchment – slightly to moderately modified). • Potable water supply (acceptable); • Potable mineral water supply. • Agriculture and irrigation (irrigation). • Agricultural and irrigation (stock watering). • Industrial and commercial use. • Water-based recreation (primary contract recreation). • Traditional owners cultural values. • Buildings and structures. • Geothermal properties.
Point of groundwater discharge	Unknown – The Castlemaine Group aquifer is known to discharge into Bendigo Creek, which at its closest point is located approximately 1.4 km west of the site. However, due to dewatering activities associated with gold mining activities the interaction between surface water and groundwater within the Castlemaine Group have likely been heavily modified.
Surrounding groundwater bores (within a 2 km radius)[2]	• Approximately 43 registered groundwater bores within 2 km radius of the site (measured from the Carshalton Shaft). • Several bores are listed on-site and registered for dewatering or industrial and commercial (presumably also used for dewatering). • Registered groundwater bores have been installed to depth of between 4.5 up to 457 m bgl. • Lithology encountered has included sandstone, siltstone, shale, clays, and gravels (consistent with both the Castlemaine Group and Shepparton Formation). • For bores registered on-site which include mine shafts such as the Carshalton Shaft depth to groundwater has been measured between 26 and 34 m deep, electrical conductivity has ranged from 390 to 1,806 µS/cm, and TDS (analysed by laboratory) has ranged between 300 and 970 mg/L.
Surrounding groundwater uses	• Commercial (4) (possibly dewatering). • Dewatering (12). • Domestic and Stock (2). • Irrigation (2). • Groundwater Investigation/Observation (1). • Non Groundwater or Not Listed (22).
Nearest extractive use	Although several bores are registered for commercial uses, these are likely associated with dewatering activities. The nearest bore registered for an extractive use of either domestic and stock or irrigation is Bore WRK059062 which is located approximately 1.3 km north-east and potentially down-gradient of the site.

Table Notes:
[1] Groundwater salinity based on state-wide groundwater salinity mapping and on-site monitoring.
[2] Registered groundwater bores based on a search of the Victorian Governments Water Measurement Information System conducted on 01 August 2025.

2.10 Existing Groundwater Monitoring Well Network

Six groundwater monitoring wells are present at the site which were installed between 2006 and 2007 by Australian Tailings Consultants and HLA Environmental Sciences. In several historical documents, these monitoring wells have been described as “seepage monitoring bores”, however, EHS Support understands that a separate network of seepage detection bores were installed within the footprint of the TSFs. Only one seepage detection bore remains on-site and is located with the coarse tailings dam (herein referred to as

CTD_SEEP01). Although no construction details are available, this bore is approximately 15.5 m deep and based on anecdotal information this bore was installed at the base of the coarse tailings dam when it was first constructed. The surface casing of this bore is compromised and the standpipe is significantly damaged.

A summary of the existing groundwater monitoring well network and seepage detection bore is provided in **Table 2-6**. The location of existing groundwater monitoring wells is shown in **Figure 4** (appended). Based on the construction details and positioning of the KFGW-1, KFGW-3, KFGW-4 and KFGW-5, these are unlikely to effectively assess potential seepage from the TSFs.

Table 2-6 Groundwater Monitoring Well Network

Well ID	Aquifer	Easting	Northing	Top of Casing (mAHD)	Total Well Depth (mbTOC)	Base of well (mAHD)	Screen Interval
KFGW-1	Bedrock	46882.36	121842.5	280.348	5	275.348	2 – 5
KFGW-2A	Bedrock	47142.62	121824.4	262.97	13.5	249.47	9.7 – 12.7
KFGW-2B	Shepparton	47143.55	121823.4	263.036	5	258.036	2 – 5
KFGW-3	Bedrock	47138.25	121578.1	273.379	8.5	264.879	5.5 – 8.5
KFGW-4	Bedrock	47011.6	121317.8	287.318	6	281.318	3 – 6
KFGW-5	Bedrock	-	-	Approx. 298.0	6.7	Approx. 291.3	3 – 6
CTD_SEEP01	Base of CTD	-	-	Approx. 293.50	15.5	Approx. 278	-

3 Preliminary Conceptual Site Model

The requirement for the development of a Conceptual Site Model (CSM) is provided in Schedule B2 and B4 of the National Environment Protection Measure (NEPM) (NEPC, 2013). The CSM represents site-related information regarding contamination sources, migration pathways, and receptors.

The development of a CSM is a dynamic process and information and assessments relevant to the site model should be used to update and review the current CSM. The essential elements of an initial CSM are:

- Known and potential sources of contamination and contaminants of concern;
- Potentially affected media (soil, sediment, groundwater, surface water, indoor and ambient air) and contaminant transport and migration mechanisms;
- Potential human and ecological receptors; and
- Potential exposure pathways.

A summary of the CSM for the site is provided in the following sections.

EHS Support understands that a Preliminary Site Investigation (PSI) and Detailed Site Investigation (DSI) will be undertaken at the site in the future. The following CSM should therefore be treated as preliminary and indicative in nature, and may not identify all potential sources of contamination or contaminants of potential concern (CoPCs).

3.1 Potential Sources of Contamination and Contaminants of Potential Concern

The key potential source or activity of contamination at the site overall is activities and sources associated with historical mining activities, which includes the processing plant, mechanical workshop, administration building, drilling workshop, mine storage areas, rock and tailing storage areas, and multiple ponds/dams including the TSFs (fines tailing dam, coarse sand dam), CIL dams, stormwater dams and evaporation pond.

Based on the current understanding of the site, the following analytes are considered to represent CoPCs (additional CoPCs may be identified following the completion of a PSI and DSI):

- Heavy metals (namely arsenic, barium, chromium, cobalt, manganese, nickel, and zinc);
- Cyanide;
- Total recoverable hydrocarbons/total petroleum hydrocarbons (TRHs/TPHs);
- Polycyclic aromatic hydrocarbons (PAHs);
- Monocyclic aromatic hydrocarbons (MAHs); and
- Salinity (i.e., major cations and anions such as sodium, magnesium, and chloride).

Per- and poly-fluoroalkyl substances (PFAS) may also potentially represent a CoPCs, particularly near the processing plant where PFAS may have been present in leaching chemicals or surfactants used in the gold extraction process. The potential for PFAS to have been used at the site and potential impacts to the environment should be assessed as part of the future PSI/DSI at the site. At this stage, PFAS has not been incorporated into the existing Environmental Monitoring Plan.

Although rehabilitation of the Kangaroo Flat Former Mine is unlikely to represent a significant source/activity of potential contamination, appropriate management controls are required to prevent rehabilitation activities mobilising existing contamination at the site.

3.2 Potentially Affected Media, Transport, and Migration Mechanisms

A summary of potentially affected media and transport and migration mechanisms is outlined below in **Table 3-1**.

Table 3-1 Summary of Potentially Impacted Media and Transport and Migration Mechanisms

Media	Transport and Migration Mechanisms
Sediment/Soils	Soils in the immediate vicinity of mining infrastructure such as the processing plant, mechanical workshops, storage areas, etc. may be impacted due to releases of CoPC (i.e., leaks in hydraulic equipment, spills of fuels and oils, leaching of metals from mine tailings, etc.). Sediment/soils at the base of the dams and ponds (including TSFs, CIL dams etc) on site may potentially be impacted due to precipitation and evaporation which results in the accumulation of heavy metals and other CoPCs at the base of the ponds. Furthermore, although the 2022 FRP suggest that cyanide used in the CIL process has been removed, residual soil and sediment impacts may remain.
Groundwater	Groundwater beneath the site may be impacted by: • Infiltration and vertical migration of surface water to groundwater from on-site dams including the TSFs (coarse and fine tailings dam (CTD and FTD)), carbon-in-leach dams 1 and 2 (CIL1 and CIL2), stormwater dam (SWD), processing plant stormwater dam (PPSWD) and evaporation pond (EVAP), impacting groundwater quality • Leaching of CoPCs from soils and sediments across the site into subsurface lithology followed by vertical migration into underlying groundwater impacting groundwater quality (leaching). • Direct discharge of surface water from the ponds/dams to groundwater via the Carshalton shaft and Hansel Mundy Shaft. Note: During the annual monitoring period EHS Support advised DEECA that discharge of surface water to groundwater via the Carshalton and Hansel Mundy Shaft requires permission from EPA and the relevant water authority, and the potential risk to groundwater this activity poses needed to be assessed. It is understood that discharged to these shafts has been minimised and DEECA are currently investigating alternative water management approaches.
Surface Water	Transport and migration of CoPCs to surface water bodies via lateral migration of potentially impacted groundwater. Surrounding surface water bodies may also be impacted due to increased erosion risk impacts due to soil structure and stability from saline soils, or if inappropriate controls are adopted during rehabilitation, including risk of potentially contaminated run-off entering surrounding surface water bodies.
Dust (Soils and Surface Water)	During dry and windy periods, CoPCs across the site may be mobilised creating a potential inhalation risk. In addition, dust may be deposited on surrounding soil surface and/or on surrounding surface water bodies such as dams. CoPCs may also be transported via dust and deposited on rooftops which in turn may potentially impact drinking water (if rainwater tanks are present) or stormwater.

3.3 Potential Receptors

Potential receptors at the site which need to be considered are based on the environmental values of the environment, as defined by the ERS (2021).

3.3.1 Environmental Values – Land

The ERS (2021) details the environmental values of land (soil) to be protected under a number of different land use scenarios and also provides environmental quality objectives for the protection of these environmental values.

The site may have potentially been representative of a **Commercial/Industrial** land use scenario during operation. Although the proposed future land use is not yet known, based on the current zoning the site (or at least portions of the site) may be used for parklands (**Parks and Reserves**) or residential (**Residential – Low Density**); therefore, in accordance with the ERS (2021), the environmental values of land applicable for the site are:

- Maintenance of ecosystems (highly modified to natural ecosystems);
- Human health;
- Aesthetics;
- Buildings and structures; and
- Production of food, flora, and fibre.

As no soil sampling has been undertaken as part of the environmental monitoring program, risk to environmental values of land have only been assessed based on potential impacts from other media (groundwater, dust etc).

3.3.2 Environmental Values - Water

The ERS (2021) details the environmental values of water (groundwater and surface water) to be protected. The environmental values for groundwater which must be protected are based on the groundwater salinity and the groundwater segment applicable. EPA guidelines specify that when determining groundwater segments, the most conservative salinity outside the influence of anthropogenic impacts (i.e., seepage from the evaporation ponds) should be used.

Based on statewide groundwater maps and measured TDS at the site, the most conservative groundwater segment at the site is Segment A2. The environmental values of groundwater requiring protection for the most conservative Segment of groundwater (i.e., Segment A2) are:

- Water dependent ecosystems (Murray and Western Catchment – slightly to moderately modified);
- Potable water supply (acceptable);
- Potable mineral water supply;
- Agriculture and irrigation (irrigation);
- Agricultural and irrigation (stock watering);
- Industrial and commercial use;
- Water-based recreation (primary contract recreation);
- Traditional owners cultural values;
- Cultural and spiritual values;
- Buildings and structures; and
- Geothermal properties.

The environmental value of water-dependent ecosystems and species is applicable at the point of groundwater discharge. Due to limited information regarding groundwater flow direction, the location of groundwater discharge is currently unknown.

As the site and immediate surrounding areas are not located in a recognised mineral water production area, the environmental value of potable mineral water supply is not considered applicable. As the site and depth to water are not located in an area of geothermic importance (i.e., temperatures of groundwater are unlikely to be between 30 – 70 degrees Celsius), the environmental value of geothermal properties is also not considered relevant.

For environmental values of surface water (or inland waters), the environmental values are based on the geographic region of the surface water body. The site is considered to be located within the Murray and Western Plains segment. The following environmental values for surface water are potentially relevant to this segment:

- Water dependent ecosystems and species (slightly to moderately modified);
- Agriculture and irrigation;
- Human consumption of aquatic foods;
- Industrial and commercial;
- Water-based recreation (primary, secondary contact, and aesthetic enjoyment); and
- Traditional owners cultural values.

In accordance with the ERS (2021) the environmental values of surface water do not apply to constructed waterways, which may include the dams/ponds present at the site. However, as several of the ponds/dams are known to have historically discharged directly to groundwater (evaporation pond via the Carshalton shaft and the processing plant stormwater dam via the Hansel Mundy Shaft), the potential risk to the environmental values of groundwater needs to be assessed in relation to surface water.

The relevance of environmental values of water is further discussed in **Section 9.**

3.3.3 Environmental Values – Air

The ERS (2021) also outlines environmental values of air. These include:

- Life, health, and well-being of humans;
- Life, health, and well-being of other forms of life, including the protection of ecosystems and biodiversity;
- Local amenity and aesthetic enjoyment;
- Visibility;
- The useful life and aesthetic appearance of buildings, structures, property, and materials; and
- Climate systems that are consistent with human development, the life, health and well-being of humans, and the protection of ecosystems and biodiversity.

For the purpose of the EMP (EHS Support, 2024), the environmental values of air have only been considered as they relate to potential dust generation at the site, rather than other emissions (such as carbon monoxide, nitrogen dioxide generation etc). Dust generation has only been evaluated with consideration of potential inhalation risk and the deposition of potentially contaminated dust with consideration to the environmental values of land and water (i.e., potential impacts to soils and surface water due to dust deposition).

4 Environmental Monitoring Plan

The environmental monitoring program is detailed in "*Environmental Monitoring Plan – Kangaroo Flat Mine Site, Kangaroo Flat, Victoria*", dated 17 May 2024 (EHS Support, 2024). This includes a rationale for sampling locations, analytical program, and field methods used.

Table 4-1 below provides a high-level summary of the environmental monitoring program. The field methodology adopted during the program is provided in **Appendix C**.

Table 4-1 Summary of Environmental Monitoring Program

Item	Description
Surface Water Monitoring Program	

Monitoring Locations and Number of Samples	Surface water monitoring locations are shown in **Figure 2** and **Figure 3** (appended).
	On-Site Ponds/Dams:
	• Stormwater Dam: SWD_SW01
	• Carbon-in-Leach Dam 1: CIL1_SW01
	• Carbon-in-Leach Dam 1: CIL2_SW01
	• Process Plant Stormwater Dam: PPSWD_SW01
	• Coarse Tailings Dam: CTD_SW01
	• Fine Tailings Dam: FTD_SW01
	• Fine Tailings Dam Sump: FTD_Sump (formally referred to as TSF Seepage well)
	• Evaporation Pond (EVAP):
	  ○ EVAP_SW01 - sample from sump where water from TSFs perforated pipes discharge
	  ○ EVAP_SW02 - sample from within the evaporation pond
	  ○ EVAP_SW03 – sample from sump where water is pumped and discharged to the Carshalton shaft
	On- and Off-Site Creeks:
	• Golden Gully:
	  ○ GG_SW01 – sample taken upgradient of site
	  ○ GG_SW02 – sample taken cross gradient of site
	  ○ GG_SW03 – sample taken down gradient of site
	• Unnamed Creek 1:
	  ○ UNC1_SW01 – sample taken from near where stormwater run-off from western bund occurs
	  ○ UNC1_SW02 – sample taken cross gradient of site
	  ○ UNC1_SW03 – sample taken down gradient of site
	• Unnamed Creek 2:
	  ○ UNC2_SW01 – sample taken upgradient of site
	  ○ UNC2_SW02 – sample taken if water is observed discharging from the SWD into the creek
	  ○ UNC2_SW03– sample taken down gradient of site
	Surface water samples only collected when water was present.

Frequency	Quarterly (July 2024, October 2024, January 2025, and April 2025).
Field Dates	• 1-3 July 2024 (Note: In August 2024, a sample was taken from FTD-Sump and this monitoring location was incorporated into the monitoring program). • 1 October 2024. • 29 January 2025. • 30 April - 1 May 2025.

Item		Description
Analytical Program	Primary Samples	All surface water samples are analysed for cyanide, sulfate, alkalinity, and total and dissolved metals. TRHs; PAHs; benzene, toluene, ethylbenzene, xylenes, and naphthalene (BTEXN) also analysed at EVAP_SW03 and PPSWD_SW01
	Quality Assurance / Quality Control (QA/QC)	Field Duplicate: dissolved metals and cyanide. Field Triplicate: dissolved metals and cyanide. Rinsate Blank: dissolved metals and cyanide. Field Blank: dissolved metals and cyanide.
Deviation from EMP		Additional samples from the FTD_SUMP and several additional samples at EVAP.
Groundwater Monitoring Program		
Gauging and sampling locations (6)		KFGW-1, KFGW-2A, KFGW-2B, KFGW-3, KFGW-4 and KFGW-5. Sampled when sufficient water present. CTD_SEEP01 is also sampled. Groundwater monitoring locations are shown in **Figure 4** (appended).
Frequency		Quarterly (July 2024, October 2024, January 2025, and April 2025).
Field Dates		1-2 July 2024. 1 October 2024. 29 January 2025. 30 April – 1 May 2025.
Analytical Program	Primary Samples	Dissolved metals, cyanide, TPH/TRHs, PAHs, MAHs, major anions and cations and alkalinity, and stable isotopes ^{18}O and ^{2}H (first event only).
	QA/QC	Field Duplicates: dissolved metals, cyanide, TRHs/TPHs, PAHs, MAHs. Field Triplicates: dissolved metals, cyanide, TRHs/TPHs, PAHs, MAHs. Rinsate Blanks: total metals, cyanide, TRHs/TPHs, PAHs, MAHs. Field Blank: total metals, cyanide, TRHs/TPHs, PAHs, MAHs. Trip blank: TPHs/TRHs/MAHs (volatile fractions only i.e., BTEXN and TRH C_6-C_{10}.
Deviation from EMP		Inclusion of CTD_SEEP01 into monitoring program
Depositional Dust Monitoring Program		
Monitoring Locations (5)		Boundary Dust Gauges: KFDD01, KFDD01, KFDD03 and KFDD04. Background Dust Gauge: KFDD05-BG Depositional dust monitoring locations are shown in **Figure 5** (appended).
Frequency		Monthly (June 2024 - May 2025).
Field Dates		1 June 2024, 1 July 2024, 1 August 2024, 29 August 2024, 30 September 2024, 30 October 2024, 29 November 2024, 31 December 2024, 30 January 2025, 28 February 2025, 31 March 2025, 30 April 2025, 30 May 2025.
Analytical Program		Ash content, combustible matter, total insoluble matter, soluble matter, and total matter. Soluble and insoluble metals, cyanide, and sulfate.
QA/QC		Internal Laboratory QA/QC only.
Deviation from Environmental Monitoring Plan		None.
Real-Time Dust Monitoring Program		
Monitoring Locations (2)		KFRTD-01 and KFRTD-02. Real-time dust monitoring locations are shown in **Figure 5** (appended).

Item	Description
Parameters Monitored	Total suspended particulate, PM_{10} and $PM_{2.5}$
Frequency	Monitors analyse dust concentrations approximately every second, however, the data is reported based on the average recorded over a 60 second period. Appropriate rolling averages are then calculated automatically from the data-set and reported via cloud based technology.
Field Dates	Continuous remote monitoring.
QA/QC	None applicable, apart from regular inspections, replacement of filters and annual calibration by manufacture.
Deviation from Environmental Monitoring Plan	Relocation of KFRTD-01 from original proposed location near on-site weather station to within CTD due to risk of vandalism and theft. This occurred in August 2024 following vandalism of the dust monitors battery system.

Table Notes:
Field Parameters (all locations) – pH, EC, TDS, redox potential, dissolved oxygen, turbidity, and temperature
Metals – antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, tin, vanadium, and zinc.
Cyanide – total cyanide
Sulfate – Reported as sulfate as SO4
Alkalinity – speciated (CO3, HCO3, OH-, total alkalinity as CaCO3)
Anion and Cations – sulfate, chloride, calcium, magnesium, sodium, potassium

5 Adopted Environmental Objectives

The environmental objectives (criteria) and indicators used to assess potential impacts to relevant environmental values are defined in the ERS, 2021 for each segment of the environment (i.e., surface water, groundwater, and air [dust]).

5.1 Adopted Surface Water Criteria

A summary of the criteria that was adopted during the surface water monitoring program is outlined in **Table 5-1**. Although the environmental values are not applicable within the dams/ponds on-site, analytical surface water results from the dams/ponds will be compared to the criteria below.

Table 5-1 Surface Water – Summary of Proposed Environmental Objectives (Criteria)

Environmental Values	Criteria
Water dependent ecosystems and species (slightly to moderately modified)	Australian and New Zealand Environment and Conservation Council Guidelines for Fresh and Marine Water Quality 2000 (ANZECC, 2000) / Australian and New Zealand Guidelines 2018 (ANZG, 2018) – 95% freshwater trigger values
Human consumption after appropriate treatment	National Health and Medical Research Council (NHMRC) (2008), Health and aesthetic criteria, Australian Drinking Water Guidelines (ADWG), 2011
Agriculture and irrigation	Australian and New Zealand Environment and Conservation Council (ANZECC). (2000). Irrigation criteria (Long-term trigger values). ANZECC. (2000). Stock Watering criteria.
Human consumption of aquatic foods	Australia New Zealand Food Standard Code. (2016). *Schedule 19, Maximum Levels of Contaminants and Natural Toxicants*.
Industrial and commercial	No specific guidance for industrial and commercial water use is available because industrial water requirements are varied. Given that no industrial or commercial use of surface water is known to occur, this environmental value has been assessed with consideration to the objectives of other environmental values
Water based recreation	NHMRC, Guidelines for Managing Risk in Recreational Waters (2008). NHMRC, Australian Drinking Water Guidelines, (2011) (and subsequent updates).
Traditional Owner cultural values	The ERS (2021) does not provide specific environmental quality indicators or objectives for these environmental values, as consultation with Traditional Owners is required to confirm the objectives. Initially during the program, this environmental value will be assessed using the objectives for water dependent ecosystems and species. As the project progressors and rehabilitation plans are finalised, other objectives may be adopted.

5.2 Adopted Groundwater Criteria

A summary of the criteria adopted during the groundwater monitoring program is outlined in **Table 5-2**.

Table 5-2 Groundwater – Summary of Proposed Environmental Objectives (Criteria)

Environmental Values (where relevant)	Criteria
Water Dependent ecosystems and species	Australian and New Zealand Environment and Conservation Council Guidelines for Fresh and Marine Water Quality 2000 (ANZECC, 2000) / Australian and New Zealand Guidelines 2018 (ANZG, 2018) – 95% freshwater trigger values
Potable water supply (acceptable)	NHMRC, Australian Drinking Water Guidelines (2011) (and subsequent updates). NHMRC, Guidelines for Managing Risk in Recreational Waters (2008).
Agriculture and irrigation (irrigation)	ANZECC, 2000, Irrigation criteria (Long-term trigger values) ANZG. (2024). Primary industries – irrigation guidelines (currently in draft). Note, criteria of relevant analytes in this guideline are consistent with those in ANZECC 2000.
Agriculture and irrigation (stock watering)	ANZECC, 2000, Stock Watering criteria
Industrial and commercial use	No specific guidance for industrial and commercial water use is available because industrial water requirements are varied. Given that no industrial or commercial use of groundwater water is known to occur, this environmental value has been assessed with consideration to the objectives of other environmental values
Water-based recreation (primary contact recreation)	NHMRC, Guidelines for Managing Risk in Recreational Waters (2008). NHMRC, Australian Drinking Water Guidelines (2011) (and subsequent updates).
Traditional Owner cultural values	The ERS (2021) does not provide specific environmental quality indicators or objectives for these environmental values, as consultation with Traditional Owners is required to confirm the objectives. Initially during the program, this environmental value will be assessed using the objectives for water dependent ecosystems and species. As the project progressors and rehabilitation plans are finalised, other objectives may be adopted.
Building and structures	Australian Standard AS 2159-2009 (Piling – Design and Installation).

5.3 Adopted Dust Monitoring Criteria

5.3.1 Depositional Dust Criteria

The adopted criteria for depositional dust monitoring is based on the ERS (2021), EPA Publication 1191 and EPA Publication 1961. EPA Publication 1191 (which is further adopted in EPA Publication 1961) defines a threshold criterion of up to 4 g/m^2/month (no more than 2 g/m^2/month above background) for dust (measured as total insoluble matter/solids). EPA Publication 1961 specifically states that this criterion can be used as a threshold level for above which may require further investigation and implementation of dust minimisation strategies.

EPA Publication 1961 also refers to air pollution assessment criteria (APACs) which are risk-based criteria to help emitters understand their potential risk posed by dust generating activities. Health-based APACs assess potential risk to human health, whereas environmental APACs are protective of environmental values including protection of ecosystems and agricultural uses of land. APACs have not previously been

used to assess dust as part of environmental investigations at the site as the averaging time for the APACs provided in EPA Publication 1961 for CoPC do not correspond to the same sampling time. Concentrations of metals which are reported as µg/m^2 in dust have rather been converted into a concentration presented as mg/kg (by dividing the total soluble and insoluble metal concentrations by the total solids accumulated). The concentrations have then been compared to human health and ecological investigation levels (HILs and EILs) for sensitive land uses defined in the ASC NEPM (2013).

Although this approach does have several uncertainties, for continuity and consistency with previous assessments metal concentrations (where reported) have been converted and compared to relevant HILs and EILs.

EHS Support has also used the percentage of metals in depositional dust to estimate concentrations of metals in respiratory dust (PM_{10}) based on the results of the real-time dust monitoring. The estimated concentrations have then been compared to available APACs in order to assess potential risk to human health and the environment. Where APACs were not available for a certain analyte, West Australian air quality guidelines (Department of Water and Environmental Regulation [DWER], 2019) were adopted.

5.3.2 Real-Time Dust Monitoring Criteria

Results of real-time air monitoring were compared to criteria outlined in the ERS (2021). A summary of the criteria is provided in **Table 5-3** below.

EPA Publication 1961 also includes nuisance dust criteria for PM_{10} which can be adopted during rehabilitation activities to support adaptive management of dust emissions.

Table 5-3 Real-Time Dust Monitoring Criteria

Analyte	Averaging Period	Criteria (µg/m^3)
$PM_{2.5}$ (maximum concentration)	1 Day	25
	1 Year	8
PM_{10} (maximum concentration)	1 Day	50
	1 Year	20

Table 5-4 Nuisance Dust Trigger Levels

Analyte	Averaging Period	Trigger Levels (µg/m^3)
PM_{10}	10 minutes	165
	15 minutes	150
	30 minutes	120
	1 Hour	80

6 Results – Surface Water Monitoring Program

6.1 Field Observations

A summary of the presence of water observed during each quarterly field event is provided in the table below. A copy of the photolog is provided in **Appendix A**. Where locations are listed as "dry", the relevant water body was either dry or there was insufficient water to allow for sampling.

In April 2025, the Stormwater Dam, Carbon-n-Leach Dam 1 and 2, and Evaporation Pond had significantly lower water levels than during previous monitoring events due to dryer summer months.

During all monitoring events, there was no evidence of overland flow from the on-site ponds/dams to the adjacent waterways. No water was observed in Golden Gully during quarterly monitoring events. Where water was observed in the adjacent waterways (namely unnamed creek 1 and 2 (UNC1 and UNC2), it was only present for a short period of time after a heavy rainfall.

In addition to quarterly inspections, immediately following significant rainfall events DEECA representatives inspected Golden Gully, Unnamed Creek 1 and Unnamed Creek 2 on behalf of EHS Support to assess whether flow has occurred which would trigger a mobilisation to site for sampling. During the annual monitoring period, no flow was observed to warrant sampling outside the quarterly events.

Table 6-1 Summary of Surface Water Field Observations

Pond/Dam	Location / Sample ID	July 2024	October 2024	January 2025	April 2025
On-site Ponds / Dams					
Stormwater Dam	SWD_SW01	Sampled	Sampled	Sampled	Sampled
Carbon-in Leach Dam 1	CIL1_SW01	Sampled	Sampled	Dry	Sampled
Carbon-in Leach Dam 2	CIL2_SW01	Sampled	Sampled	Sampled	Sampled
Process Plant Stormwater Dam	PPSWD_SW01	Sampled	Sampled	Sampled	Sampled
Coarse Tailings Dam	CTD_SW01	Dry	Dry	Dry	Dry
Fine Tailings Dam	FTD_SW01	Sampled	Sampled	Dry	Dry
Fine Tailings Dam Sump	FTD_SUMP	Sampled	Sampled	Sampled	Sampled
Evaporation Pond	EVAP (EVAP_SW01, EVAP_SW02, EVAP_SW03)	Sampled	Sampled	Sampled	Sampled
Off-Site Waterways					
Golden Gully	GG (GG_SW01, GG_SW02, GG_SW03)	Dry	Dry	Dry	Dry
Unnamed Creek 1	UNC1 (UNC1_SW01, UNC1_SW02, UNC1_SW03)	Dry	Sampled	Dry	Dry

Pond/Dam	Location / Sample ID	July 2024	October 2024	January 2025	April 2025
Unnamed Creek 2	UNC2 (UNC2_SW01, UNC2_SW02, UNC2_SW03)	SW01 and SW03 sampled. SW02 dry.	SW01 and SW03 sampled. SW02 dry.	Dry	Dry

6.2 Water Quality Parameters

During surface water sampling, water quality parameters are measured from the ponds/dams and waterways using a calibrated water quality meter. Water quality parameters are summarised in **Table 6-2** below. Field sheets and records are provided in **Appendix E**. It is noted that turbidity measurements were not collected in October 2024 due to an issue with the water quality meter.

Table 6-2 Summary of Water Quality Parameters – Surface Water

Pond / Dam	Sample ID	Temp (°C)	pH (SU)	EC (µS/cm)	TDS (mg/L)[1]	DO (mg/L)	Redox (mV)	Turbidity (NTU)
On-site Ponds/ Dams								
Stormwater Dam	SWD_SW01	7.9 - 19.9	3.92 - 7.04	137 - 1239	88 - 793	5.89 - 9.97	13.1 - 276.6	9.7 - 565
Carbon-in Leach Dam 1	CIL1_SW01	7 - 21.2	3 - 4.42	465 - 1433	297 - 917	6.99 - 11.46	240.6 - 342.2	50.6 - 274
Carbon-in Leach Dam 2	CIL2_SW01	8.6 - 21.7	7.13 - 8.95	202 - 899	129 - 575	8.84 - 11.49	18.1 - 158	5.0 - 3096
Process Plant Stormwater Dam	PPSWD_SW01	9.4 - 24.7	7.97 - 9.86	496 - 1342	317 - 859	10.57 - 12.55	5.9 - 148.2	6.2 - 1696
Coarse Tailings Dam	CTD_SW01	DRY						
Fine Tailings Dam	FTD_SW01	9.1 - 21.3	5.89 - 8.37	1302 - 1769	833 - 1300	9.4 - 11.82	2.5 - 310	5.8 - 6
Fine Tailings Dam Sump	FTD_SUMP	13.2 - 19.2	7.02 - 7.56	795 - 2324	509 - 1487	1.87 - 9.4	42.7 - 186.8	775.5 - 2390
Evaporation Pond	EVAP_SW01	15.4 - 19.5	6.04 - 6.92	3084 - 6496	1974 - 4157	5.06 - 6.85	122.1 - 260	-
	EVAP_SW02	8.4 - 22.5	7.53 - 8.59	3129 - 7002	2003 - 4481	0.74 - 16.97	-220.8 - 204.7	3.1 - 48
	EVAP_SW03	15 - 21.1	6.39 - 7.56	3180 - 6453	2035 - 4130	5.74 - 8.16	130.2 - 206.6	0.9 - 4836
Creeks and Waterways								
Golden Gully	GG_SW01-3	DRY						
Unnamed Creek 1	UNC1_SW01	14.3	6.28	212	136	5.94	82.8	--
	UNC1_SW02	15.1	7.15	177	113	4.99	36.4	--
	UNC1_SW03	14.8	7.85	268	172	6.8	60.1	--
	UNC2_SW01	4.5 - 17.8	5.4 - 5.85	224 - 279	144 - 179	5.74 - 9.55	139.4 - 185.2	303.7 - 304

Pond / Dam	Sample ID	Temp (°C)	pH (SU)	EC (µS/cm)	TDS (mg/L)[1]	DO (mg/L)	Redox (mV)	Turbidity (NTU)
Unnamed Creek 2	UNC2_SW02	DRY						
	UNC2_SW03	4.3 - 15.7	5.39 - 5.65	90 - 111	57 - 71	2.94 - 7.16	141.9 - 181.1	493.7 - 494

Table Notes:
1. TDS based on EC conversion (TDS = 0.64 x EC)
2. Turbidity probe during October 2024 monitoring event not functioning.
SU – standard unit
DO – dissolved oxygen
NTU – Nephelometric Turbidity Unit

6.3 Surface Water Analytical Results

Analytical surface waters results from on-site ponds/dams compared to the adopted criteria are provided in **Table 1** (appended). Analytical surface water results from on and off-site waterways compared to the adopted criteria are provided in **Table 2** (appended). Copies of National Accredited Testing Authorities (NATA) accredited analytical laboratory reports are provided in **Appendix F**.

A summary of analytes which exceeded the adopted criteria is presented in **Table 6-3** for onsite surface water bodies and **Table 6-4** for offsite surface water bodies/creeks. All other analytes were reported either below the adopted criteria or below the laboratory limit of reporting.

Table 6-3 Summary of Exceedances – Surface Water Monitoring (On-site/Ponds)

Pond/Dam	Exceedance
Stormwater Dam (SWD_SW01)	• Elevated total and dissolved **arsenic** (up to 0.047 mg/L), **cadmium** (up to 0.002 mg/L), **copper** (up to 0.017 mg/L), **manganese** (up to 2.2 mg/L), **nickel** (up to 0.13 mg/L) and **zinc** (up to 0.3 mg/L) above the adopted criteria for maintenance of aquatic ecosystem and species; • Results for **TDS** (up to 793 mg/L), **pH** (down to 3.92), **turbidity** (up to 565 NTU), **sulfate** (up to 410 mg/L), total and dissolved **arsenic** (up to 0.047 mg/L), **iron** (up to 3.1 mg/L), **manganese** (up to 2.2 mg/L) and **nickel** (up to 0.13 mg/L) outside the adopted criteria for human consumption after appropriate treatment; and • Elevated total and dissolved **cobalt** (up to 0.24 mg/L) **iron** (up to 3.1 mg/L), **manganese** (up to 2.2 mg/L) and **pH** (down to 3.92) above the adopted criteria for agriculture and irrigation (irrigation).
Carbon-in Leach Dam 1 (CIL1_SW01)	• Elevated total and dissolved **arsenic** (up to 0.02 mg/L), **cadmium** (up to 0.011 mg/L), **copper** (up to 0.78 mg/L), **nickel** (up to 0.72 g/L), and **zinc** (up to 3.1 mg/L) above the adopted criteria for maintenance of aquatic ecosystem and species; • Results for **turbidity** (up to 273.6 NTU), **TDS** (up to 917 mg/L), **pH** (down to 3), **sulfate** (up to 720 mg/L), total and dissolved **arsenic** (up to 0.2 mg/L), **iron** (up to 0.41 mg/L), **manganese** (up to 1.6 mg/L), **nickel** (up to 0.72 mg/L), **zinc** (up to 3.1 mg/L) and total **cadmium** (up to 0.011 mg/L) outside the adopted criteria for human consumption after appropriate treatment; • Elevated total and dissolved **arsenic** (up to 0.2 mg/L), **cobalt** (up to 0.32 mg/L), **copper** (up to 0.78 mg/L), **iron** (up to 0.41 mg/L), **manganese** (up to 1.6 mg/L), **nickel** (up to 0.72 mg/L), **zinc** (up to 3.1 mg/L), total **cadmium** (up to 0.011 mg/L) and **pH** (down to 3.0) above the adopted criteria for agriculture and irrigation (irrigation); • Elevated total **cadmium** (up to 0.011 mg/L) and total and dissolved **copper** (up to 0.78 mg/L) above the adopted criteria for agriculture and irrigation (stock watering); and • Elevated total and dissolved **arsenic** (up to 0.2 mg/L) and **nickel** (up to 0.72 mg/L) above the adopted criteria for water-based recreation.
Carbon-in Leach Dam 2 (CIL2_SW01)	• Elevated total and dissolved **arsenic** (up to 0.73 mg/L), **copper** (up to 0.005 mg/L), total **zinc** (up to 0.033 mg/L) and total **lead** (up to 0.009 mg/L) above the adopted criteria for maintenance of aquatic ecosystem and species; • Elevated **turbidity** (up to 3,096 NTU), **pH** (up to 8.95), total and dissolved **arsenic** (up to 0.73 mg/L) and total **iron** (up to 3.2 mg/L) above the adopted criteria for human consumption after appropriate treatment; • Elevated total and dissolved **arsenic** (up to 0.73 mg/L), total **iron** (up to 3.2 mg/L) above the adopted criteria for agriculture and irrigation (irrigation); • Elevated and total **arsenic** (up to 0.73 mg/L) above the adopted criteria for agriculture and irrigation (stock watering); and • Elevated total and dissolved **arsenic** (up to 0.73 mg/L) above the adopted criteria for water-based recreation.

Pond/Dam	Exceedance
Process Plant Stormwater Dam (PPSWD_SW01)	• Elevated total and dissolved **arsenic** (up to 2.3 mg/L), **copper** (up to 0.002 mg/L) and **zinc** (up to 0.021 mg/L) above the adopted criteria for maintenance of aquatic ecosystem and species; • Elevated **TDS** (up to 859 mg/L), **pH** (up to 9.86), **turbidity** (up to 1,695.83 NTU), **sulfate** (up to 430 mg/L), total and dissolved **arsenic** (up to 2.3 mg/L) above the adopted criteria for human consumption after appropriate treatment; • Elevated total and dissolved **arsenic** (up to 2.3 mg/L) and **molybdenum** (up to 0.018 mg/L) and **pH** (up to 9.86) above the adopted criteria for agriculture and irrigation (irrigation); • Elevated total and dissolved **arsenic** (up to 2.3 mg/L) above the adopted criteria for agriculture and irrigation (stock watering); and • Elevated total and dissolved **arsenic** (up to 2.3 mg/L) above the adopted criteria for water-based recreation.
Fine Tailings Dam (FTD_SW01)	• Elevated total and dissolved **arsenic** (up to1.9 mg/L), **copper** (up to 0.004 mg/L) and **zinc** (up to 0.014 mg/L) above the adopted criteria for maintenance of aquatic ecosystem and species; • Results for **TDS** (up to 1,487 mg/L), **pH** (down to 5.89), **turbidity** (up to 1,132 NTU), **sulfate** (up to 810 mg/L), total and dissolved **antimony** (up to 0.009 mg/L) and **arsenic** (up to 1.6 mg/L) outside the adopted criteria for human consumption after appropriate treatment; • Elevated total and dissolved **arsenic** (up to 1.6 mg/L) and **molybdenum** (up to 0.036 mg/L) and **pH** (down to 5.89) above the adopted criteria for agriculture and irrigation (irrigation); • Elevated total and dissolved **arsenic** (up to 1.6 mg/L) above the adopted criteria for agriculture and irrigation (stock watering); and • Elevated total and dissolved **arsenic** (up to 1.6 mg/L) above the adopted criteria for water-based recreation.
Fine Tailings Dam Sump (FTD_SUMP)	• Elevated total and dissolved **arsenic** (up to 1.4 mg/L), **copper** (up to 0.003 mg/L) and **zinc** (up to 0.057 mg/L) above the adopted criteria for maintenance of aquatic ecosystem and species; • Elevated **TDS** (up to 1,487 mg/L), **turbidity** (up to 2,390 NTU), **sulfate** (up to 1,000 mg/L), total and dissolved **antimony** (up to 0.012 mg/L), **arsenic** (up to 1.4 mg/L), **iron** (up to 4.8 mg/L), and **manganese** (up to 0.28 mg/L) above the adopted criteria for human consumption after appropriate treatment; • Elevated total and dissolved **arsenic** (up to 1.4 mg/L), **iron** (up to 4.8 mg/L), **manganese** (up to 0.28 mg/L) and **molybdenum** (up to 0.037 mg/L) above the adopted criteria for agriculture and irrigation (irrigation); • Elevated total and dissolved **arsenic** (up to 1.4 mg/L) above the adopted criteria for agriculture and irrigation (stock watering); and • Elevated total and dissolved **arsenic** (up to 1.4 mg/L) above the adopted criteria for water-based recreation.
Evaporation Pond (EVAP_SW01) – water within sump from TSFs	• Elevated total and dissolved **arsenic** (up to 0.098 mg/L), **cadmium** (up to 0.0004 mg/L), **copper** (up to 0.002 mg/L), **nickel** (up to 0.025 mg/L) and **zinc** (up to 0.044 mg/L) above the adopted criteria for maintenance of aquatic ecosystem and species; • Results for **TDS** (up to 4,157 mg/L), **pH** (down to 6.04), **sulfate** (up to 3,200 mg/L), total and dissolved **antimony** (up to 0.005 mg/L), **arsenic** (up to 0.098 mg/L), **nickel** (up to 0.025 mg/L) and total **molybdenum** (up to 0.06 mg/L) outside the adopted criteria for human consumption after appropriate treatment; • Elevated total and dissolved **molybdenum** (up to 0.06 mg/L) above the adopted criteria for agriculture and irrigation (irrigation); • Elevated **TDS** (up to 4,157 mg/L) and **sulfate** (up to 3,200 mg/L) above the adopted criteria for agriculture and irrigation (stock watering); and • Elevated **sulfate** (up to 3,200 mg/L) above the adopted criteria for buildings and structures.

Pond/Dam	Exceedance
Evaporation Pond (EVAP_SW02) – Surface water within pond	• Elevated total and dissolved **arsenic** (up to 0.23 mg/L), **nickel** (up to 0.014 mg/L) and total **zinc** (up to 0.025 mg/L), above the adopted criteria for maintenance of aquatic ecosystem and species; • Elevated **TDS** (up to 4,481 mg/L), **pH** (up to 8.59), **sulfate** (up to 3,700 mg/L), total and dissolved **arsenic** (up to 0.23 mg/L), **manganese** (up to 0.25 mg/L), and total **iron** (up to 0.39 mg/L) above the adopted criteria for human consumption after appropriate treatment; • Elevated total and dissolved **arsenic** (up to 0.23 mg/L), **manganese** (up to 0.25 mg/L), **molybdenum** (up to 0.043 mg/L, and total **iron** (up to 0.39 mg/L) above the adopted criteria for agriculture and irrigation (irrigation); • Elevated **TDS** (up to 4,481 mg/L) and **sulfate** (up to 3,700 mg/L) above the adopted criteria for agriculture and irrigation (stock watering); • Elevated and total and dissolved **arsenic** (up to 0.23 mg/L) above the adopted criteria for water-based recreation; and • Elevated **sulfate** (up to 3,700 mg/L) above the adopted criteria for buildings and structures.
Evaporation Pond (EVAP_SW03) – Water discharged to the Carshalton shaft	• Elevated total and dissolved **arsenic** (up to 0.22 mg/L), **cadmium** (up to 0.0004 mg/L), copper (up to 0.002 mg/L), **nickel** (up to 0.024 mg/L) and **zinc** (up to 0.12 mg/L), above the adopted criteria for maintenance of aquatic ecosystem and species; • Results for **TDS** (up to 4,130 mg/L), **pH** (down to 6.39), **turbidity** (up to 4,836 mg/L), **sulfate** (up to 3,200 mg/L), total and dissolved **antimony** (up to 0.006 mg/L), **arsenic** (up to 0.23 mg/L), **nickel** (up to 0.24 mg/L), and total **molybdenum** (up to 0.058 mg/L) outside the adopted criteria for human consumption after appropriate treatment; • Elevated total and dissolved **arsenic** (up to 0.22 mg/L) and **molybdenum** (up to 0.058 mg/L), above the adopted criteria for agriculture and irrigation (irrigation); • Elevated **TDS** (up to 4,130 mg/L) and **sulfate** (up to 3,200 mg/L) above the adopted criteria for agriculture and irrigation (stock watering); • Elevated and total and dissolved **arsenic** (up to 0.22 mg/L) above the adopted criteria for water-based recreation; and • Elevated **sulfate** (up to 3,200 mg/L) above the adopted criteria for buildings and structures.

Table 6-4 Summary of Exceedances – Surface Water Monitoring Locations (Off-Site/Creeks)

Location	Exceedance
Unnamed Creek 1 (UNC1_SW01)	• Elevated total and dissolved **copper** (up to 0.008 mg/L), total **lead** (0.005 mg/L), and total and dissolved **zinc** (0.035 mg/L) above the adopted criteria for maintenance of aquatic ecosystem and species; • Results for **pH** (6.28), total **arsenic** (0.014 mg/L), and total and dissolved **iron** (up to 11 mg/L) outside the adopted criteria for human consumption after appropriate treatment; and • Elevated total and dissolved **iron** (up to 11 mg/L) above the adopted criteria for agriculture and irrigation (irrigation).
Unnamed Creek 1 (UNC1_SW02)	• Elevated total and dissolved **copper** (up to 0.019 mg/L), total **lead** (0.015 mg/L), total **nickel** (0.028 mg/L), and total **zinc** (0.058 mg/L) above the adopted criteria for maintenance of aquatic ecosystem and species; • Results for total **arsenic** (0.053 mg/L) and total and dissolved **iron** (up to 27 mg/L), total **lead** (0.015 mg/L) and total **nickel** (0.058 mg/L) outside the adopted criteria for human consumption after appropriate treatment; and • Elevated total and dissolved **iron** (up to 27 mg/L) above the adopted criteria for agriculture and irrigation (irrigation).
Unnamed Creek 1 (UNC1) - (UNC1_SW03)	• Elevated total and dissolved **copper** (up to 0.01 mg/L), total **lead** (0.004 mg/L) and total **zinc** (0.03 mg/L) above the adopted criteria for maintenance of aquatic ecosystem and species; • Elevated total and dissolved **arsenic** (up to 0.047 mg/L) and total **iron** (4.2 mg/L) above the adopted criteria for human consumption after appropriate treatment; and • Elevated total and dissolved **iron** (up to 4.2 mg/L) above the adopted criteria for agriculture and irrigation (irrigation).
Unnamed Creek 2 (UNC2_SW01)	• Elevated total and dissolved **copper** (up to 0.01 mg/L), total **lead** (up to 0.006 mg/L) and total and dissolved **zinc** (up to 0.034 mg/L) above the adopted criteria for maintenance of aquatic ecosystem and species; • Results for **pH** (down to 5.4), **turbidity** (up to 304 NTU), total and dissolved **arsenic** (up to 0.013 mg/L), **iron** (up to 3.8 mg/L), and total **lead** (up to 0.12 mg/L) outside the adopted criteria for human consumption after appropriate treatment; and • Elevated total and dissolved **iron** (up to 3.8 mg/L) above the adopted criteria for agriculture and irrigation (irrigation).
Unnamed Creek 2 (UNC2_SW03)	• Elevated total and dissolved **copper** (up to 0.008 mg/L), total **lead** (up to 0.004 mg/L) and total and dissolved **zinc** (up to 0.025 mg/L) above the adopted criteria for maintenance of aquatic ecosystem and species; • Results for **pH** (down to 5.39), **turbidity** (up to 494 NTU), dissolved arsenic (up to 0.011 mg/L), total and dissolved **iron** (up to 3.3 mg/L) and **manganese** (up to 0.026 mg/L) outside the adopted criteria for human consumption after appropriate treatment; and • Elevated total and dissolved **iron** (up to 3.3 mg/L) and total **manganese** (up to 0.26 mg/L) above the adopted criteria for agriculture and irrigation (irrigation).

6.4 Discussion

6.4.1 Salinity

Time series plots for TDS in surface water over the annual monitoring period are shown in **Chart 6-1**. TDS in on-site ponds/ dams varied. In general, TDS in the Stormwater Dam, Carbon-in-Leach Dams 1 and 2 (CIL1 and CIL2) and the Processing Plant Stormwater Dam (PPSWD) were generally low and ranged from 87 mg/L in the Stormwater Dam to 858 mg/L in the Processing Plant Stormwater Dam (PPSWD). The TDS reported in these dams is inferred to be representative of rainfall and/or stormwater run-off.

In the Fine Tailings Dam (FTD) and the Fine Tailings Dam Sump (FTD_SUMP), salinity is slightly higher and ranged from 508 mg/L to 1487 mg/L. Water accumulated in the footprint of the Fines Tailings Dam is likely representative of accumulated rainfall, however, water within The Fine Tailings Sump (FTD_SUMP) is likely representative of a combination of rainfall and leachate (and historical bleed water) from the tailings within both the Coarse Tailings Dam (CTD) and Fine Tailings Dam (FTD) which has migrated to the sump. This is likely resulting in the higher TDS observed in the sump.

The highest TDS was recorded at the Evaporation Pond (EVAP) located along the northern site boundary. TDS in this pond across the three different sampling locations ranged between 2,000 mg/L to 3,700 mg/L. Water in this pond is likely subject to fluctuating rates of evaporation and inflow from both rainfall and water from the TSFs via the subsurface perforated pipes.

Although no formal water level readings are collected from the ponds/dams on-site, field observations indicate that over the dryer and warmer periods between November 2024 and April 2025, water levels in all on-site ponds/dams reduced significantly, likely due to a combination of increased evaporation rates and decreased rainfall. The reduction in pond levels corresponded to an increase in TDS in pond water during the October and April 2025 monitoring events.

Monitoring of adjacent creeks when water was present reported low TDS concentrations between 71 mg/L – 172 mg/L, indicative of rainfall.

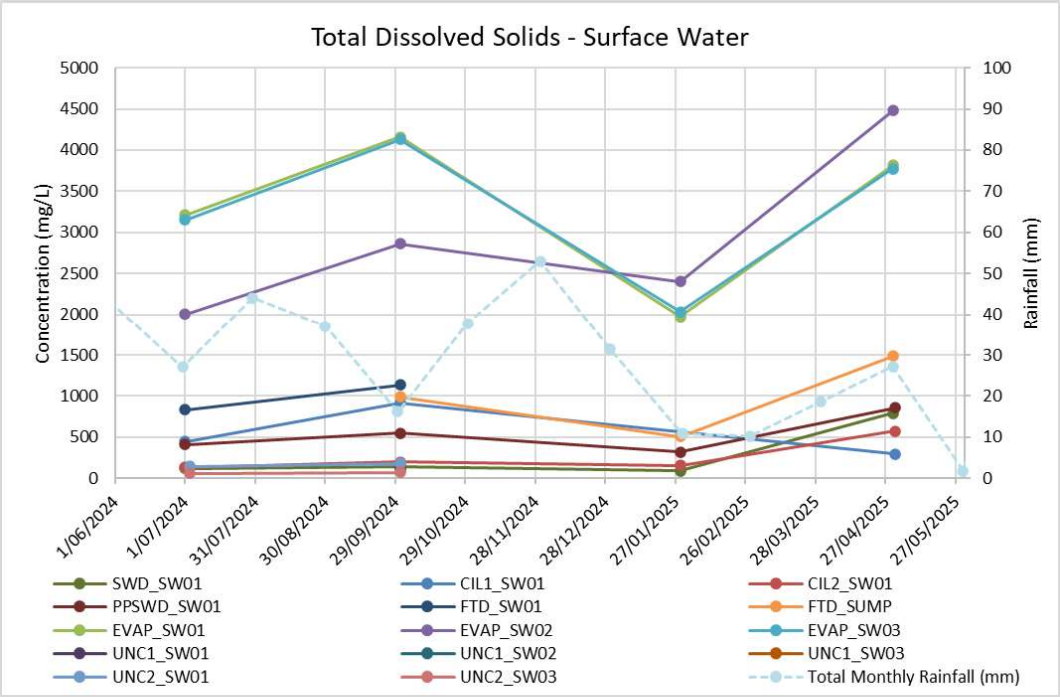


Chart 6-1 TDS and Monthly Rainfall – Surface Water (Annual Monitoring Period)

6.4.2 pH

pH trends are shown in **Chart 6-2**. pH in the majority of the on-site ponds/dams is neutral to slightly alkaline with pH ranging from 5.89 in the fine tailings dam to 9.86 in the Processing Plant Stormwater Dam.

The exception to this is the pH in Carbon-in-Leach Dam 1 (CIL1) which was indicative of acidic waters and ranged between 3.0 – 4.42. The water level in this dam is typically low as it is transferred to the Processing Plant Stormwater Dam (PPSWD). The low pH in this dam may be related to a number of sources. Firstly, although the carbon-in-leach process is alkaline to minimise potential generation of hydrogen cyanide gas, acid was typically used to wash the activated carbon for re-use to remove impurities which would prevent effective absorption of gold cyanide complexes. Therefore, some acidic tailings may have historically been transferred to the Carbon-in-Leach Dam 1 (CIL1). Secondly, although previous investigations at the site have not identified significant potential for acid mine generation, iron sulfides in the sediment of the Carbon-in-Leach Dam 1 (CIL1) may be oxidised leading to some acid generation, particularly during periods when water levels in this dam are low. Carbon-in-Leach Dam 2 (CIL2) is generally alkaline, however, more water is generally stored in this dam.

A low pH of 3.92 was also reported in April 2025 in the Stormwater Dam (SWD) located in the southern portion of the site, likely in response to low water levels and a possible oxidation of iron sulfide within the sediment and surrounding natural rock, although this hasn't been confirmed.

Monitoring of adjacent creeks when water was present indicates pH was neutral to slightly acidic, ranging between 5.39 to 7.85. The pH did not change significantly between upgradient sampling locations and down gradient locations.

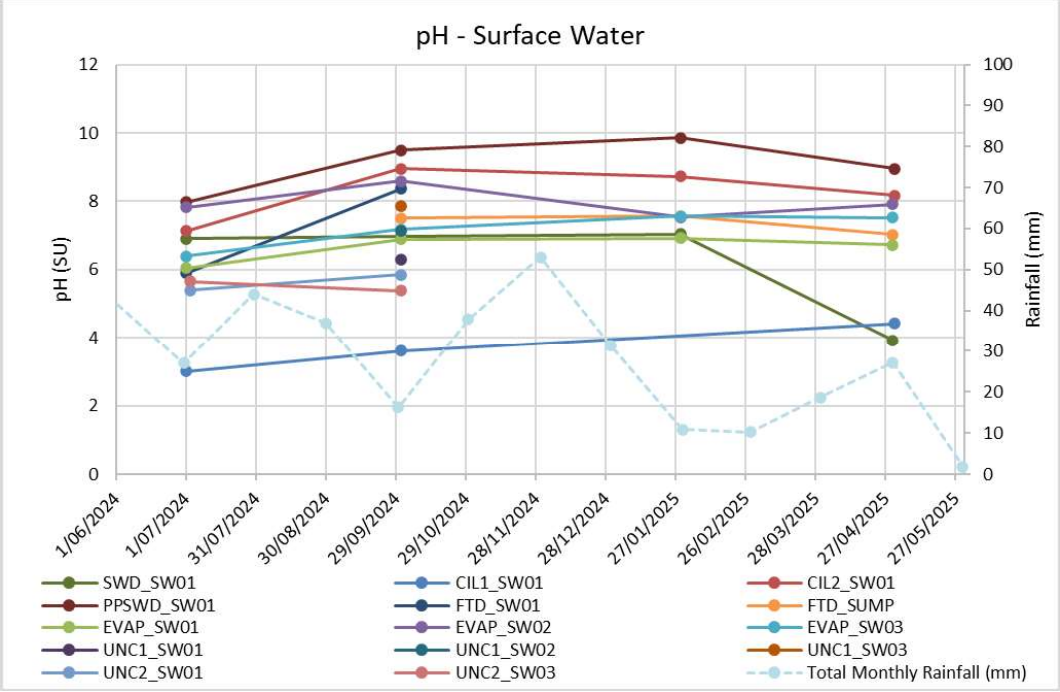


Chart 6-2 pH and Monthly Rainfall – Surface Water

6.4.3 Cyanide

Cyanide was only detected during the April 2025 monitoring event in the Evaporation Pond (EVAP) at the three different sampling locations. Cyanide ranged between 0.005 – 0.007 mg/L and was below the adopted criteria for the protection of environmental values of water. During all other monitoring events, cyanide was reported below the laboratory limit of reporting.

6.4.4 Sulfate

Sulfate is elevated in the Fine Tailings Dam (FTD), Fine Tailings Dam Sump (FTD_SUMP), and the Evaporation Pond (EVAP). Sulfate concentrations in these water bodies have generally been stable during the annual monitoring period, with some fluctuations observed. In the Fine Tailings Dam (FTD) and the Fine Tailings Dam Sump (FTD_SUMP), sulfate concentrations ranged from 580 – 1,000 mg/L during the annual monitoring period, whilst sulfate concentrations ranged from 2,000 - 3,700 mg/L in the Evaporation Pond (EVAP). Sulfate is likely elevated in these features due to dissolution of minerals and/or oxidation of iron sulfides as rainwater percolates through the tailings forming leachate.

Sulfate in the adjacent creeks was generally low and likely due to interaction between rainwater and soils/sediments along its flow path.

6.4.5 Hydrocarbons

TRHs, PAHs, and BTEXN were analysed at EVAP_SW03 and PPSWD during select monitoring events during the annual monitoring period. All results were reported below the laboratory limit of detection.

6.4.6 Arsenic

A time series plot for dissolved arsenic in surface water is shown in **Chart 6-3**. Analytical results indicate that arsenic predominantly exists as dissolved arsenic in on-site ponds/dams, with little to no difference between total and dissolved arsenic concentrations.

Dissolved arsenic concentrations were highest in the Processing Plant Stormwater Dam (PPSWD) and ranged between 1.2 to 2.3 mg/L. In the Fine Tailings Dam (FTD) and Fine Tailings Dam Sump (FTD_SUMP) concentrations ranged between 0.52 – 1.6 mg/L. In the Evaporation Pond concentrations of dissolved arsenic ranged from 0.052 mg/L within the pond itself (EVAP_SW02) up to 0.21 mg/L in the sump that discharges water to the Carshalton Shaft (EVAP_SW03).

In the Carbon-in-Leach Cams (CIL1 and CIL2), dissolved arsenic ranged from 0.09 mg/L in CIL1 to 0.48 mg/L in CIL2. Of note, during the January and April 2025 monitoring events the total arsenic concentration in CIL2 was approximately double the dissolved phase concentrations, possibly due to increase colloidal matter in the dam as inferred based on an increase in turbidity during these monitoring events.

The Stormwater Dam (SWD) in the southern portion of the site reported the lowest dissolved phase arsenic concentrations, and ranged between 0.005 – 0.022 mg/L.

Arsenic in adjacent creeks was generally present in colloidal matter rather than in dissolved phase (as indicated by the different in concentration between total arsenic and dissolved arsenic). Arsenic is known to be elevated in soils and groundwater across the Bendigo region, and the presence of arsenic in the adjacent creeks following rainfall is likely mobilisation of natural sediments along its flow path. Of note, concentrations of arsenic were within the same order of magnitude in sample locations located up gradient, cross-gradient and down gradient of the site.

Arsenic mobility is significantly influenced by pH and redox conditions. In general, inorganic arsenic species (referred to as arsenate [As(V)] and arsenite [As(III)]) are the dominant species in water. Under oxidizing and aerated conditions, the predominant form of arsenic in water and soils is arsenate. Under reducing (typically <100 mV) and waterlogged conditions, arsenite is the predominant species.

Arsenic sorption and desorption to underlying clays/soils is controlled by pH, among other things. With increasing pH, arsenite tends to become the more mobile species, however, mobility of both arsenate and

arsenite increases with increasing pH due to desorption of arsenic from surfaces of clays (iron oxyhydroxides). Mobility of arsenic is also dependent on the presence of other compounds and minerals that compete for mineral sorption sites, including organic matter, phosphate, and silicate.

Based on a review of the pH and dissolved phase arsenic concentrations, there is some correlation between increase dissolved arsenic concentrations in ponds/dams with slightly alkaline conditions. For example, the highest pH was reported at the Processing Plant Stormwater Dam (PPSWD) where the highest dissolved arsenic concentrations were reported. Conversely, at ponds/dams were the pH was neutral or slightly acidic, dissolved phase arsenic concentrations were generally less.

Overall, the source of arsenic across the various on-site ponds/dams is likely associated with historical mining activities at the site which has resulted in oxidation and mobilisation of arsenic compounds naturally occurring within the source rock, combined with interactions between surface water and underlying clays, resulting in desorption of arsenic into the ponds/dams.

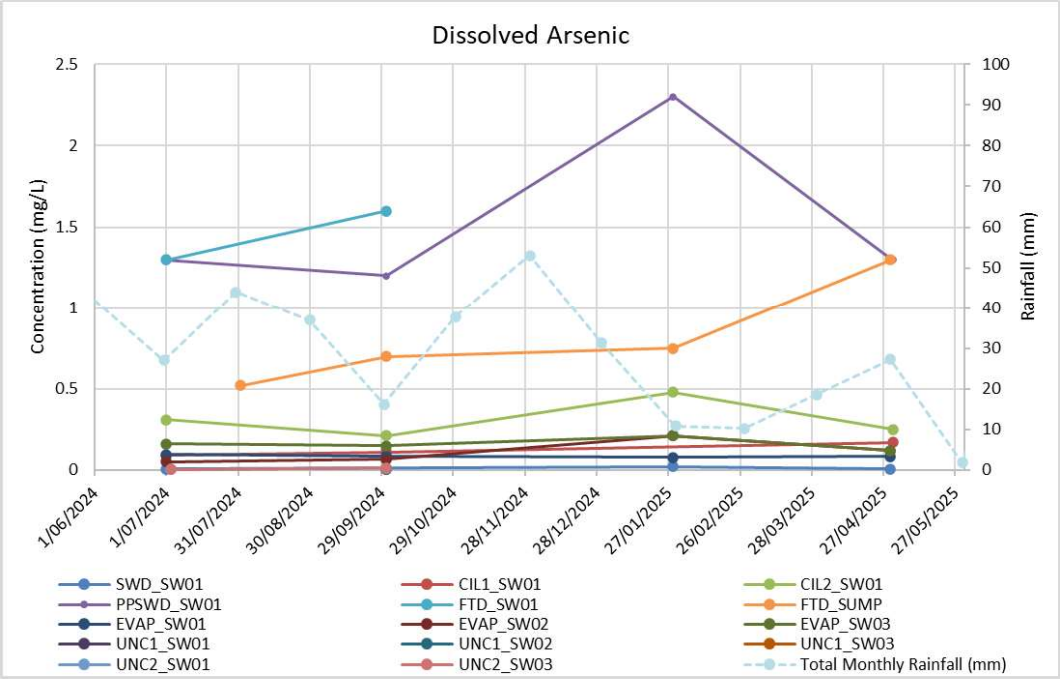


Chart 6-3 Dissolved Arsenic and Monthly Rainfall – Surface Water

6.4.7 Other Metals

In addition to elevated arsenic, elevated concentrations of antimony, cadmium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, and zinc exceeded the adopted criteria for one or more environmental values of water.

These metals are all naturally occurring, however, historical mining activities have likely resulted in mobilisation and potential concentration of these analytes, either though oxidation of minerals as the source rock is brought to the surface, or through geochemical changes during processing of the source rock and concentration within the by-products (i.e., tailings).

The fluctuations in metal concentrations observed in ponds/dams on-site during the annual monitoring period is likely associated with geochemical functions and interactions between the surface water body and underlying sediments and clay. In general, in ponds/dams where neutral to slightly alkaline conditions are observed metal concentrations (excluding arsenic and molybdenum) are generally lower.

In the Stormwater Dam (SWD) in the southern portion of the site, elevated concentrations of copper, iron and zinc were reported during the July 2024, October 2024, and January 2025 monitoring events. The concentrations were generally associated with colloidal matter within the stormwater dam, with only minor concentrations of dissolved iron been reported during these events. During the April 2025 monitoring event, dissolved concentrations of these analytes increased, and in addition, elevated dissolved concentrations of cadmium, manganese and nickel were also reported. This corresponded to a reduction in water level and pH following the dryer warmer months. The increase in concentrations of metals is likely associated with desorption of these metals from clay complexes under acidic conditions and mobilisation into water as dissolved concentrations.

This trend is also evident in other ponds/dams across the site including the Carbon-in-Leach Dams (CIL1 and CIL2), Processing Plant Stormwater Dam (PPPSWD), Fine Tailings Dam (FTD) and Fine Tailings Dam Sump (FTD_SUMP) and the Evaporation Pond (EVAP). For example, in the Carbon-in-Leach Dam 1 (CIL1) which has a pH of between 3 – 4.42, elevated dissolved concentrations of cadmium, cobalt, copper, iron, manganese, nickel and zinc are consistently present. Whereas in the Carbon-in-Leach Dam 2 (CIL2) which has an alkaline pH, elevated concentrations of copper, iron, lead, and zinc are only present within colloidal matter rather than dissolved phase.

In Unnamed Creek 1 and 2 (UNC1 and UNC2), elevated concentrations of copper, iron, lead, manganese, nickel, and zinc were generally reported following rainfall resulting in flow in these waterways. The elevated metals were predominantly present in colloidal matter (likely due to an increase in suspended solids within the stormwater) rather than dissolved phase. Similar to arsenic, concentrations of metals were within the same order of magnitude in sample locations located up gradient, cross gradient, and down gradient of the site.

7 Results – Groundwater Monitoring Program

7.1 Downhole Camera Survey

Prior to the first quarterly monitoring event, EHS Support undertook a downhole camera survey of the majority of the available groundwater monitoring well network.

The objective of the downhole camera survey was to assess well conditions and well construction details. Photographs from the down-hole camera survey are provided in **Appendix A**. Majority of wells were in good condition and considered functional for the groundwater monitoring program. The following key issues were identified which have been taken into account when interpreting groundwater monitoring data:

- KFGW-1: Evidence of biofouling and tree roots (minor). Some silt and tree root build up at base of well. No actions required.
- KFGW-2A: Evidence of biofouling (minor). Build up of silt and minor biomatter at bottom of well. No actions required.
- KFGW-2B: Evidence of biofouling and tree roots (moderate - Significant). Build up of silt and bio at bottom of well. Tree roots removed during monitoring where present and interfering with sampling.
- KFGW-3: Evidence of biofouling and some tree roots (minor). No actions required.
- KFGW-4: Well blocked due to tree roots. Minor roots removed during July 2024 monitoring.
- KFGW-5: Evidence of biofouling and some tree roots (minor). Well blocked. Minor roots removed during July 2024 monitoring event.

A downhole camera survey of CTD_SEEP01 could not be conducted as the headworks and PVC pipe is significantly damaged.

7.2 Groundwater Levels and Flow Direction

A summary of the groundwater gauging events is presented in **Table 7-1.** Details of groundwater gauging events and historical water levels are provided in **Table 3** (appended). Field Sheets are provided in **Appendix E**.

During all groundwater monitoring events, groundwater was only present in KFGW-2B (which screens the Shepparton Formation) and KFGW-2A (which screens the Castlemaine Group). Groundwater contour maps could not be developed for the site due to the limited spatial distribution of groundwater wells and limited groundwater present in the available groundwater monitoring well network.

Groundwater elevations were lower in April 2025 and higher in October 2024, indicating response to rainfall recharge as there is decreased rainfall preceding gauging in April 2025. In addition, the reduction in groundwater level in KFGW-2B corresponds to a reduction in the water level observed in the evaporation pond (EVAP) which is located directly adjacent to this monitoring well.

CTD_SEEP01 which is located in the coarse tailings dam is also gauged as part of the quarterly monitoring events. The depth to water in this seepage bore ranged between approximately 12.1 – 12.8 during the annual reporting period. Although no construction details for the seepage bore are available, this corresponds to a water column at the base of the coarse tailings dam of up to 3.4 m. Water levels in CTD_SEEP01 decreased between July and April, indicating reduced infiltration to the CTD. It is noted that the casing of CTD_SEEP01 is compromised, and a large amount of silt is collected at the base.

Table 7-1 Summary of Groundwater Gauging Events

Aquifer	Standing Water Level (SWL) (mbTOC)	Groundwater Elevation (mAHD)
Shepparton Formation (KFGW-2B)	3.314 (Oct 2024) – 4.878 (Apr 2025)	258.158 (Oct 2024) - 259.722 (Apr 2025)
Castlemaine Group (KFGW-2A)	8.031 (Oct 2024) – 9.933 (Apr 2025)	253.037 (Oct 2024) - 254.939 (Apr 2025)
CTD_SEEP01	12.147 (Jul 2024) – 12.807 (Apr 2025)	No reference elevation

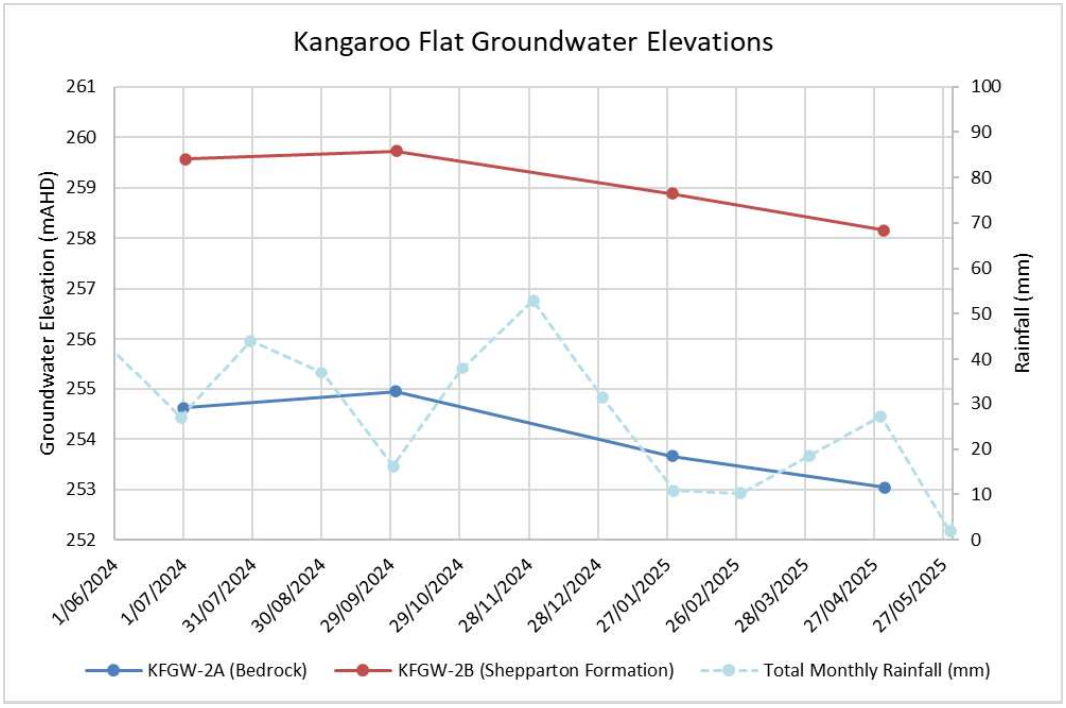


Chart 7-1 KFGW-2A and KFGW-2B Groundwater Elevations

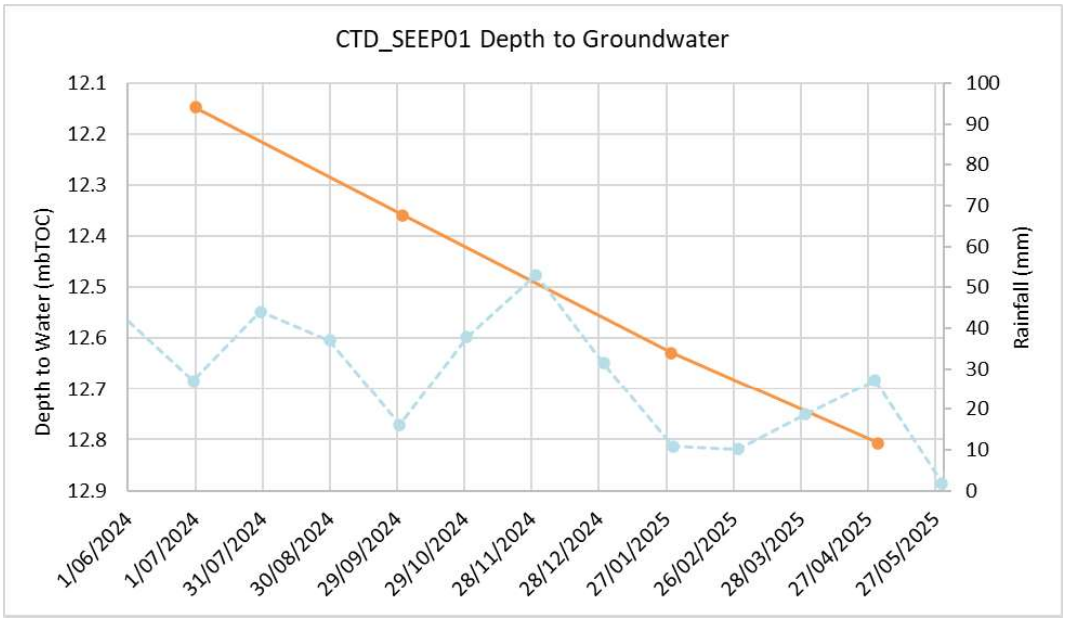


Chart 7-2 CTD_SEEP01 Depth to Water

7.3 In-situ Measured Field Parameters

Prior to groundwater sampling, each groundwater monitoring well was purged using low flow sampling methods. For CTD_SEPP01, due to the damage standpipe this bore was sampled using waterra tubing and a foot valve. Water quality parameters were measured using a calibrated water quality meter. A summary of the stabilised water quality parameters and field observations are outlined in **Table 7-2**. Groundwater purge field sheets are provided in **Appendix E**.

Table 7-2 Summary of Water Quality Parameters – Groundwater

Aquifer	GME	Temp (°C)	pH	EC (µS/cm)	DO (mg/L)	Redox (mV)	Turbidity (NTU)	TDS (mg/L)[1]
Shepparton Formation (KFGW-2B)	July	14.7	7.25	2854	5.71	-169.8	157.52	1826.56
	October	18.1	6.95	4275	2.28	-63.7	--	2736
	January	17.3	7.2	2088	3.63	-13.7	740.02	1336.32
	April	18.7	7.22	4842	4.9	132	1307	3098.88
Bedrock (KFGW-2A)	July	12.4	4.9	2707	0.85	146	32.42	1732.48
	October	16.1	6.11	4084	0.23	-121.6	--	2614
	January	24.3	6.16	2235	0.12	22.9	0.98	1430.4
	April	16.2	6.12	4144	0.25	9.6	-1.08	2652.16
CTD (CTD_SEEP01)	July	16.5	5.24	3931	0.1	13.5	8.57	2515.84
	October	14.1	5.7	5411	0.02	-7.1	--	3463
	January	20.5	6.16	3345	0	-15.3	9.89	2140.8
	April	18.8	6.46	7238	1.62	-37.3	914.78	4632.32

Table Notes:
[1] TDS based on conversion of EC (TDS = EC x 0.64)

7.4 Groundwater Analytical Results

Analytical groundwater results compared to the adopted criteria are provided in **Table 4** (appended). NATA-accredited analytical laboratory reports are provided in **Appendix F**.

A summary of the analytes which exceeded the adopted criteria are provided in **Table 7-3**. Note that all results for metals from KFGW-2A and KFGW-2B are the dissolved fraction.

Table 7-3 Summary of Exceedances - Groundwater

Aquifer	Exceedances
Shepparton/Alluvium Formation (KFGW-2B)	• Elevated **arsenic** (up to 0.3 mg/L), **nickel** (up to 0.034 mg/L), and **zinc** (up to 0.04 mg/L) above the adopted criteria for maintenance of aquatic ecosystem and species. • Results for **pH** (down to 5.24), **TDS** (up to 4,632 mg/L), **chloride** (up to 950 mg/L), **sodium** (up to 800 mg/L), **sulfate** (up to 3,400 mg/L), **arsenic** (up to 0.3 mg/L), **iron** (up to 17 mg/L), **manganese** (up to 1.2 mg/L) and **nickel** (up to 0.034 mg/L) outside the adopted criteria for potable water supply (desirable). • Elevated **arsenic** (up to 0.3 mg/L), **iron** (up to 17 mg/L) and **manganese** (up to 1.2 mg/L) and **nickel** (up to 0.034 mg/L) and **pH** (down to 5.24) above the adopted criteria for agriculture and irrigation (irrigation). • Elevated **TDS** (up to 4,632 mg/L) and **sulfate** (up to 3,400 mg/L) above the adopted criteria for agriculture and irrigation (stock water); • Elevated **arsenic** (up to 0.3 mg/L) above the adopted criteria and water-based recreation; and • Elevated concentrations of **sulfate** (up to 3,400 mg/L) above the adopted criteria for buildings and structures.
Castlemaine Group (KFGW-2A)	• Elevated **arsenic** (up to 0.025 mg/L), **copper** (up to 0.007 mg/L), **nickel** (up to 0.12 mg/L) and **zinc** (up to 0.12 mg/L) above the adopted criteria for maintenance of aquatic ecosystem and species. • Results for **pH** (down to 4.9), **TDS** (up to 2,652 mg/L), **turbidity** (up to 32.42 NTU), **chloride** (up to 740 mg/L), **sodium** (up to 430 mg/L), **sulfate** (up to 1,300 mg/L), **arsenic** (up to 0.025 mg/L), **iron** (up to 3.6 mg/L), **manganese** (up to 7.3 mg/L) and **nickel** (up to 0.12 mg/L) outside the adopted criteria for potable water supply (desirable). • Elevated **iron** (up to 3.6 mg/L) and **manganese** (up to 0.73 mg/L) and **pH** (down to 4.9) above the adopted criteria for agriculture and irrigation (irrigation). • Elevated **sulfate** (up to 1,300 mg/L) above the adopted criteria for agriculture and irrigation (stock water). • Elevated concentrations of **sulfate** (up to 1,300 mg/L) above the adopted criteria for buildings and structures.
TSF Leachate (CTD_SEEP01)	• Elevated total and dissolved **arsenic** (up to 2.6 mg/L), total **cadmium** (up to 0.0006 mg/L), **copper** (up to 0.021 mg/L), **lead** (up to 0.2 mg/L), total and dissolved **nickel** (up to 0.27 mg/L) and total and dissolved **zinc** (up to 0.21 mg/L) above the adopted criteria for maintenance of aquatic ecosystem and species. • Elevated **TDS** (up to 3,099 mg/L), **turbidity** (up to 1,307 NTU), **sodium** (350 mg/L), **sulfate** (up to 3,000 mg/L), total **antimony** (up to 0.015 mg/l), total and dissolved **arsenic** (up to 2.6 mg/L), **iron** (up to 14 mg/L), total **lead** (up to 0.2 mg/L), total and dissolved **manganese** (up to 0.30 mg/L), **molybdenum** (up to 0.22 mg/L) and **nickel** (up to 0.27 mg/L) above the adopted criteria for potable water supply (desirable). • Elevated total and dissolved **arsenic** (up to 2.6 mg/L), total **cobalt** (up to 0.063 mg/L), total and dissolved **iron** (up to 14 mg/L), **manganese** (up to 0.3 mg/L), **molybdenum** (up to 0.22 mg/L) and total **nickel** (up to 0.27 mg/L) above the adopted criteria for agriculture and irrigation (irrigation). • Elevated **TDS** (up to 3,099 mg/L) and **sulfate** (up to 3,000 mg/L), total and dissolved **arsenic** (up to 2.6 mg/L), total **lead** (up to 0.2 mg/L) and total **molybdenum** (up to 0.22 mg/L) above the adopted criteria for agriculture and irrigation (stock water). • Elevated total and dissolved **arsenic** (up to 2.6 mg/L), total **lead** (up to 0.2 mg/L) and **nickel** (up to 0.27 mg/L) above the adopted criteria and water-based recreation; and • Elevated concentrations of **sulfate** (up to 3,000 mg/L) above the adopted criteria for buildings and structures.

7.5 Discussion

7.5.1 Groundwater Flow and Interactions

Due to the limited groundwater monitoring well network available at the site, only limited information regarding groundwater flow and interactions can be inferred based on the groundwater monitoring program.

KFGW-2B has a screen interval of between 2-5 m bgl, and is inferred to screen the Shepparton Formation (or shallow alluvium formation associated with Golden Gully). The screen intervals is likely shallower than the base of the evaporation pond (EVAP) which is located approximately 5 m from KFGW-2B, and there appears to be a correlation between depth to groundwater in this bore and the total volume of water in the evaporation pond (EVAP). This suggest that there is a degree of hydraulic connection between the evaporation pond and KFGW-2B. It is possible that the presence of groundwater in KFGW-2B is representative of an artificial perched shallow aquifer associated with seepage from the evaporation pond, rather than a naturally occurring alluvium aquifer. The extent of this perched shallow aquifer has not been determined.

Groundwater elevation in KFGW-2A which is inferred to screen the deeper Castlemaine Group aquifer is approximately 5 mAHD deeper than KFGW-2B, suggesting there is a degree of hydraulic separation between the shallow perched aquifer at KFGW-2B and the underlying natural aquifer within the Castlemaine Group. Depth to groundwater in KFGW-2A ranged between approximately 8 – 9 m bgl, which based on the surface elevation in this portion of the site corresponds to the expected depth to groundwater within the Castlemaine Group.

Groundwater conditions in the remaining areas of the site are not able to be assessed based on the current monitoring well network.

7.5.2 ^{18}O and ^{2}H Isotope Analysis

Stable isotope analysis for oxygen-18 (^{18}O) deuterium (^{2}H) was undertaken at KFGW-2A and KFGW-2B as part of the July 2024 monitoring event.

Isotopic signatures of groundwater can be used to understand the source of groundwater and potential influences evaporation may have. As evaporation impacts the isotopic signature of water, by comparing isotopic ratios in groundwater monitoring wells with the global meteoric water line (GMWL) (which represents the global average relationship between ^{18}O and ^{2}H isotopes of rainfall), groundwater wells potentially impacted by seepage of evaporation water from the ponds can be identified.

A comparison of the isotopic signature in individual groundwater monitoring wells compared to the GMWL is provided in **Chart 7-3**. Data suggests that seepage from the evaporation pond (EVAP) may have impacted groundwater in KFGW-2B as the isotope signature is further away from the GMWL.

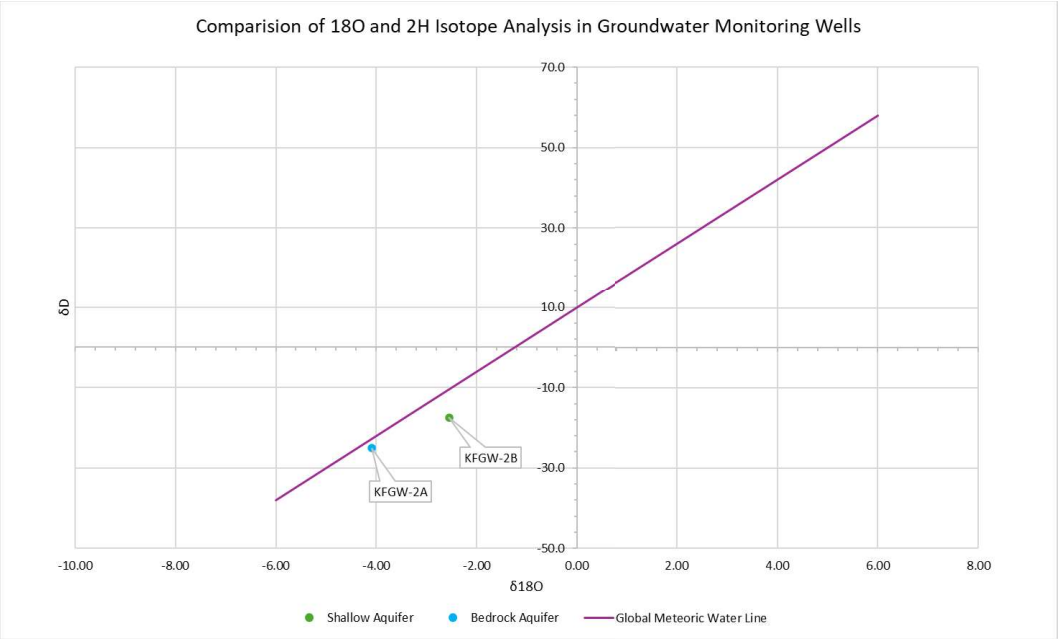


Chart 7-3 Comparison of ^{18}O and ^{2}H Isotope Analysis in Groundwater Monitoring Wells

7.5.3 Major Cations and Anions

Major cation and anion analysis provides additional information regarding the groundwater composition and characteristics at the site. A trilinear Piper diagram has been prepared based on results from the July 2024 groundwater monitoring event (**Chart 7-4**).

Based on major ion analysis, groundwater within KFGW-2B appears to be calcium chloride type while KFGW-2A is mixed type, with a higher abundance of magnesium and slightly lower sulfate. Water at CTD_SEEP01 has substantially different ion chemistry to groundwater at the site, with elevated sulfate and sodium and decreased chloride.

The elevated sulfate concentrations recorded in the evaporation pond (EVAP) adjacent to KFGW-2B and isotope analysis above support the theory that groundwater within KFGW-2B is likely impacted by seepage from the evaporation pond.

Groundwater from each location is reasonably differentiated based on ion chemistry, indicating that different sources of water exists.

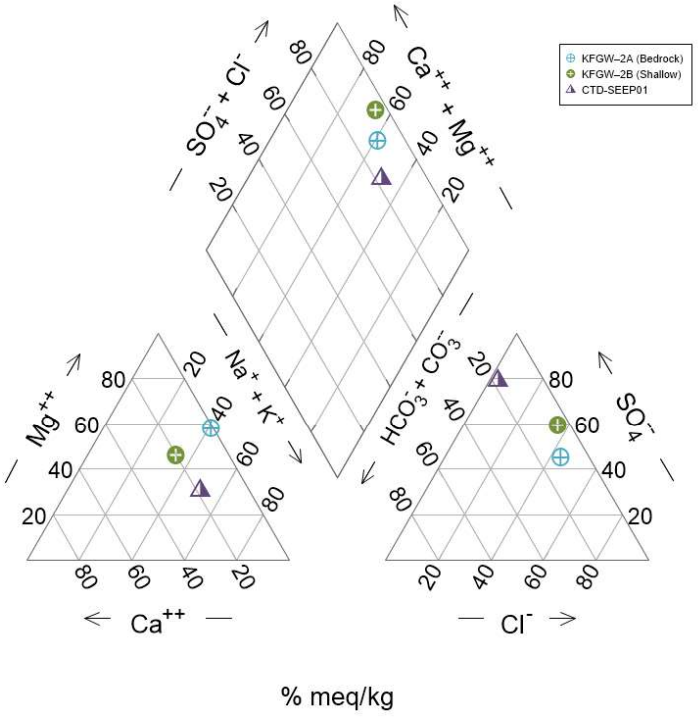


Chart 7-4 Piper Diagram for July 2024

7.5.4 Salinity

Time series plots for TDS in groundwater monitoring wells are shown in **Chart 7-5** for the 2024 – 2025 period and **Chart 7-6** for all historical data.

TDS concentrations in KFGW-2B fluctuated during the annual monitoring period and ranged between 2140.8 mg/L to 4632.32 mg/L. TDS in this well was generally within historical ranges. During the annual monitoring period, there was a correlation between increasing TDS concentrations in the evaporation pond (EVAP) and increasing concentrations in KFGW-2B, which further indicates that this well has been impacted by seepage from the Evaporation Pond.

TDS concentration in KFGW-2A was generally higher than those historically reported in this monitoring well, and ranged between 1430.4 to 2652.16 mg/L. Although the TDS concentration reported during this annual monitoring period in this well was generally higher than previous results, concentrations were within the same order of magnitude and salinity in the Castlemaine Group is known to be naturally variable.

In CTD_SEEP01, TDS ranged between 1,336 mg/L and 3,098 mg/L. The elevated TDS in CTD_SEEP01 is likely associated with dissolution of minerals from the TSFs due to rainwater, leachate, and historical bleed water.

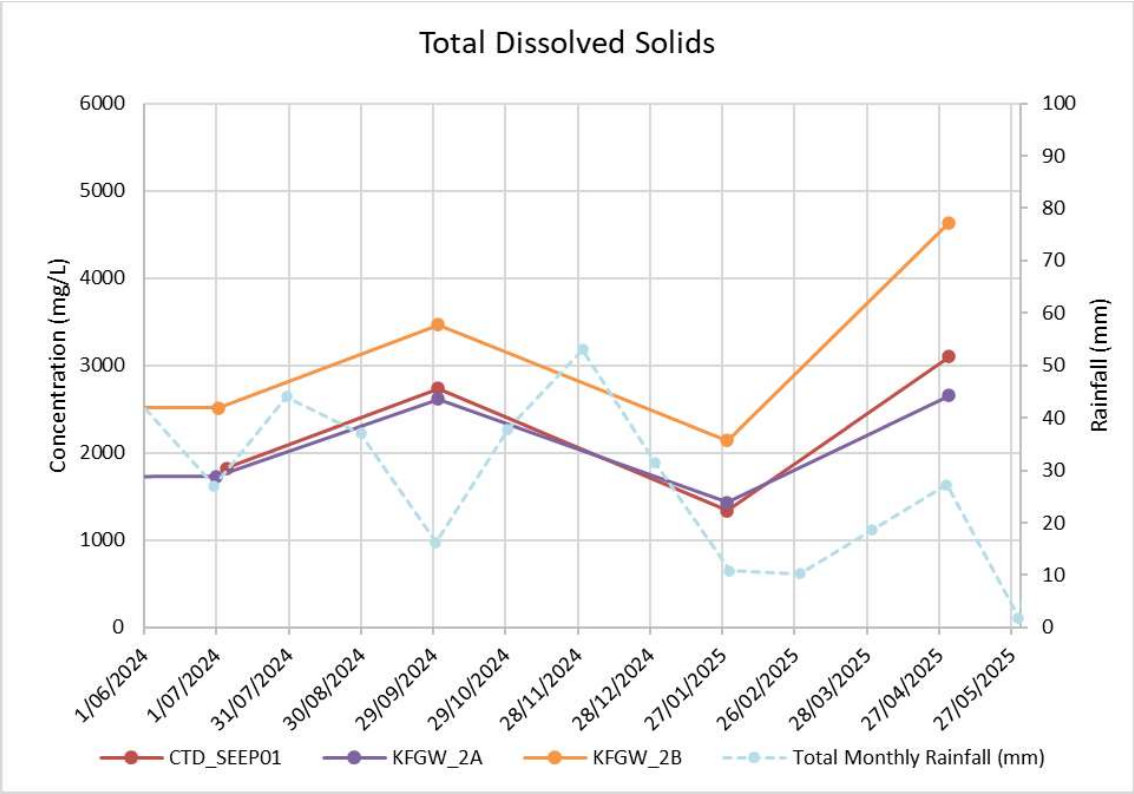


Chart 7-5 Groundwater Total Dissolved Solids and Monthly Rainfall – 2024-2025 Annual Monitoring Period

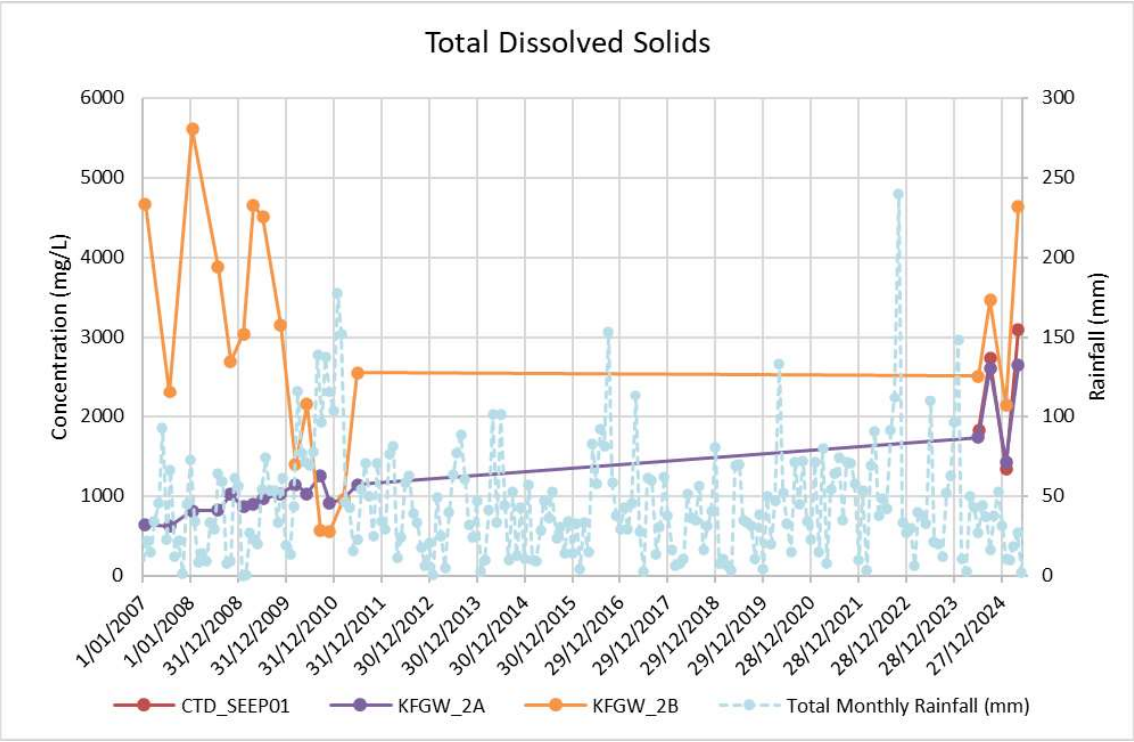


Chart 7-6 Groundwater Total Dissolved Solids and Monthly Rainfall – Historical

7.5.5 pH

Time series plots for pH in groundwater monitoring wells are provided in **Chart 7-7** for the 2024-2025 monitoring period and **Chart 7-8** for historical data. pH values reported during the annual monitoring period were generally consistent with historical monitoring results (albeit slightly lower). pH in groundwater monitoring wells the CTD_SEEP01 were neutral to slightly acidic.

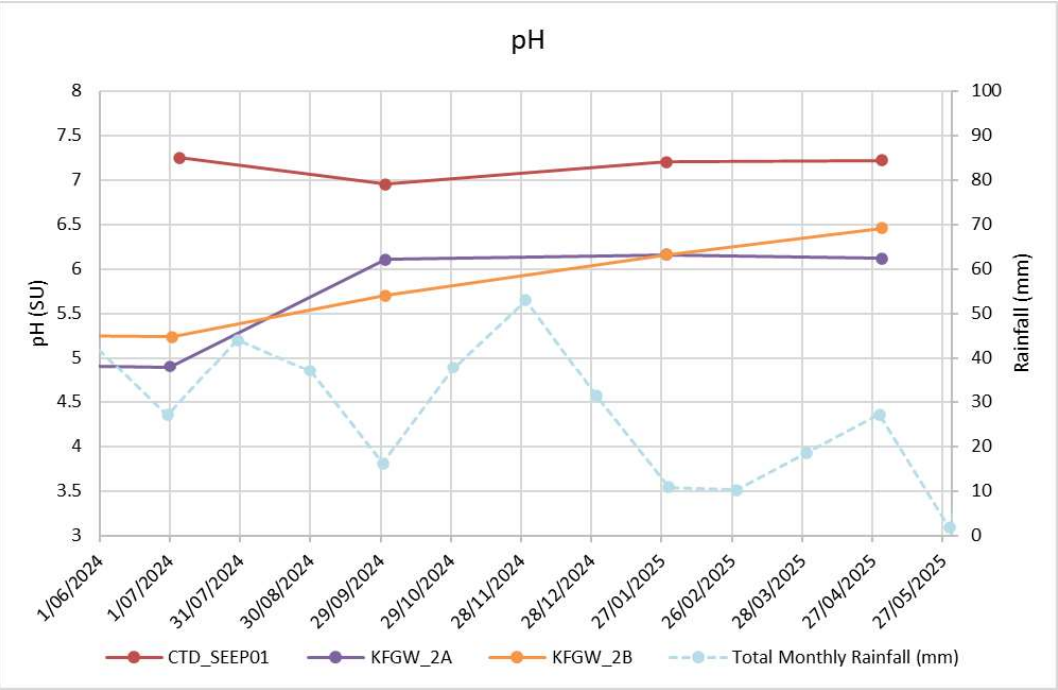


Chart 7-7 Groundwater pH and Monthly Rainfall – 2024 -2025 Monitoring Period

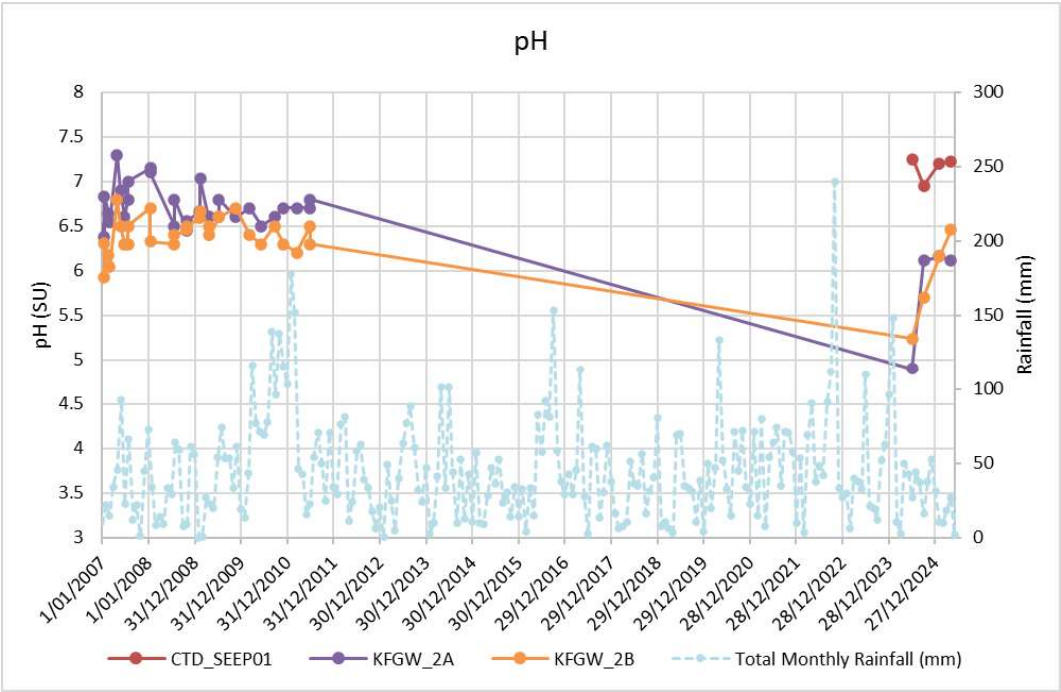


Chart 7-8 Groundwater pH and Monthly Rainfall – Historical

7.5.6 Sulfate

Time series plots for sulfate in groundwater monitoring wells are provided in **Chart 7-9** for the 2024 – 2025 monitoring period and **Chart 7-10** for historical data. Sulfate concentrations appear to have increased in both KFGW-2A and KFGW-2B when compared to historical results.

In particular, sulfate concentrations in KFGW-2B which is likely associated with seepage from the evaporation pond (EVAP) ranged between 2,100 mg/L and 3,400 mg/L during the annual reporting period, compared to <100 mg/L to 1,900 mg/L historically. In KFGW-2A which screens the Castlemaine Group, sulfate ranged between 950 mg/L and 1,300 mg/L during the annual monitoring period, compared to <100 mg/L to 268 mg/L historically.

Although concentrations of sulfate have increased in monitoring bores, it is likely that this is associated with historical fluctuations in groundwater levels at the site and in the broader region since dewatering activities for gold mining has reduced.

In CTD_SEEP01 sulfate concentrations ranged between 920 mg/L and 3,000 mg/L. Similar to TDS, elevated sulfate concentrations in CTD_SEEP01 are likely associated with oxidation of sulfides within the TSFs.

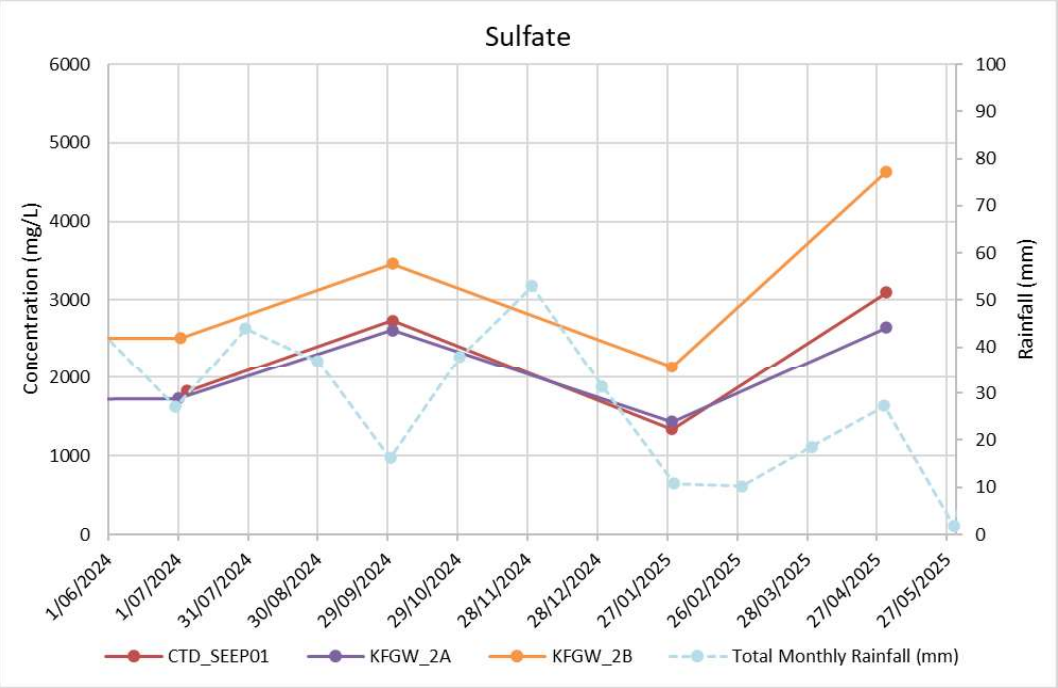


Chart 7-9 Groundwater Sulfate and Monthly Rainfall – 2024 -2025 Monitoring Period

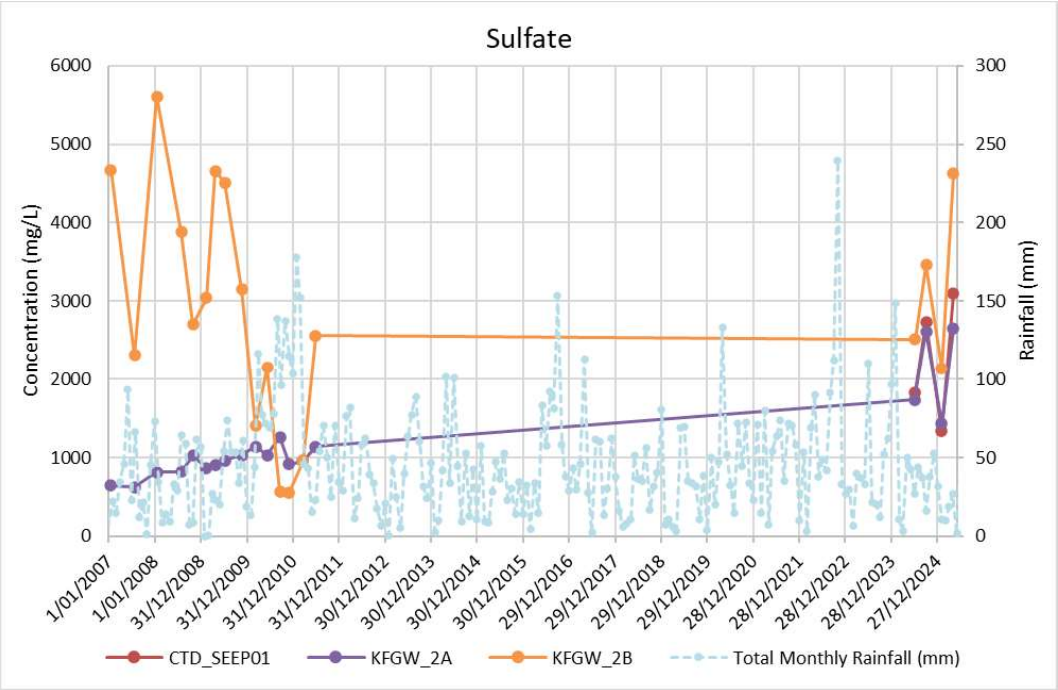


Chart 7-10 Groundwater Sulfate and Monthly Rainfall – Historical

7.5.7 Arsenic

Time series plots for dissolved arsenic in groundwater monitoring wells are provided in **Chart 7-11** for the 2024 – 2025 monitoring period and **Chart 7-12** for historical data. Dissolved arsenic concentrations in KFGW-2B appears to have significantly increased when compared to historical results. This is likely a function of changes in arsenic concentrations within the Evaporation Pond (EVAP) and fluctuations in groundwater levels within this bore.

Dissolved concentrations of arsenic in KFGW-2B appear to increase with reducing water levels. During the April 2025 monitoring event, groundwater elevation in KFGW-2B was at its lowest level during the annual monitoring period of 258.158 mAHD. Dissolved arsenic in KFGW-2B in April 2025 was 0.3 mg/L. Although not included in this monitoring period, following an increase in rainfall and water levels within the Evaporation Pond (EVAP), groundwater elevation in KFGW-2B recovered by approximately 1 m in July 2025 and dissolved arsenic concentrations decreased to 0.003 mg/L.

In KFGW-2A, dissolved arsenic concentrations are generally consistent with historical ranges and ranged between 0.008 mg/L and 0.025 mg/L during the annual reporting period.

In CTD_SEEP01, elevated arsenic is present in both colloidal matter and dissolved phase concentrations. The presence of arsenic in CTD_SEEP01 is likely associated with rainfall percolating through the tailings generating leachate from the tailings within the TSFs.

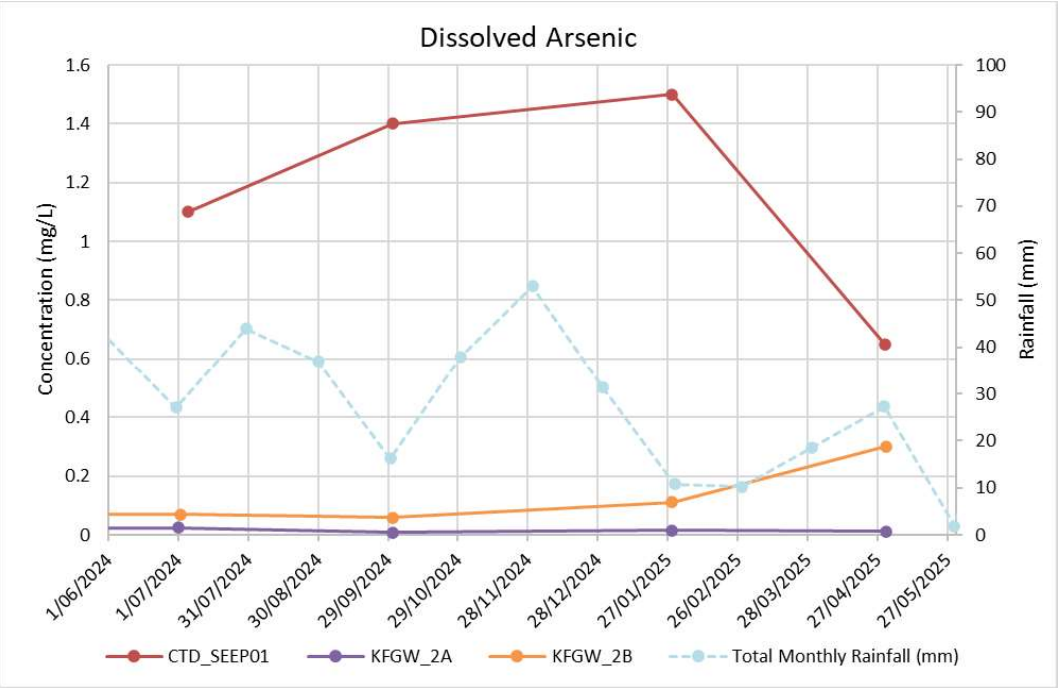


Chart 7-11 Groundwater Dissolved Arsenic and Monthly Rainfall – 2024 -2025 Monitoring Period

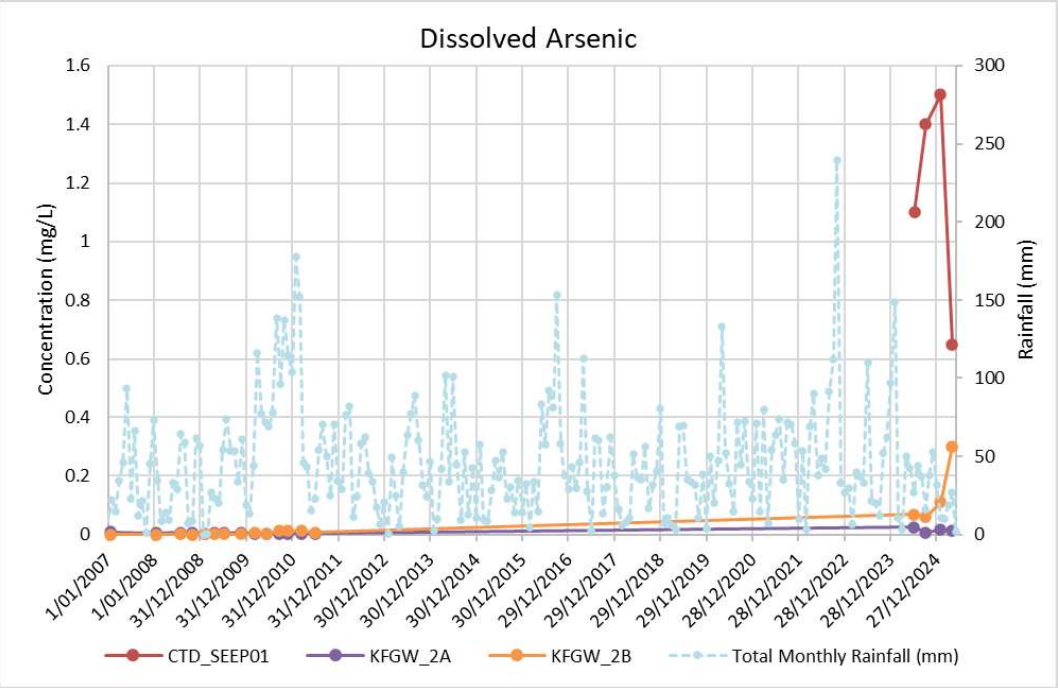


Chart 7-12 Groundwater Dissolved Arsenic and Monthly Rainfall – Historical

7.5.8 Other Metals

Groundwater monitoring reported various other metals above the adopted criteria, including copper, iron, manganese, nickel, and zinc. No routine monitoring of these metals in groundwater at the site is known to have occurred previously.

Elevated metals were reported in CTD_SEEP01. Concentrations of metals were generally significantly higher in CTD_SEEP01 compared to KFGW-2B and KFGW-2A, likely attributable to mobilisation of metals from the tailings within the TSF via rainfall percolation and leachate generation.

In KFGW-2B, concentrations of metals are generally higher than those in KFGW-2A and concentrations subject to greater variability likely due to interactions with and seepage from the Evaporation Pond (EVAP).

In KFGW-2A, the reported metals may potentially be representative of background conditions within the Castlemaine Group, however, may also be associated with on-site sources such as the TSFs. Assessing background metal concentrations in groundwater at the site is confounded by the limitations associated with the existing groundwater monitoring network and known background/regional groundwater pollution due to historical mining activities more broadly.

Further discussion on metal concentrations and potential risk to environmental values is provided in **Section 9.2**.

8 Results – Dust Monitoring Program

8.1 Depositional Dust Monitoring

A copy of the depositional dust analytical results is provided in **Appendix F**. A summary table is provided in **Table 5** (appended). The following sections summarise the key and findings of the depositional dust monitoring program.

8.1.1 Depositional Dust Analytical Results – Total Insoluble Solids

Total insoluble solids (or total insoluble matter) were compared to the threshold criterion of up to 4 g/m^2/month (no more than 2 g/m^2/month above background), as defined in EPA Publication 1191 (which is further adopted in EPA Publication 1961). Importantly, this criterion does not necessarily indicate an unacceptable risk to receptors.

A summary of the reported exceedances at Kangaroo Flat is provided in **Table 8-1**. Exceedances were reported at KFDD01 and KFDD03 during the annual reporting period, and at the background location (KFDD05-BG).

The elevated background results recorded in September 2024 may be attributable to surrounding activities (for example, residential developments along Sheltons Road where the background gauge is located). Wind direction during August and September is only available from the BOM weather station for 9am and 3pm (rather than at 30 minute intervals). The predominate wind direction at these times during August and September were north to north-northeast, suggesting that elevated concentrations of dust may be attributable to off-site ambient sources.

During August and September 2024, the processing plant on-site was being demolished resulting in increased traffic at the site. As a cautionary approach, it is understood DEECA increased dust mitigation measures (i.e., use of water trucks to wet roads etc) during increased traffic movements and windy conditions.

Table 8-1 Depositional Dust Monitoring Results – Total Insoluble Solids

Month	Exceeding Locations	Result (g/m^2/month)	Background Results (KFDD05-BG) (g/m^2/month)	Wind Direction	Maximum Wind Velocity (m/s)	Monthly Rainfall (mm)
August 2024	KFDD01 (western boundary)	4.9	0.96	North, north-northeast based on 9am and 3pm data only	33	37
September 2024	KFDD03 (northern boundary)	6.1	22	North, north-northeast based on 9am and 3pm data only	33	16.2

8.1.2 Depositional Dust Analytical Results – Ash and Combustible Material Content

As part of the depositional dust analysis, ash content and combustible matter is determined from the insoluble portion of the material that has been collected in the gauge. The ash content is the remaining material after the sample has been combusted. Ash content provides an indication of the mineral content, as it removes combustible materials such as organics from the deposited matter. This is an important measure as it provides an indication of the amount of deposited matter that may be derived from soils generated either from on-site or off-site areas. Caution should be applied when assuming that the ash content is directly

equal to the portion of dust attributable to soils, as soils contain some combustible materials such as organic matter. Nevertheless, it does provide an indication regarding the composition of the dust.

Chart 8-1 shows the percentage of the insoluble solids which is attributed to ash (i.e., soil) of the depositional dust gauges situated on the boundaries of the site compared to the background location. Based on the data, the proportion of the insoluble solids due to soils (as inferred by the ash content) varied and fluctuated over the annual reporting period with no discernible trend.

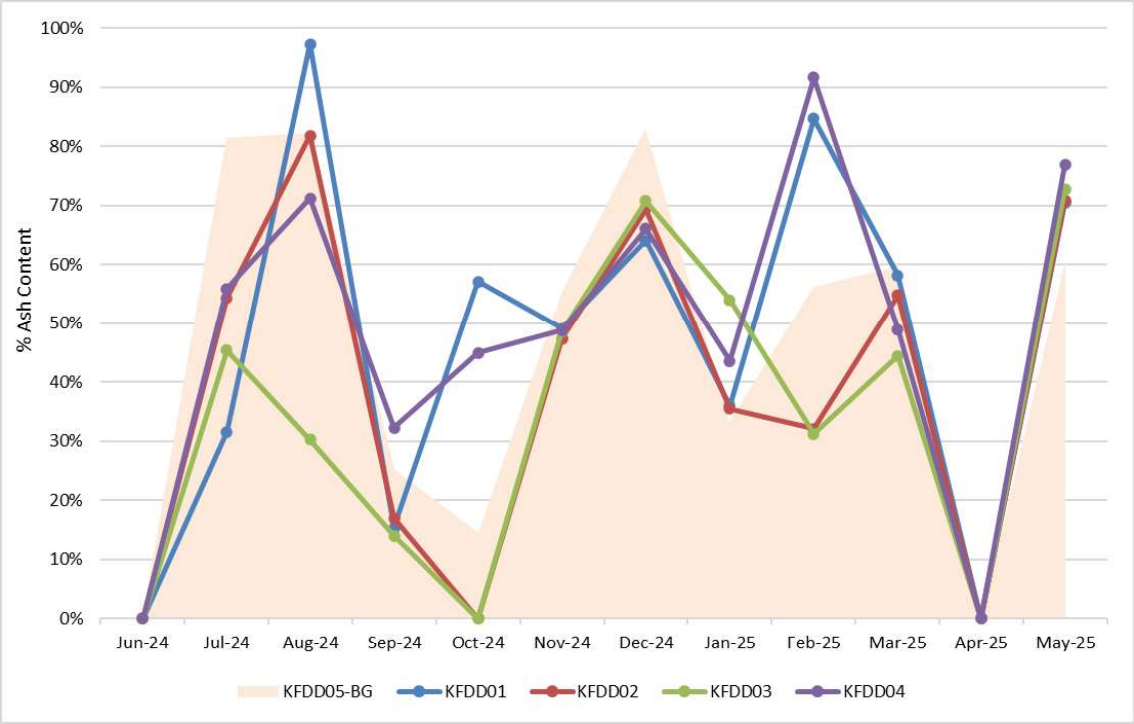


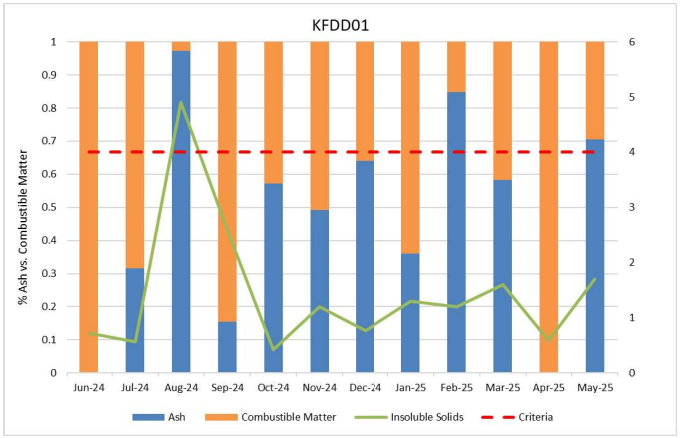
Chart 8-1 % Ash Content in Total Insoluble Solids

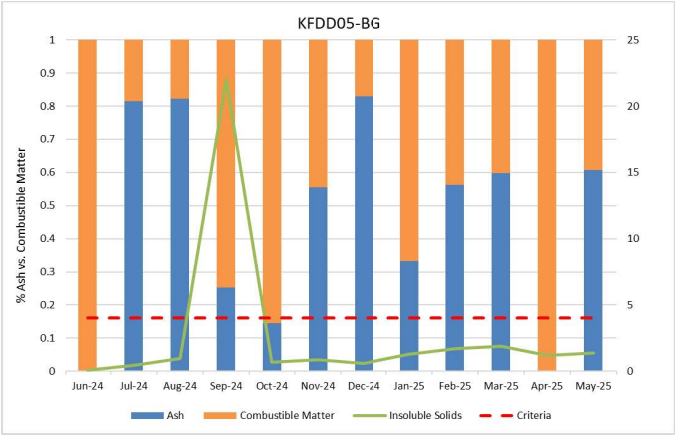
From a qualitative perspective, the fluctuations (i.e., peaks and troughs on **Chart 8-1**) in ash content appears to generally be consistent between the boundary depositional dust gauges and the background gauge (KFDD05-BG).

To assess the relationship between when an exceedance of total insoluble solids occurred against changes in ash composition, the percentage of the insoluble solids which is attributed to ash (i.e., soil) verses combustible matter (organic materials within the soils etc) was compared to total insoluble solids (**Chart 8-2**). There appears to be no definitive relationship between when insoluble solids exceeded the adopted criteria of 4 g/m^2/month and an increase in ash content. The exception to this is the exceedance of insoluble solids reported in August 2024 at KFDD01 which corresponded to a large increase in the portion of ash content within the deposited matter.

Boundary Depositional Dust Gauges

Background Depositional Dust Gauge





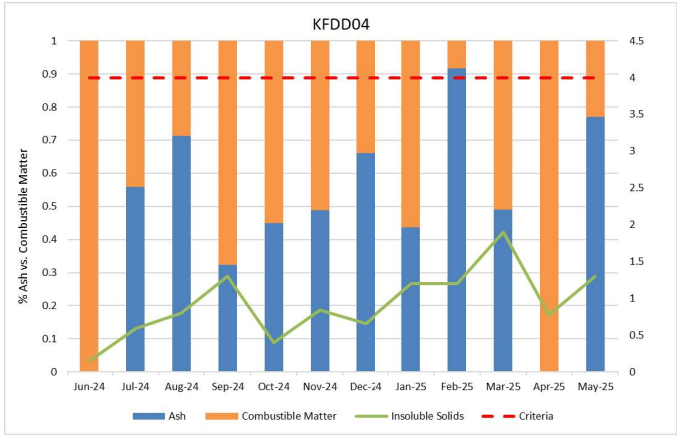


Chart 8-2 Ash Content and Combustible Matter Compared to Insoluble Solids

8.1.3 Depositional Dust Analytical Results – Metals and Inorganics

Deposited matter collected in depositional dust gauges was also analysed for soluble and insoluble metals, cyanide, and sulfate. No NATA-accredited method exists for this analysis; however, this analysis provides quantitative information regarding the composition of the depositional dust. Due to the nature of dust analysis, the limits of laboratory reporting that can be achieved vary from month to month depending on the amount of deposited matter present in each individual gauge.

The following analytes were reported above the laboratory limit of detection during the annual monitoring period:

- Soluble **arsenic** (up to 0.0051 mg/m^2/month) reported once in September 2024 at the background gauge KFDD05-BG.
- Insoluble **barium** (up to 17 mg/m^2/month) reported variably during all months at all locations including at the background gauge (KFDD05-BG).
- Insoluble **chromium** (up to 0.01 mg/m^2/month) variably at all locations during June 2024, February 2025, and May 2025and varying months, including the background gauge (KFDD05-BG).
- Insoluble **cobalt** (up to 0.00072 mg/m2/month) in June 2024 at KFDD03 and the background location (KFDD05-BG)
- Insoluble and soluble **copper** (up to 1.1 and 0.07 mg/m^2/month, respectively) variably during all months at all locations including the background gauge (KFDD05-BG). Soluble copper was often reported below the detection limit.
- Insoluble and soluble **iron** (up to 2.4 and 0.0041 mg/m2/month) variably during all months at all locations including the background gauge (KFDD05-BG).
- Insoluble **lead** (up to 0.012 mg/m2/month) variably at all locations including the background gauge (KFDD05-BG).
- Insoluble and soluble **manganese** (up to 0.2 and 0.0016 mg/m^2/month, respectively) variably during all months at all locations including the background gauge (KFDD05-BG).
- Insoluble **molybdenum** (up to 0.0022 mg/m2/month) reported once at KFDD01 in June 2024.
- Insoluble and soluble **zinc** (up to 13 and 0.035 mg/m^2/month, respectively) variably during all months at all locations including the background gauge (KFDD05-BG).
- Insoluble and soluble **sulfate** (up to 13 and 1.7 mg/m^2/month, respectively) variably during all months at all locations including the background gauge (KFDD05-BG).

All other analytes were reported below the laboratory detection limit.

Arsenic was only detected in the background gauge (KFDD05-BG) in September 2024, corresponding to a significant increase in total insoluble solids at this location.

Barium, chromium, cobalt, copper, iron, lead, manganese, zinc, and sulfate were all reported in depositional dust at both the background location (KFDD05-BG) and the boundary locations. To assess whether these analytes are indicative of ambient or regional depositional dust composition (as inferred to be represented by KFDD05-BG), metals and sulfate reported above the laboratory limit of reporting were converted into a percentage of the total deposited matter (i.e., insoluble metal + soluble metal/total solids = % metal).

Chart 8-3 shows the difference in distribution of % metals between the background location (KFDD05-BG) and monitoring locations situated along the boundaries of the site (KFDD01, KFDD02, KFDD03, KFDD04).

For Barium, chromium, cobalt, copper, iron, lead, manganese, zinc, and sulfate although the % of these analytes in deposited dust at the boundary locations are subject to greater variability with several outliers observed in the data set, % metals are generally consistent with the background location.

No criteria are known to exists for metals or sulfate in depositional dust in Australia (or internationally), however, the percentage of these analytes within the depositional dust can be used to assess potential risk to receptors when combined with PM_{10} concentrations measured by the real-time dust monitors. This is further discussed in **Section 8.2.4**.

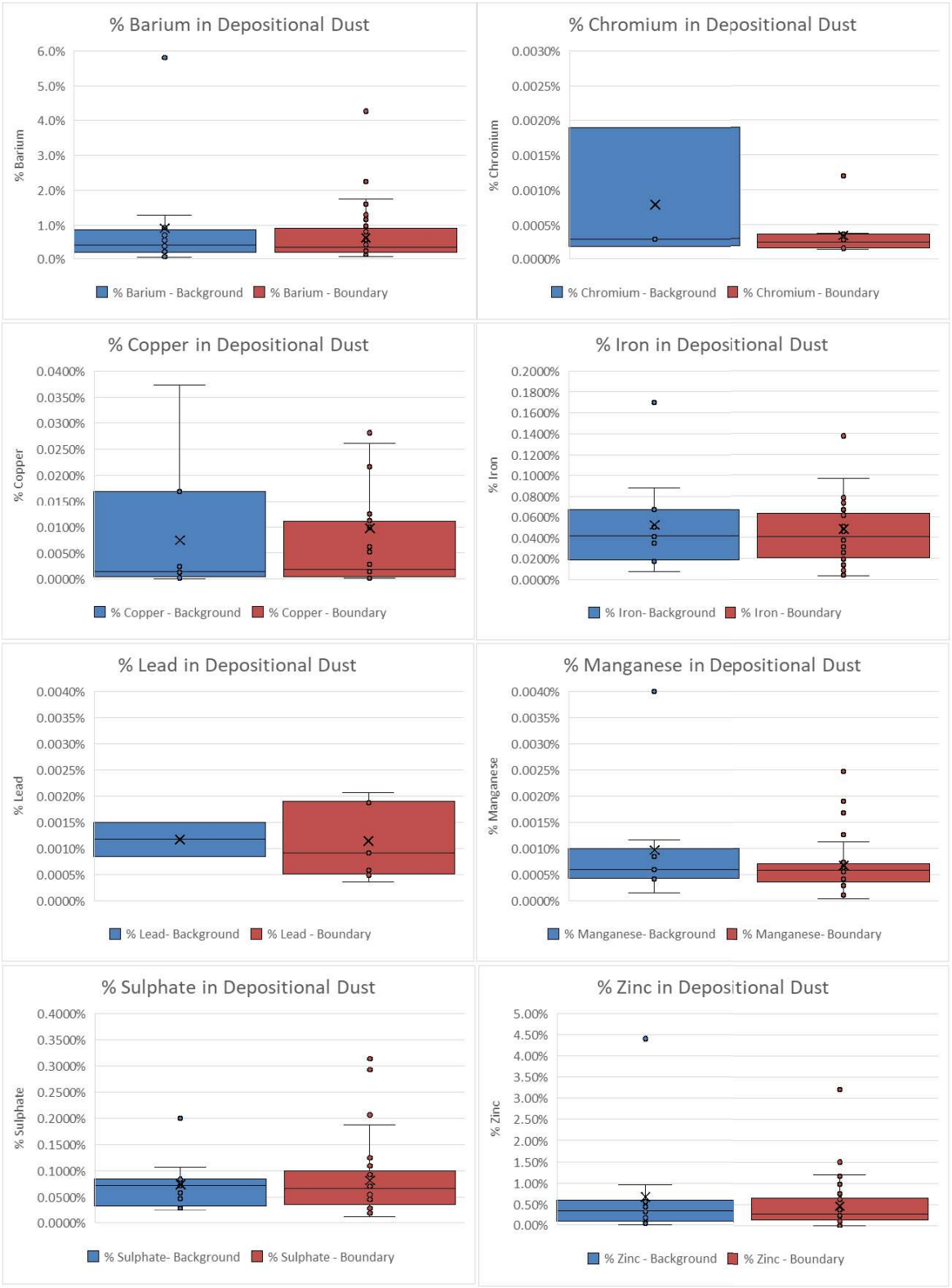


Chart 8-3 % Metals in Depositional Dust at Background Location verse Boundary Locations

8.1.4 Comparison of Depositional Dust Concentrations to HILs and EILs

In order to assess potential impacts to off-site soils due to depositional dust historical dust monitoring reports have estimated concentrations in soils based on depositional dust results (calculated by adding soluble and insoluble concentrations and dividing by the total solids concentration). The estimated soil concentration (mg/kg) has then been compared to tier 1 ecological based criteria defined in the ASC NEPM 2013 (and other international guidelines).

EHS Support does not consider this approach to be appropriate when assessing potential risk to receptors. This approach is subject to a high degree of uncertainty and error as the concentrations of certain analytes can appear exaggerated if the laboratory limit of reporting is higher due to sample volume or when low levels of total solids are detected. However, for consistency with previous dust monitoring reports EHS Support has estimated soil concentrations based on the depositional dust data recorded during the annual monitoring period.

Table 8-2 below summarises the maximum estimated concentration in soil compared to the relevant HIL and EIL based on the depositional dust data. Concentrations in soils were only estimated when analytes were reported above their respective laboratory limit of reporting.

Estimated concentrations of barium, copper and zinc exceeded the generic tier 1 ecological based criteria, whilst elevated concentrations of zinc were also above the generic tier 1 human health based criteria. All of the aforementioned analytes were above the generic criteria at the background depositional dust gauge.

Table 8-2 Estimated Metal Concentrations in Soils Based on Depositional Dust Data

Analyte	HIL – Low Density Residential	EIL – Urban Residential/Public Open Space	Maximum Estimated Concentrations (mg/kg)	
			Background	Boundary
Antimony	-	20[1]	ND	ND
Arsenic	100	100[2]	0.15	ND
Barium	-	500[1]	58,000	42,666
Beryllium	60	4[1]	ND	ND
Cadmium	20	10[1]	ND	ND
Chromium	100	200[2]	19	12
Cobalt	100	50[1]	6.2	1.4
Copper	6000	100	373	899
Iron	-	-	1,700	2,866
Lead	300	1100	15	20.68
Manganese	3800	220[3]	40	24.66
Mercury	40	6.6[1]	ND	ND
Molybdenum	-	5[1]	ND	3.05
Nickel	400	35[2]	ND	ND
Selenium	200	1[1]	ND	ND
Tin	-	50[1]	ND	ND
Vanadium	-	130[1]	ND	ND
Zinc	7.400	270[2]	44,046	32,050

Analyte	HIL – Low Density Residential	EIL – Urban Residential/Public Open Space	Maximum Estimated Concentrations (mg/kg)	
			Background	Boundary
Sulfate	-	-	2,000	3,133
Cyanide	250	0.9[1]	ND	ND

Table Notes:
* estimated concentration in soil highly exaggerated due to low total solids results
ND – Not Detected
[1] Canadian Council of Ministers of the Environment, Soil Quality Guidelines, Residential/Parkland
[2] Generic EILs (ASC NEPM 2013)
[3] United States Environmental Protection Agency Interim Ecological Screening Levels

8.2 Real-Time Dust Monitoring

A summary of real-time dust monitoring results is provided in **Table 6** (appended). The following sections summarise the key and findings of the real-time dust monitoring program.

8.2.1 Real-Time Dust Monitor Operational Performance

A summary of the estimated runtime of the individual real-time dust monitors positioned across the site is provided in **Table 8-3**. As the monitors are programmed to upload dust data every 1 minute, runtime was estimated by comparing the number of data points uploaded with the total number of minutes available for that particular month.

Across the annual reporting period, the real-time dust monitors were operational for between 88% and 98% of the time. Non-operational time was generally limited and included:

- Automated shutdowns due to loss of power following consecutive days of poor weather reducing solar exposure and therefore battery life. This mainly occurred immediately following deployment as the batteries were building a baseload of charge.
- Vandalism of KF-RTD-02 occurred on 27/6/2024 (battery stolen) resulting in no data being recorded for from this date through to 1 August 2024 when the battery was replaced.
- Damage due to insects resulting in an error to the automated pumping/flow controller. This occurred in spring/summer resulting in "down-time" between November 2024 and January 2025 at both KF-RTD-01 and KFRTD-02. The monitors were sent back to the manufacturer and repaired as required.
- Minor shutdowns (i.e., 10-15 minutes) for routine ad-hoc maintenance completed quarterly.

Table 8-3 Summary of Real-Time Dust Monitor Performance

Month	KF-RTD-01 (ER0224025)		KF-RTD-02 (ER0224024)	
	% Run-Time	Downtime (minutes)	% Run-Time	Downtime (minutes)
June 2024	99.8	80	87.3	5494
July 2024	99.8	81	0.0	44,640
August 2024	99.7	114	98.7	577
September 2024	99.5	237	99.5	219
October 2024	99.4	261	99.5	216
November 2024	99.7	144	77.1	9,909
December 2024	77.2	10,159	96.7	1,468
January 2025	99.3	315	99.8	94
February 2025	99.8	97	99.9	31

Month	KF-RTD-01 (ER0224025)		KF-RTD-02 (ER0224024)	
	% Run-Time	Downtime (minutes)	% Run-Time	Downtime (minutes)
March 2025	99.8	111	99.8	98
April 2025	100.0	<10	99.9	41
May 2025	96.5	1,618	96.4	1,656
Annual (2024-2025)	97.5	13,227	87.8	64,443

8.2.2 Real-Time Dust Monitoring –PM2.5 and PM10 Trends

$PM_{2.5}$ and PM_{10} concentration trends during the annual reporting period are shown below in **Chart 8-4** and **Chart 8-5**. Concentrations of these dust fractions fluctuated throughout the year and concentrations were generally within similar ranges at each monitoring location.

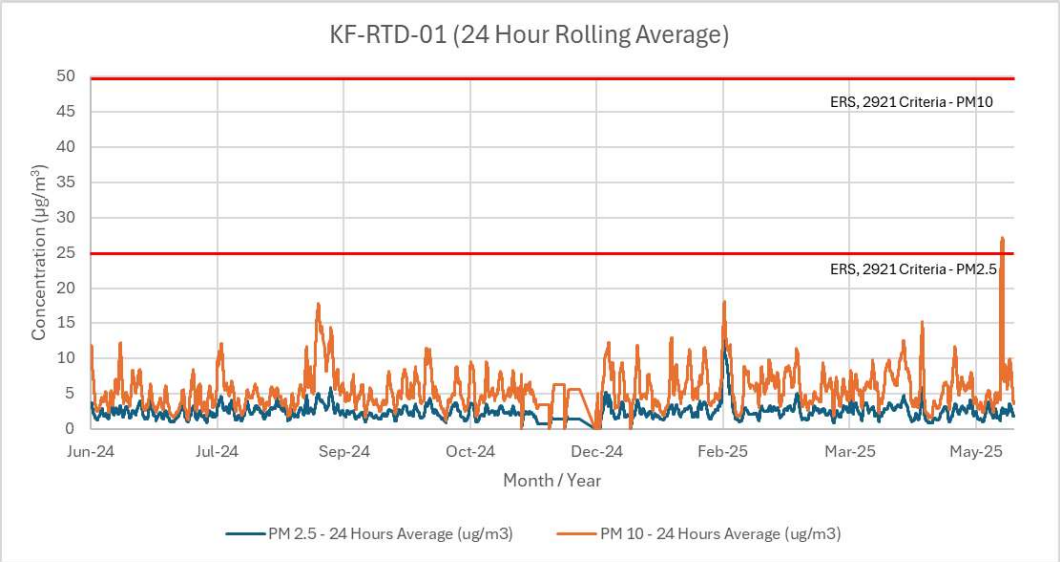


Chart 8-4 KF-RTD-01 24-hour rolling averages for $PM_{2.5}$ and PM_{10}

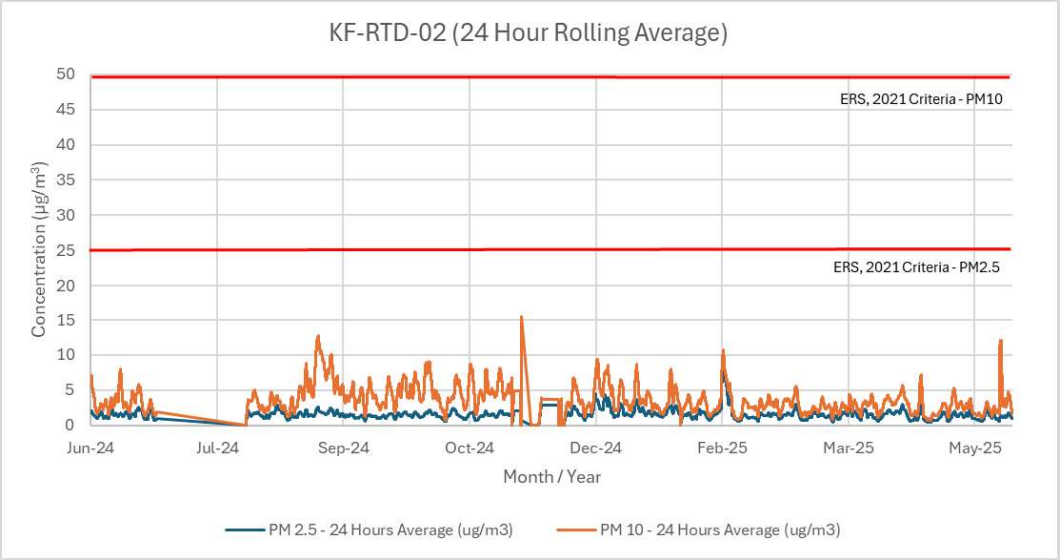


Chart 8-5 KFRTD-02 24-hour rolling averages for $PM_{2.5}$ and PM_{10}

8.2.3 Real-Time Dust Monitoring Exceedances

Real-time dust monitoring results are compared to the criteria outlined in **Section 5**. A summary of the monthly maximum daily and yearly rolling average for PM2.5 and PM10 compared to the criteria defined in the ERS, 2021 is provided in table below. No exceedances were reported.

Table 8-4 Summary of Maximum Daily and Yearly Rolling Averages for $PM_{2.5}$ and PM_{10}

Month	$PM_{2.5}$		PM_{10}	
	Maximum Daily Rolling Average	Yearly Rolling Average	Maximum Daily Rolling Average	Maximum Daily Rolling Average
ERS, 2021	**25**	**8**	**50**	**20**
June 2024	4.71	-	12.2	-
July 2024	4.54	-	11.98	-
August 2024	4.97	-	17.68	-
September 2024	5.8	-	14.39	-
October 2024	4.28	-	11.35	-
November 2024	3.54	-	9.43	-
December 2024	5.12	-	12.21	-
January 2025	4.06	-	12.84	-
February 2025	13.02	-	17.98	-
March 2025	5.01	-	11.33	-
April 2025	5.81	-	15.11	-
May 2025	4.05	-	27.17	-
Annual	**-**	**2.39**	**-**	**5.06**

PM_{10} concentrations were also compared to nuisance dust criteria defined in EPA Publication 1961. This criteria can be used to support adaptive management of dust emissions during a particular activity.

Only one exceedance of this criteria occurred during the annual reporting period. The exceedance was reported at KF-RTD-01 on 26 May 2025 as follows:

- **10-minute rolling average (165 µg/m³):** up to 170.97 µg/m³ reported between 18:00 – 18:03
- **15-minute rolling average (150 µg/m³):** up to 157.41 µg/m³ reported between 18:03 – 18:08
- **30-minute rolling average (120 µg/m³):** up to 138.04 µg/m³ reported between at 18:03- 18:24
- **1-hour rolling average (80 µg/m³):** up to 121.43 µg/m³ reported between at 17:52 – 20:08

Based on a review of publicly available weather data from the BOM Bendigo Airport Weather Station, strong wind gust up to 76 km/h from a northwest direction were occurring during the exceedances. As KF-RTD-01 is located along the northern site boundary it is likely that the elevated dust concentrations are associated with ambient sources rather than from site. No exceedances were reported at KF-RTD-02 at the time.

Overall, as exceedances were short-lived, likely associated with ambient sources and no activities were occurring at the site when the exceedances occurred, no adaptive dust management controls were considered warranted in response to the exceedances.

8.2.4 Percentage Metals and Inorganics in PM_{10}

As previously outlined, there is no known criteria for metals in depositional dust. However, when used with the concentrations of PM_{10} obtained from the real-time dust monitors the percentage of metals and other inorganics in the depositional dust can be used to estimate concentrations in air ($\mu g/m^3$) of the respective analyte, which can then be compared to the APACs outlined in EPA Publication 1961.

The following approach was adopted to convert metals in depositional dust to a concentration in PM_{10}:

- Step 1: The percentage of a particular metal in depositional dust was calculated using the following formula: *% Metal = (insoluble metal + soluble metal)/total solids x 100.* This was completed for all analytes, at all monitoring locations, across all months, regardless of whether metals were detected above the laboratory limit of reporting. For analytes reported below the limit of reporting, the limit of reporting was adopted as the result.
- Step 2: Determine the maximum percentage of a particular analyte reported during the annual monitoring period.
- Step 3: The maximum percentage of a particular analyte was then multiplied by the maximum PM_{10} concentrations to estimate a concentration in air in $\mu g/m^3$. This was completed for various different time averages (1 hour, 24 hour and 1 year).
- Step 4: Review APACs available in EPA Publication 1961 and other available criteria for various metals in air across several time averages including 1 hour, 24 hour and 1 year.
- Step 5: Compare the resultant analyte concentration in air against the APAC to identify whether exceedances exist.
- Step 6: If an exceedance occurred, confirm whether the maximum % metal and the maximum PM_{10} concentration occurred during the same period to assess whether it is considered a "true" exceedance.

This overall approach is considered indicative only, is likely very conservative and is subject to several assumptions and limitation including the following:

- This approach assumes that all insoluble and soluble analytes exist within the PM_{10} dust fraction, which may not be the case. However, PM_{10} is considered an appropriate measure as dust particles of this size have the potential to enter the respiratory system of a receptor (human).
- By using the maximum percentage of a particular metal and the maximum PM_{10} concentrations recorded during the annual reporting period, it assumes that these conditions occurred at the same time. This is unrealistic, however, it is representative of a worst-case scenario.
- This approach assumes that the PM_{10} concentrations recorded by the real-time dust monitors are representative of the PM_{10} concentration at the depositional dust gauge where the maximum percentage metal was reported.
- The laboratory limit of reporting was used to calculate % metals for metals which were below the laboratory limit of reporting.
- % of a particular analyte can be exaggerated in instances where the total solids results are low but the laboratory limit of reporting is high. This is particularly true for cyanide.
- The results are relevant only to locations where monitoring equipment is positioned.

A summary of the data is provided in **Table 8-5**. The estimated concentration of all analytes in PM_{10} with the exception of barium were below the adopted APACs. A review of the data indicates that the maximum % barium reported during the annual period was reported at the background location, and it was exaggerated as total solids was below the laboratory limit of reporting. Therefore, this is not considered to represent a true exceedance.

Table 8-5 Estimated Analyte Concentrations in Air Based on Depositional Dust and PM10 Concentrations

Analyte	Detected	Analyte	1 hour (µg/m³)				24 Hours (µg/m³)				1 year (µg/m³)			
			Max PM_{10} Con.[1]	APAC EPA 1961	DWER 2019	Estimated Analyte Conc.[2]	Max PM_{10} Con.[1]	APAC EPA 1961	DWER 2019	Estimated Analyte Conc.[2]	Max PM_{10} Con.[1]	APAC EPA 1961	DWER 2019	Estimated Analyte Con.[2]
Antimony	No	0.022%	121.43		0.82	0.027	27.17	1		0.006	5.06	0.3	0.027	0.00114
Arsenic	Yes	0.011%	121.43	9.9	0.09	0.014	27.17		0.027	0.003	5.06	0.007	0.0027	0.00057
Barium	Yes	5.801%	121.43	5	9	7.044	27.17			1.576	5.06			0.29351
Beryllium	No	0.002%	121.43		0.004	0.003	27.17			0.001	5.06	0.001		0.00011
Cadmium	No	0.002%	121.43	18	0.018	0.003	27.17	0.03		0.001	5.06	0.005		0.00011
Chromium	Yes	0.002%	121.43	1.3	0.09	0.003	27.17			0.001	5.06	0.005	0.00018	0.00012
Cobalt	Yes	0.002%	121.43			0.003	27.17		0.092	0.001	5.06		0.092	0.00011
Copper	Yes	0.090%	121.43	10	18	0.109	27.17			0.024	5.06		0.92	0.00455
Iron	Yes	0.287%	121.43			0.349	27.17			0.078	5.06			0.01454
Lead	Yes	0.007%	121.43			0.008	27.17			0.002	5.06	0.5		0.00034
Manganese	Yes	0.005%	121.43	9.1		0.005	27.17			0.001	5.06	0.15	0.14	0.00023
Mercury	No	0.0003%	121.43		0.18	0.0004	27.17			0.000	5.06	1	0.18	0.00002
Molybdenum	Yes	0.007%	121.43			0.008	27.17		11	0.002	5.06			0.00034
Nickel	No	0.005%	121.43	0.2	0.18	0.006	27.17		0.14	0.001	5.06	0.01	0.003	0.00023
Selenium	No	0.022%	121.43		0.92	0.027	27.17			0.006	5.06			0.00114
Tin	No	0.011%	121.43			0.014	27.17			0.003	5.06			0.00057
Vanadium	No	0.005%	121.43			0.006	27.17		0.92	0.001	5.06			0.00023
Zinc	Yes	4.405%	121.43	20		5.349	27.17		46	1.197	5.06	2		0.22287

Analyte	Detected	Analyte	1 hour (µg/m³)				24 Hours (µg/m³)				1 year (µg/m³)			
			Max PM_{10} Con.[1]	APAC EPA 1961	DWER 2019	Estimated Analyte Conc.[2]	Max PM_{10} Con.[1]	APAC EPA 1961	DWER 2019	Estimated Analyte Conc.[2]	Max PM_{10} Con.[1]	APAC EPA 1961	DWER 2019	Estimated Analyte Con.[2]
Sulphate	Yes	0.370%	121.43			0.449	27.17			0.101	5.06			0.01872
Cyanide	No	10.021%[3]	121.43		90	12.169	27.17			2.723	5.06			0.50706

Table Notes:
[1] Maximum PM_{10} concentration reported as part of the real-time dust monitoring program
[2] Estimated analyte concentration in air based on % analyte informed by the depositional dust analysis and the maximum PM_{10} concentration reported during real-time dust monitoring
[3] Maximum % cyanide is presented is overexaggerated as total solids at the background location during some months were below the limit of reporting (LOR), resulting in high % analytes been calculated
Grey analyte have been reported below the LOR
APAC EPA 1961 – Air Pollution Assessment Criteria (APAC) outlined in EPA Publication 1961
DWER 2019 –Western Australian Department of Water and Environmental Regulations – Guidelines – Air Emissions, 2019

9 Summary of Potential Risk to Environmental Values

Although the environmental monitoring program conducted during this annual monitoring period provides preliminary and indicative information regarding surface water and groundwater quality at the site, there are significant data-gaps which need to be addressed in order to confirm the risk to environmental values of land and water.

9.1 Surface Water

No surface water was observed in Golden Gully during the annual reporting period. Furthermore, only limited water was present in the Unnamed Creek 1 and 2 during the annual reporting period, and surface water only accumulated following significant rainfall events. There is no direct connection via overland flow between on-site ponds/dams and these adjacent waterways/informal drainage channels.

During the annual reporting period, elevated concentrations of arsenic, copper, iron, lead, manganese, nickel, zinc, turbidity, and pH were reported in Unnamed Creek 1 and 2 above the adopted criteria for several environmental values. As these are ephemeral and modified waterways, which essentially form informal drainage channels for stormwater, environmental values of water are unlikely to be relevant, realised or supported. However, it is possible that surface water within the Unnamed Creek 1 and 2 would eventually discharge into Bendigo Creek where environmental values may be relevant.

For Unnamed Creek 1, water is generated following heavy rainfall from the bund located along the western boundary of the site and the surrounding off-site areas. With the exception of the bund, water which drains into Unnamed Creek 1 has no direct interaction with surface soils in previously operational areas of the site. For Unnamed Creek 2, water is generated following heavy rainfall from off-site areas to the south. In view of this, and as concentrations of metals are generally within the same order of magnitude at all sampling locations along the unnamed creeks, the reported concentrations are likely indicative of naturally elevated metals in the soil on surrounding land which are mobilised in colloidal matter as water flows via these drainage channels following heavy rainfall.

Elevated concentrations of various metals (antimony, arsenic, cadmium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, and zinc), TDS, sulfate and pH also exceeded the adopted criteria for environmental values in the ponds/dams on-site. The elevated concentrations of metals, TDS, sulfate and possibly pH are likely associated with historical mining activities which have resulted in mobilisation and potential concentration of these analytes, either though oxidation of minerals as the source rock is brought to the surface, or through geochemical changes during processing of the source rock and concentration within the by-products (i.e., tailings). The fluctuations in metal concentrations observed in ponds/dams on-site during the annual monitoring period is likely associated with geochemical functions and interactions between the respective surface water body and underlying sediments and clays.

Although in accordance with the ERS, 2021 the environmental values of surface water do not apply to constructed waterways which would include the on-site ponds/dams, as water from Carbon-in-Leach Dam 2 is used for dust suppression at the site, the potential risk of harm to environmental values of land and impacts to on-site soils needs to be assessed.

Moreover, as water from on-site ponds/dams has been directly discharged into groundwater via the Carshalton and Hansel Mundy Shafts, the potential risk to environmental values of groundwater needs to be assessed.

9.2 Groundwater

Based on the preliminary CSM, groundwater at the site may be impacted by CoPCs via the following transport pathways:

- Infiltration and vertical migration of surface water to groundwater from on-site ponds/dams impacting groundwater quality (seepage).
- Leaching of CoPCs in soils and sediments across the site into subsurface lithology followed by vertical migration into underlying groundwater impacting groundwater quality (leaching).
- Direct discharge of surface water from the ponds/dams to groundwater via the Carshalton shaft and Hansel Mundy Shaft.

Although a limited groundwater monitoring well network exists at the site, the majority of existing groundwater monitoring wells are not appropriately constructed or positioned to provide a robust assessment of the risk to groundwater beneath the site.

Data from CTD_SEEP01 installed within the base of the coarse tailings dam (CTD) of the TSF indicates that there is approximately 3 m of leachate at the base of the TSF which contains high concentrations of various metals including arsenic. The leachate is inferred to migrate to the Fine Tailings Dam Sump (FTD_SUMP) where it was then transferred to the Processing Plant Stormwater Dam, or collected in subsurface perforated pipes and transferred to the Evaporation Pond, however, there is a potential that direct seepage to groundwater via fractures and porous sandstone lenses beneath the TFS may occur.

During the annual monitoring period, groundwater was present in only two of the existing groundwater monitoring wells located along the northern site boundary. Based on analytical results, KFGW-2B which is inferred to screen the Shepparton Formation (or alluvium formation associated with Golden Gully) contains elevated concentrations of arsenic, iron, manganese, nickel, zinc, TDS, sulphate, sodium, chloride, and pH variably above the adopted criteria for environmental values of groundwater. This well has likely been impacted by seepage from the adjacent Evaporation Pond which includes water from the TSFs. It is unclear whether groundwater present in KFGW-2B represents an artificial perched aquifer generated by seepage, or the naturally occurring aquifer associated with the Shepparton Formation/alluvium formations, or a combination of both.

KFGW-2A is inferred to screen the Castlemaine Group and also contains elevated concentrations of arsenic, copper, iron, manganese, nickel, zinc, TDS, sulphate, sodium, chloride, and pH variably above the adopted criteria for environmental values of groundwater. The reported metals may potentially be representative of background conditions within the Castlemaine Group, however, may also be associated with on-site sources such as the TSFs.

Consideration was made to conducting groundwater monitoring at the Carshalton Shaft and Hansel Mundy Shaft to provide additional data, noting that limited monitoring is already undertaken at the Carshalton Shaft as part of DEECA Bendigo's Groundwater Project. Although data from the Carshalton Shaft (and other shafts) can provide some information regarding groundwater conditions in other areas of the site, as the shafts are interconnected with the broad network of underground mines, the data from the shafts are likely distorted by external influences and therefore may not be appropriate for use when assessing potential risk that site poses.

Assessing whether reported concentrations are indicative of background aquifer conditions or due to impacts from the site is confounded by limitations associated with the existing groundwater monitoring network and known background/regional groundwater pollution due to historical mining activities more broadly. Some background groundwater quality information is provided in a previous environmental audit report completed at 2 Alder Street, Golden Square (approximately 900 m northwest of the site) in 2021. However, this audit

report does identify that background groundwater quality is impacted by off-site ambient/regional sources associated with mining activities, which would include the Kangaroo Flat Former Gold Mine.

From a qualitative perspective, based on a comparison of the reported concentrations in surface water prior to discharge (Evaporation Pond and Processing Plant Stormwater Dam), leachate at CTD_SEEP01, on-site groundwater data from KFGW-2A, KFGW-2B and the Carshalton Shaft, and off-site groundwater data obtained from the environmental audit report, there is some evidence to suggest that activities undertaken at the site have impacted groundwater. However, the extent of this impact and whether it poses a potential risk is unclear. A summary of this comparison is provided in **Table 9-1**.

In accordance with EPA Publication 2001, when considering the risk from groundwater impacts, both existing and potential environmental values should be regarded. Existing environmental values are those that currently exists in the vicinity of the site (for example a creek which receives groundwater or a bore that is used for irrigation). A potential environmental value is one that could be supported by the background groundwater quality. A potential environmental value of groundwater is considered likely in circumstances where groundwater is used for that value in the same hydrogeological setting or the existing and likely future land uses are compatible with the environmental value.

Therefore, although the environmental value of groundwater to be protected are determined by the segment of groundwater regardless of the land use and hydrogeological properties, these should be taken into account when identifying 'potential' environmental value of groundwater which may be applicable.

Surrounding land use varies and includes rural residential properties, agriculture properties, commercial/industrial areas and parks and recreational areas (National Park). These land uses support the use of groundwater for extractive uses such as potable water supply; agriculture and irrigation – irrigation; agriculture and irrigation – stock water; and recreational water use; however, extensive use of groundwater for these uses is considered unlikely to be realised on a local scale based on the following:

- Hydraulic conductivity and aquifer yield within both the Shepparton Formation and Castlemaine Group can be highly variable. Furthermore, it is currently unclear whether a naturally occurring aquifer actually exists within the Shepparton Formation/Alluvium Formations associated with Golden Gully at the site or whether it has been artificially created by seepage from the Evaporation Pond.
- A search of registered groundwater monitoring bores indicates that only four registered bores exist within a 2 km radius of the site are inferred to be used for extractive purposes (excludes those listed for commercial and dewatering). Based on the inferred depth of these bores, they appear to have been installed in the Castlemaine Group. The nearest bore is located approximately 1.3 km north-east of the site.
- Reticulated water supply is readily available in the vicinity of the site.
- Groundwater quality in both the Shepparton Formation and Castlemaine Group is known to be highly variable, and therefore it is possible that several environmental values will be precluded by the natural groundwater quality.

A summary of the relevance of environmental values of groundwater at the site and in the broader area is presented in **Table 9-2**. Overall, although environmental values of groundwater are unlikely to be released in the immediate vicinity of the site, further assessment is required to confirm this and the potential impacts that the site has had on groundwater.

Table 9-1 Comparison of Surface Water, Leachate and Groundwater Concentrations

Analyte	Environmental Values / Criteria (mg/L)					Maximum Reported Concentrations (mg/L)						
						Background Aquifer Conditions (?)	On-Site Surface Water Discharged to Groundwater Via Shafts		Leachate in TSF	On-site Groundwater Monitoring Wells		Carshalton Shaft
	Maintenance of Aquatic Ecosystems and Species	Agriculture and Irrigation - Irrigation	Agriculture and Irrigation – Stock Water	Drinking Water (Acceptable)	Water Based Recreation	Part of 2 Alder Street, Golden Square Audit Report (CARMS 59714)[1]	Processing Plant Stormwater Dam	Evaporation Pond	CTD_SEEP01	KFGW-2B (Shepparton Formation)	KFGW-2A (Castlemaine Group)	Carshalton Shaft (2022-2025) (VVG, 2025)[2]
TDS			2,000	600	*600*	*1,170*	*858.88*	*4,481.28*	*3098.88*	*4632.32*	*2652.16*	*1300*
pH		6 - 9		6.5 – 8.5	*5 - 9*	-	*7.97 – 9.86*	6.04 – 8.59	6.95 – 7.25	5.24 – 6.46	*4.9 – 6.16*	6.48-8.2
Chloride				250		4,170	-	-	27	950	740	580
Sodium				180		2,300	-	-	350	800	430	280
Sulphate			1000	250	*5000*	-	430	3,700	3,000	3,400	1,300	270
Cyanide	0.007			0.08	*0.8*	-	<LOR	0.007	0.007	<LOR	<LOR	-
Antimony				0.003		-	0.006	0.006	0.007	<LOR	<LOR	-
Arsenic	0.013	0.1	0.5	0.01	*0.1*	0.005	*2.3*	*0.21*	*1.5*	*0.3*	0.025	*0.054 – 0.56*[3]
Barium				2	*20*	-	<LOR	0.03	0.04	0.08	0.07	-
Beryllium		0.1		0.06		-	<LOR	<LOR	<LOR	<LOR	<LOR	-
Cadmium	0.0002	0.01	0.01	0.002	*0.02*	0.0003	<LOR	0.0004	<LOR	<LOR	<LOR	0.0002
Chromium		0.1	1		*0.5*	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	0.1
Cobalt		0.05	1			0.034	<LOR	<LOR	0.01	0.016	0.034	-

Analyte	Environmental Values / Criteria (mg/L)					Maximum Reported Concentrations (mg/L)						
						Background Aquifer Conditions (?)	On-Site Surface Water Discharged to Groundwater Via Shafts		Leachate in TSF	On-site Groundwater Monitoring Wells		Carshalton Shaft
	Maintenance of Aquatic Ecosystems and Species	Agriculture and Irrigation - Irrigation	Agriculture and Irrigation – Stock Water	Drinking Water (Acceptable)	Water Based Recreation	Part of 2 Alder Street, Golden Square Audit Report (CARMS 59714)[1]	Processing Plant Stormwater Dam	Evaporation Pond	CTD_SEEP01	KFGW-2B (Shepparton Formation)	KFGW-2A (Castlemaine Group)	Carshalton Shaft (2022-2025) (VVG, 2025)[2]
Copper	0.0014	0.2	0.4	**2 / 1**	***20/1***	0.023	0.002	0.002	<LOR	<LOR	0.007	0.001 – 0.1
Iron		0.2		**0.3**	***0.3***	<LOR	<LOR	0.18	***2.5***	***5.5***	***3.6***	***0.03 – 1.8***
Lead	0.0034	2	0.1	**0.01**	***0.1***	0.006	<LOR	<LOR	0.001	<LOR	<LOR	***0.001 – 0.5***
Manganese	1.9	0.2		**0.5/0.1**	***5/0.1***	<LOR	<LOR	***0.25***	***0.22***	***1.2***	***0.73***	***0.17 -0.35[3]***
Molybdenum		0.01	0.15	**0.05**		0.008	0.011	0.044	**0.051**	<LOR	<LOR	-
Mercury	0.0006	0.002	0.002	**0.001**	***0.01***	0.0007	<LOR	<LOR	<LOR	<LOR	<LOR	***0.0001 – 1[3]***
Nickel	0.011	0.2	1	**0.02**	***0.2***	***0.11***	0.003	**0.025**	**0.066**	**0.034**	***0.12***	**0.006 – 0.1**
Selenium	0.011	0.02	0.02	**0.01**	***0.1***	0.024	<LOR	0.002	<LOR	<LOR	<LOR	-
Tin						-	<LOR	<LOR	<LOR	<LOR	<LOR	-
Vanadium		0.1				-	<LOR	<LOR	<LOR	<LOR	<LOR	-
Zinc	0.008	2	20	**3**	**3**	0.098	0.009	0.07	0.027	0.04	0.12	0.032 - 0.2

Table Notes:
LOR – limit of reporting
1. Based on groundwater monitoring results from analytes concluded in audit report to be elevated naturally or from background/regional pollution and/or based on GW20 results
2. Groundwater monitoring data available on Visualizing Victorias Groundwater (VVG) website between 2022-2025 collected as part of DEECAs Bendigo Groundwater Project
3. Unsure whether result is total or dissolved phase.

Table 9-2 Summary of Potential Risk to Environmental Values of Groundwater

Environmental Value	Potential Existing and Future Receptors		Contaminants above Criteria in KFGW-02A and KFGW-02B (potentially due to site activities)	Environmental Value Likely to be Precluded by Contamination from Site
	On-site	Off-site		
Water dependent ecosystems (slightly to moderately modified)	No	Yes (potentially Bendigo Creek)	Arsenic, nickel, and zinc	**Requires Further Assessment** – No receiving water bodies are known to exist at the site however the point of groundwater discharge is currently unclear.
Potable water supply (acceptable)	Potentially (but unlikely)	Potentially (but unlikely)	TDS, pH, sodium, chloride, sulphate, arsenic, iron, manganese, and nickel	**Requires Further Assessment** – Although these environmental values are unlikely to be realised both on and off-site in the future, further assessment is required to assess the extent of groundwater impacts from the site and the potential risk posed to these environmental values.
Agriculture and irrigation (irrigation)	Potentially (but unlikely)	Potentially (but unlikely)	pH, arsenic, iron, manganese	
Agriculture and irrigation (stock watering)	Potentially (but unlikely)	Potentially (but unlikely)	TDS, sulphate	
Industrial and commercial use	Potentially (but unlikely)	Potentially (but unlikely)	-	
Water-based recreation (primary contract recreation)	Potentially (but unlikely)	Potentially (but unlikely)	TDS, pH, arsenic, iron, and nickel	
Traditional owners cultural and spiritual values	Refer to Water dependent ecosystems (slightly to moderately modified) and Water-based recreation (primary contract recreation).			
Buildings and structures	Yes	Yes	Sulphate	**Unlikely –** Although buildings exists on and off-site, based on the depth to groundwater foundations of buildings are unlikely to come into contact with groundwater.

9.3 Dust

Although depositional dust and real-time dust monitoring provides some information regarding the concentration and composition of dust, direct measurement of potentially impacted media (i.e., soil, tank water) provides the most reliable assessment of the risk to environmental values.

The key transport mechanisms for dust to impact receptors includes inhalation by adjacent residents or on-site workers, deposition of dust onto soils and direct contact by ecological and human health receptors, deposition of dust onto roofs and accumulation in tank water potentially used for drinking water, and deposition into surrounding water bodies or swimming pools used for recreation.

The risk to environmental values due to dust emissions generated from the site is considered likely low based on the current understanding of the site and the following multiple lines of evidence:

- Although the real-time dust monitoring program has reported PM_{10} concentrations above nuisance dust criteria for adaptive management, the exceedance was limited to one occurrence and associated with a weather event and not associated with any activity occurring at the site. $PM_{2.5}$ and PM_{10} concentrations have not exceeded health-based criteria defined in the ERS, 2021.
- No soil sampling is known to have been conducted on adjacent properties to assess potential impacts on adjacent properties from deposition of dust. Estimated soil concentrations based on the depositional dust data obtained during this annual monitoring event suggest that barium, copper, and zinc may be elevated above tier 1 ecological and human health-based criteria. However, estimated concentrations between the background and boundary locations are similar and likely overestimated.
- Based on the results of the real-time dust monitoring program, concentrations of $PM_{2.5}$ and PM_{10} were below the adopted ambient air indicators defined in the ERS 2021. Furthermore, when concentrations of analytes are estimated in air based on the PM_{10} concentrations and depositional dust analysis, concentrations of all analytes were below the adopted human health and environmental criteria as defined in EPA Publication 1961 (and other guidelines).
- EHS Support understands that rainwater from tanks on adjacent property was historically sampled whilst the mine was operational. No tank monitoring data is available. Although it may be possible to model tank water concentrations based on the depositional dust and real-time dust monitoring programs, this is unlikely to provide conclusive information as uncertainty will likely remain, and direct measurement of these features/receptors is preferred.

Overall, based on the depositional dust data and real-time dust monitoring obtained during this monitoring period, the current understanding of the risk posed to receptors has not changed from previous investigations and is generally considered low. Although the risk is considered to likely be low, undertaking soil sampling, tank water sampling, and dam/pool water sampling on adjacent properties will address remaining uncertainties.

10 Conclusions

The following key conclusions are made based on the results of the environmental monitoring undertaken at the site between June 2024 and May 2025.

10.1 Surface Water

Based on the results of the surface water monitoring program, the following conclusions are made:

- On-site ponds/dams include the Stormwater Dam, Processing Plant Stormwater Dam, Carbon-in-Leach Dam 1 and 2, Coarse Tailings Dam, Fine Tailings Dam and Evaporation Pond. Water within the Stormwater Dam is transferred to the Carbon-in-Leach Dam 2 once it reaches a certain level and is used for dust suppression. Water within the Carbon-in-Leach Dam 1 is transferred to the Processing Plant Stormwater Dam. Water within the Coarse and Fines Tailings Dam (which includes rainwater, leachate, and historical bleed water) is transferred to the Processing Plant Stormwater Dam via the Fine Tailings Dam Sump or to the Evaporation Pond via subsurface perforated pipes. Water within both the Processing Plant Stormwater Dam and Evaporation Pond is connected to groundwater via mine shafts.
- Elevated concentrations of various metals (antimony, arsenic, cadmium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, and zinc), TDS, sulphate and pH exceeded the adopted criteria for environmental values in the ponds/dams on-site. The elevated concentrations of metals, TDS, sulphate and possibly pH are likely associated with historical mining activities which have resulted in mobilisation and potential concentration of these analytes, either though oxidation of minerals as the source rock is brought to the surface, or through geochemical changes during processing of the source rock and concentration within the by-products (i.e., tailings). The fluctuations in metal concentrations observed in ponds/dams on-site during the annual monitoring period are likely associated with geochemical functions and interactions between the respective surface water body and underlying sediments and clays.
- Although in accordance with the ERS, 2021 the environmental values of surface water do not apply to constructed waterways which would include the on-site ponds/dams, as water from Carbon-in-Leach Dam 2 is used for dust suppression at the site and water within the Processing Plant Stormwater Dam and Evaporation Pond was discharged to groundwater via the mine shafts, the potential risk of harm to environmental values of land and groundwater requires further assessment to assess the potential risk via these pathways.
- Off-site waterways in the vicinity of the site include Golden Gully and Unnamed Creek 1 and 2. Unnamed Creek 1 and 2 are ephemeral waterways that form informal drainage channels following heavy rainfall and have been heavily modified downgradient of the site. Golden Gully is also an ephemeral waterway. These waterways all eventually discharge to Bendigo Creek. During the annual reporting period, water was only present in Unnamed Creek 1 and 2 following significant rainfall.
- Elevated concentrations of arsenic, copper, iron, lead, manganese, nickel, zinc, turbidity, and pH were reported in Unnamed Creek 1 and 2 above the adopted criteria for several environmental values. As these are ephemeral and modified waterways which essentially form informal drainage channels for stormwater, environmental values of water are unlikely to be relevant, realised or supported. Furthermore, as there is no direct connection via overland flow between on-site ponds/dams and off-site adjacent waterways, the elevated concentrations of metals reported are likely associated with the mobilisation of metals in colloidal matter as stormwater forms over surrounding off-site areas following heavy rainfall events.

10.2 Groundwater

Based on the results of the groundwater monitoring program, the following conclusions are made:

- Groundwater beneath the site is expected to exist within the Castlemaine Group. A shallower aquifer may also naturally be present to the east of the site formed by the Shepparton Formation/Alluvium Formations associated with Golden Gully.
- Although a limited groundwater monitoring well network exists at the site, the majority of existing groundwater monitoring wells are not appropriately constructed or positioned to provide a robust assessment of the risk to groundwater beneath the site.
- Data from CTD_SEEP01, which is installed within the base of the Coarse Tailings Dam indicates that there is approximately 3 m of leachate at the base of the TSF which contains high concentrations of various analytes including arsenic. The leachate is inferred to migrate to Fine Tailings Dam Sump (FTD_SUMP) where it is then transferred to the Processing Plant Stormwater Dam or collected via subsurface perforated pipes and transferred to the Evaporation Pond. However, there is a potential that direct seepage to groundwater via fractures and porous sandstone lenses may occur directly beneath the TSFs.
- During the annual monitoring period, groundwater was present in only two of the existing groundwater monitoring wells located along the northern site boundary (KFGW-2A and KFGW-2B). Based on analytical results, KFGW-2B which is inferred to screen the Shepparton Formation (or alluvium formation associated with Golden Gully) contains elevated concentrations of arsenic, iron, manganese, nickel, zinc, TDS, sulphate, sodium, chloride, and pH variably above the adopted criteria for environmental values of groundwater. This well has likely been impacted by seepage from the adjacent Evaporation Pond and it is currently unclear whether groundwater present in KFGW-2B represents an artificial perched aquifer generated by seepage, or the naturally occurring aquifer associated with the Shepparton Formation/Alluvium Formation, or a combination of both.
- KFGW-2A is inferred to screen the Castlemaine Group and also contains elevated concentrations of arsenic, copper, iron, manganese, nickel, zinc, TDS, sulphate, sodium, chloride, and pH variably above the adopted criteria for environmental values of groundwater. The reported metals may potentially be representative of background conditions within the Castlemaine Group, however, may also be associated with on-site sources such as the TSFs.
- Based on a comparison of the reported concentrations in surface water prior to discharge to groundwater (Evaporation Pond and Processing Plant Stormwater Dam), leachate at CTD_SEEP01, on-site groundwater data from KFGW-2A, KFGW-2B and the Carshalton Shaft, and off-site groundwater data obtained from an environmental audit report, there is some evidence to suggest that activities undertaken at the site have impacted groundwater. However, the extent of this impact and whether it poses a potential risk is unclear.

10.3 Dust

Based on the results of the dust monitoring program, the following conclusions are made:

- Although depositional dust and real-time dust monitoring provides some information regarding the concentration and composition of dust, direct measurement of potentially impacted media (i.e., soil, tank water) provides the most reliable assessment of the risk to environmental values.
- Continuous real-time dust monitoring at the site did not identify elevated concentrations of $PM_{2.5}$ or PM_{10} above air quality criteria defined in the ERS, 2021. There was one isolated exceedances of the EPA Publication 1961 criteria for nuisance dust criteria, however, this was associated with a weather event and did not correspond to any activity been undertaken at the site to warrant the implementation of adaptive dust mitigation measures.

- Isolated exceedances of total insoluble solids were reported during the depositional dust monitoring program at the site. Exceedances were only reported at KFDD01, KFDD03 and KF-DD05-BG. Prevailing wind direction during months when exceedances were reported suggested that the exceedances were likely associated with ambient sources of dust (such as agricultural activities, industrial/commercial areas, and residential construction).
- Analysis of depositional dust samples reported various metals (arsenic, barium, chromium, cobalt, copper, lead, iron, manganese, molybdenum, and zinc), and sulphate above the laboratory limit of reporting. Arsenic was only reported on one occasion at the background monitoring gauge (KFDD05-BG). The percentage of all other analytes in dust was comparable to the background monitoring gauge, suggesting that the reported metals and sulphate in depositional dust may be associated with ambient sources of dust.
- Concentrations of metals and sulphate in air was estimated based on the depositional dust monitoring results and PM_{10} concentrations reported by the real-time dust monitors. All estimated air concentrations were below the human health and environmental criteria defined in EPA Publication 1961.
- Overall, based on the depositional dust and real-time dust monitoring obtained during this monitoring period, combined with the results of previous environmental investigations, the current understanding of the risk posed to receptors due to dust has not changed and is generally considered low.

11 Summary of Key Data-Gaps and Recommendations

As outlined previously, there are several significant data-gaps which need to be assessed to confirm that the risk to environmental values posed by the site is low and acceptable.

In general, mining activities are considered high potential sources of contamination and can have significant impacts on the environment. This is particularly true for mine sites where processing of ore and tailing storage facilities are located. In accordance with the Environment Protection Act, 2017, DEECA/ERR have a general environmental duty and duty to manage contaminated land, which includes the identification, assessment, clean-up, and management of contamination (as required).

Although environmental monitoring conducted during this annual monitoring period provides some information regarding the contamination status of the site and potential risk, further assessment is required. In addition to assessing potential risk, further assessment will also be required to inform and aid in the development of the rehabilitation strategy for the site.

A summary of the key data-gaps identified at the site, and recommendations to address these data-gaps are provided in **Table 11-1**. General recommendations are also included.

Table 11-1 Summary of Data-Gaps and Recommendations

Segment of Environment	Data-Gap	Recommendations
Soil / Sediment	• The contamination status of soils and sediments across the site has not previously been assessed.	Complete a **targeted environmental site assessment** at the site. The targeted environmental site assessment should focus on areas (or domains) of the site which represent the highest potential for contamination, including: • Tailings Storage Facilities, including the Coarse and Fine Tailings Dam. • Carbon-in-Leach Tailings area (i.e., Carbon-in-Leach Dam 1 and 2). • Processing Plant. • Mechanical and Drillers Workshops. • General areas of the site (including rock storage areas, laydown areas). Depending on the staging of the rehabilitation of the site, the targeted environmental site assessment could be completed in stages to focus on where rehabilitation efforts need to be prioritised or will occur first.
Surface Water	• The potential impacts on environmental values of groundwater due to discharge of surface water via the Carshalton and Hansel Mundy Shafts has not been confirmed/assessed. • The potential impacts on environmental values of land due to use of water from Carbon-in-Leach Dam 2 for dust suppression has not been confirmed/assessed.	The following recommendations are provided to directly address these data-gaps: • DEECA/ERR should **prevent and/or minimise discharge of surface water to groundwater** via the Carshalton and Hansel Mundy Shaft until appropriate approval is obtained. • Develop an **interim water management plan/strategy** for the site to manage water prior to rehabilitation. This should include undertaking a water balance assessment to assess likely storage requirements and to inform whether off-site discharge will be required prior to rehabilitation of the site to manage surplus water. In addition, consideration of leachate generation and management within the TSFs needs to be incorporated into the strategy. • If off-site disposal to the Carshalton or Hansel Mundy Shafts (or any other shaft) is required to manage surface water at the site, then appropriate approval should be obtained. This will likely include an **A18 – *Discharge or Deposit Waste to an Aquifer Permit*** from EPA and **permission from the water authority**. An assessment of the potential risk of harm to the environment will need to be undertaken as part of the approval process. • As surface water in Carbon-in-Leach Dam 2 contains elevated concentrations of metals (primarily arsenic), a **beneficial re-use assessment** is required to confirm that use of this water for dust suppression will not result in adverse impacts to the environment (or example, due to contamination of soils or adjacent land via run-off and drift).

Segment of Environment	Data-Gap	Recommendations
		The following general recommendations are provided: • Continue to undertake **quarterly surface water monitoring** of the ponds/dams, and the off-site unnamed creeks and Golden Gully (when water is present) as per the current Environmental Monitoring Plan. As TRHs, PAHs and BTEXN have not been reported in surface water samples where analysed, these can likely be excluded from the analytical program. • DEECA should continue to routinely inspect the site and access to the site by general public or grazing stock should continue to be restricted. • Where possible, changes in water levels in each on-site pond/dam should be recorded routinely.

Groundwater	• The potential impacts on environmental values of groundwater due to seepage from other on-site ponds/dams (namely the TSFs) has not been confirmed/assessed.
	• There is evidence to indicate that seepage from the evaporation pond has directly impacted groundwater, however, the extent of groundwater impact is currently unknown.
	• The potential impacts on environmental values of groundwater due to discharge of surface water via the Carshalton and Hansel Mundy Shafts has not been confirmed/assessed.
		The following recommendations are provided to directly address these data-gaps:
		• **Additional groundwater assessment** should be undertaken at the site. This can be undertaken as part of the targeted environmental site assessment, and should include installation of additional groundwater monitoring wells to assess of the following key areas of concern:
		  ○ Installation of additional perimeter wells around that TSFs which are appropriately constructed to assess potential impacts leachate and seepage from the TSF may be having on groundwater quality.
		  ○ Confirmation and delineation of impacts to shallow groundwater due to seepage from the Evaporation Pond in the northeast portion of the site.
		  ○ Installation of additional groundwater monitoring wells in other areas of the site to assess potential impacts to groundwater that may have occurred due to previous discharge of surface water via the Carshalton and Hansel Mundy Shafts.
		  ○ Evaluation of background groundwater quality from upgradient areas.
		The following general recommendations are provided:
		• Continue to undertake **quarterly groundwater monitoring** of the existing groundwater monitoring well and CTD_SEEP01 (when water is present) as per the current Environmental Monitoring Plan. As TRHs, PAHs and BTEXN have not been reported in groundwater samples where analysed, these can likely be excluded from the analytical program.
		• If additional groundwater monitoring wells are installed at the site, these should be incorporated into the Environmental Monitoring Plan.

Segment of Environment	Data-Gap	Recommendations
Dust	• No previous background soil sampling has been undertaken to assess whether depositional dust has impacted on surrounding soils. • Although historically tank water sampling was undertaken during operation of the mine, no results are available.	Although the risk to environmental values due to dust is considered low, direct measurement of potentially impacted media (i.e., soil, tank water) provides the most reliable assessment of the risk to environmental values. As such, the following recommendations are provided to directly address these data-gaps: • The targeted environmental site assessment recommended will assist in identifying potential impacts dust generated from the site may have on surrounding land. It is recommended that **background soil sampling** be undertaken as part of the assessment to assess soil conditions in areas on adjacent land where dust may be deposited. • Consider undertaking **tank water and dam/pool water sampling** in areas immediately adjacent to the site. • The following general recommendations are provided: • **Ongoing real-time dust monitoring** for $PM_{2.5}$ and PM_{10} should continue. The monitoring network should be reassessed regularly and adjusted if rehabilitation commences at the site. This may include the establishment of additional real-time dust monitors to act as dynamic monitors that target particular rehabilitation activities at the site. • **Monthly depositional dust monitoring** should continue. Analysis of depositional dust should include total insoluble solids, soluble solids, total solids, ash matter, combustible matter and total and insoluble metals and cyanide. The need for cyanide analysis should continually be reassessed based on the results of the depositional dust data and from subsequent environmental assessments.

12 Limitations

EHS Support Pty Ltd ("EHS Support") has prepared this report in accordance with the usual care and thoroughness of the consulting profession for the use of DEECA (ERR) and only those third parties who have been authorised in writing by EHS Support to rely on the report. It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this report. It is prepared in accordance with the scope of work and for the purpose outlined in the Proposal dated December 2023 and subsequent variations.

The methodology adopted and sources of information used by EHS Support are outlined in this report. EHS Support has made no independent verification of this information beyond the agreed scope of works and EHS Support assumes no responsibility for any inaccuracies or omissions. No indications were found during our investigations that information contained in this report as provided to EHS Support was false.

This report was prepared in September 2024 and is based on the conditions encountered and information reviewed at the time of preparation. EHS Support disclaims responsibility for any changes that may have occurred after this time.

This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. This report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

Whilst to the best of our knowledge information contained in this report is accurate at the date of issue, subsurface conditions, including groundwater levels can change in a limited time. Therefore this document and the information contained herein should only be regarded as valid at the time of the investigation unless otherwise explicitly stated in this report.

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Figures

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Kangaroo Flat Former Mine
Site Location and Current Site Features

0 60 120 240 360 480 Meters
1:5,973 [Page Size: A3]

Kangaroo Flat
Former Mine Site
Environmental Monitoring

EHS Support

Figure 1

CREATED BY:	D. Barnes
APPROVED BY:	M. Russ
PROJECT REF. NO:	PTY.05108
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GRID/DATUM:	GDA2020 MGA Zone 55
SCALE:	1:5,973
AERIAL IMAGE SOURCE:	Nearmap PTY LTD

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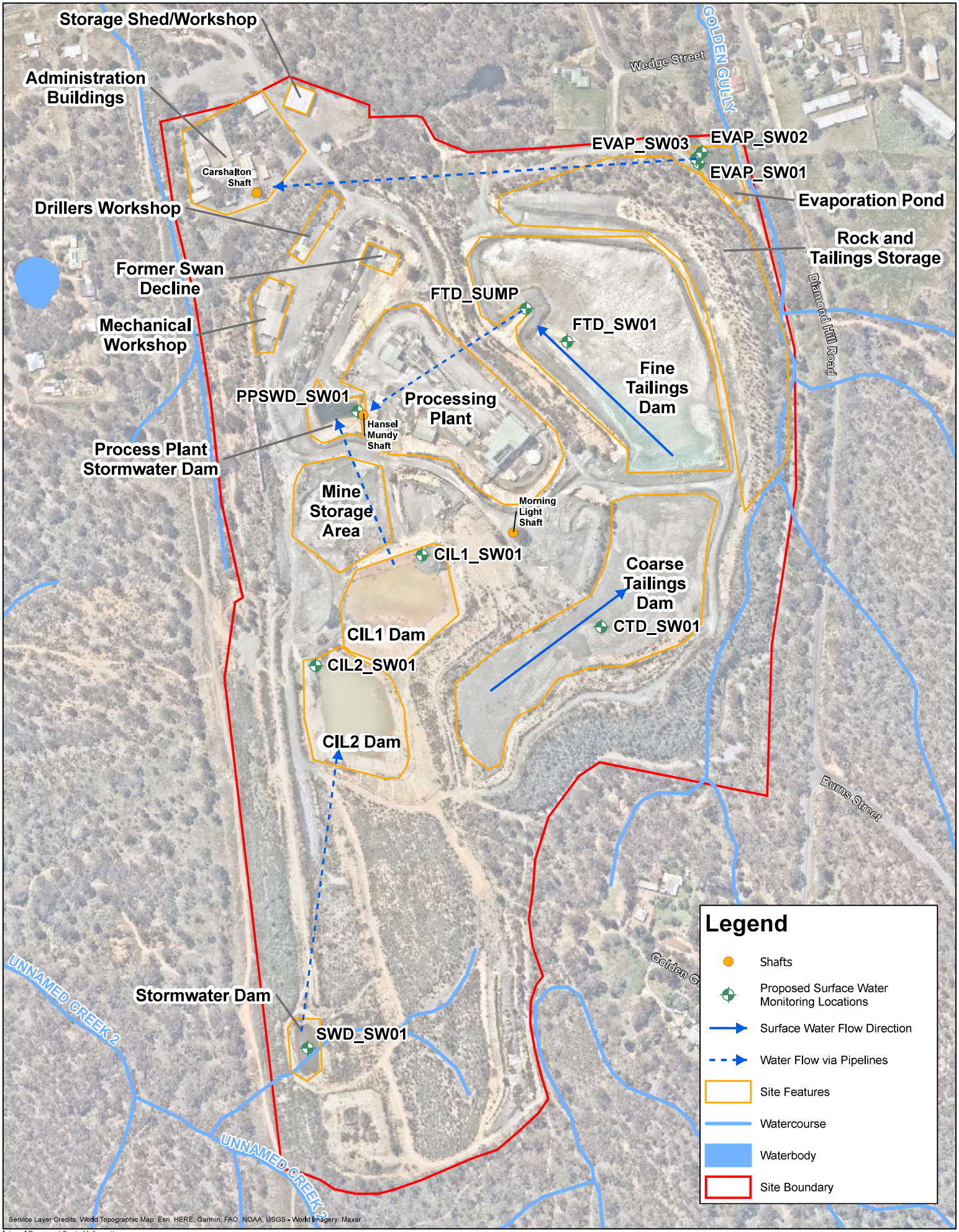

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Surface Water Monitoring Locations - On-Site Ponds/Dams

0 30 60 120 180 240 Meters
1:3,303 [Page Size: A3]

Kangaroo Flat
Former Mine Site
Environmental Monitoring

EHS Support

Figure 2

CREATED BY:	D. Barnes
APPROVED BY:	M. Russ
PROJECT REF. NO:	PTY.05108
MAP PROJECTION:	Transverse Mercator
GRID/DATUM:	GDA2020 MGA Zone 55
SCALE:	1:3,303
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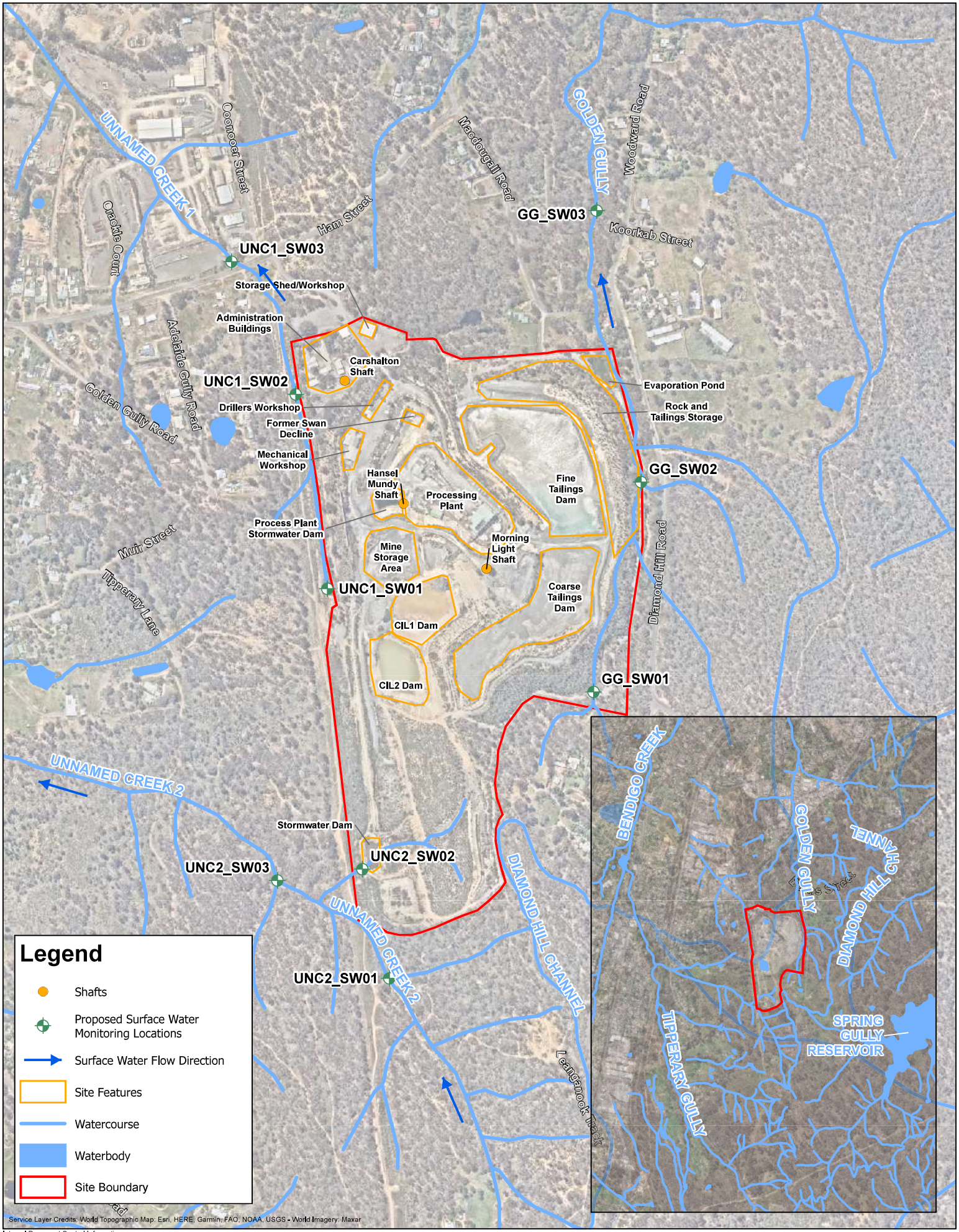

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Surface Water Monitoring Locations - Off-Site Waterways

0 60 120 240 360 480 Meters
1:5,973 [Page Size: A3]

Kangaroo Flat
Former Mine Site
Environmental Monitoring

EHS Support

Figure 3

CREATED BY:	D. Barnes
APPROVED BY:	M. Russ
PROJECT REF. NO:	PTY.05108
MAP PROJECTION:	Transverse Mercator
GRID/DATUM:	GDA2020 MGA Zone 55
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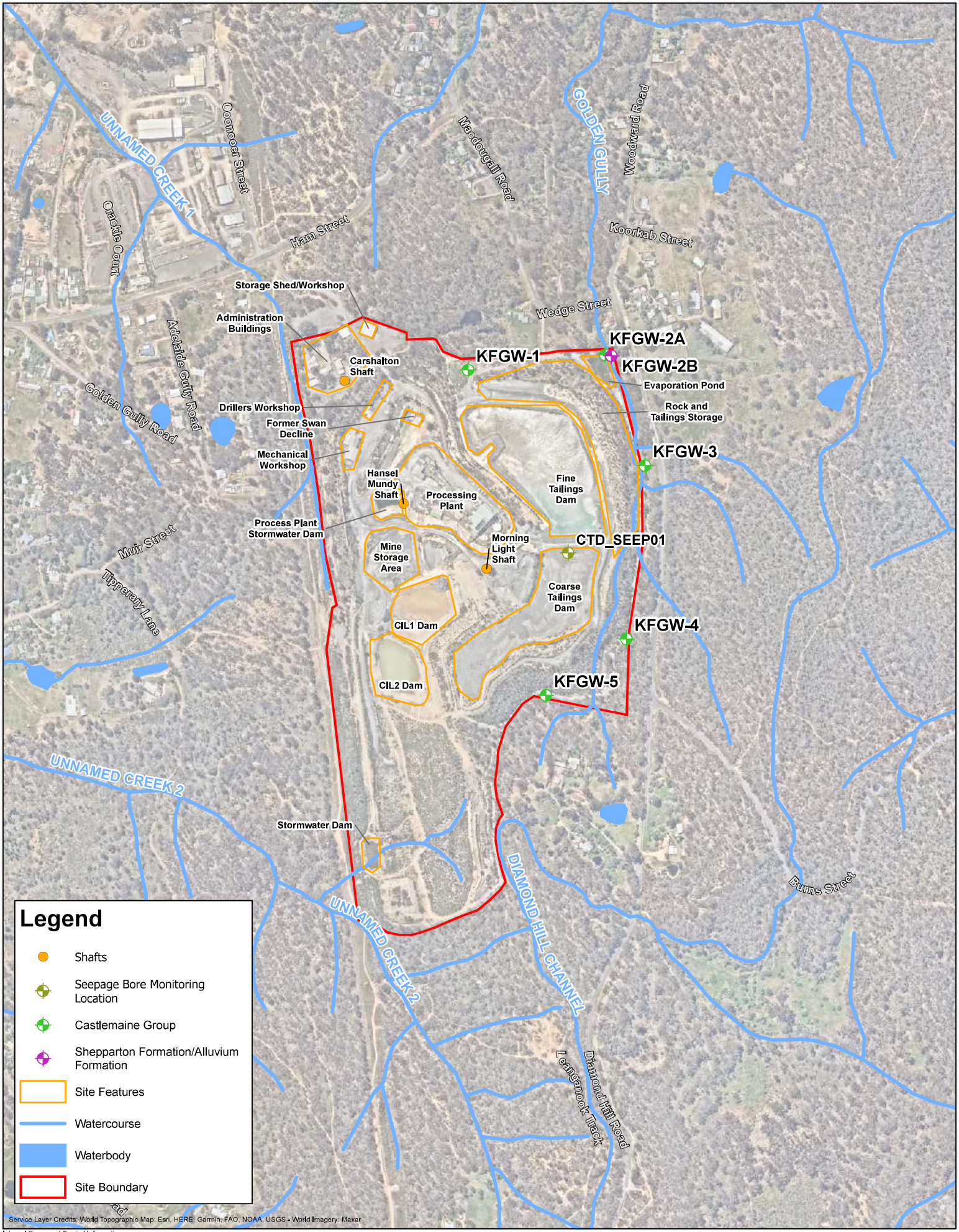

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Groundwater Monitoring Locations

0 60 120 240 360 480 Meters
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Kangaroo Flat
Former Mine Site
Environmental Monitoring

EHS Support

Figure 4

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APPROVED BY:	M. Russ
PROJECT REF. NO:	PTY.05108
MAP PROJECTION:	Transverse Mercator
GRID/DATUM:	GDA2020 MGA Zone 55
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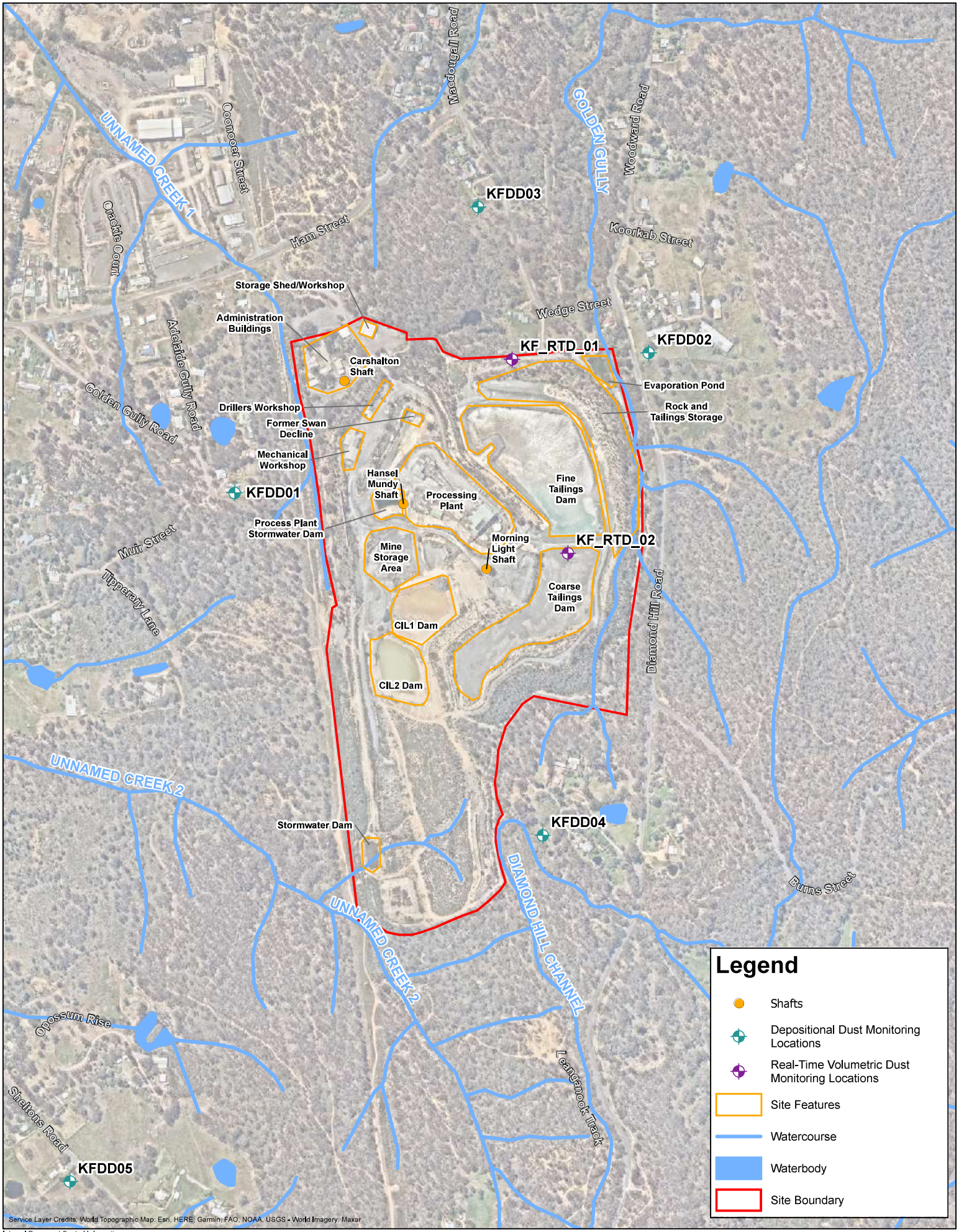

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Dust Monitoring Locations

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Kangaroo Flat
Former Mine Site
Environmental Monitoring

EHS Support

Figure 5

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APPROVED BY:	M. Russ
PROJECT REF. NO:	PTY.05108
MAP PROJECTION:	Transverse Mercator
GRID/DATUM:	GDA2020 MGA Zone 55
SCALE:	1:5,973
AERIAL IMAGE SOURCE:	Nearmap PTY LTD

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Tables

Table 1 -
Surface Water Analytical Results - On-site Ponds/Dams

							Pond/Dam	Stormwater Dam (SWD)				Carbon-in Leach Dam 1 (CIL1)				Carbon-in Leach Dam 2 (CIL2)			
							Location ID	SWD_SW01	SWD_SW01	SWD_SW01	SWD_SW01	CIL1_SW01	CIL1_SW01	CIL1_SW01	CIL2_SW01	CIL2_SW01	CIL2_SW01	CIL2_SW01
							Sample Date	01 Jul 2024	01 Oct 2024	29 Jan 2025	30 Apr 2025	01 Jul 2024	01 Oct 2024	01 May 2025	01 Jul 2024	01 Oct 2024	29 Jan 2025	01 May 2025
Analyte/Analyte Grouping	ANZG Toxicant Default Guideline Values - 95% Level of Species Protection - Freshwater	ANZECC Irrigation Water: Long-Term Trigger Values	ANZECC Livestock Drinking Water Quality Groundwater	NHMRC ADWG 2015 Health	NHMRC ADWG 2015 Aesthetic	NHMRC 10x Drinking Water Guidelines 2019	Unit											
FIELD																		
Conductivity	--	--	--	--	--	--	us/cm	189.8	215.6	137.3	1239	696	1433	464.6	202	314.8	243.8	899
Dissolved Oxygen	--	--	--	--	--	--	mg/L	9.97	5.89	7.02	8.67	11.46	6.99	10.77	11.49	8.84	9.15	10.55
Oxidation-Reduction Potential	--	--	--	--	--	--	mV	179.2	13.1	31.4	276.6	307	342.2	240.6	158	18.1	86.5	132.7
pH (Field)	--	6 - 9	--	6.5 - 8.5	5 - 9	--	SU	6.91	6.96	7.04	3.92	3	3.6	4.42	7.13	8.95	8.73	8.17
Temperature	--	--	--	--	--	--	deg c	--	13.5	19.9	18.2	--	21.2	7	--	16.6	21.7	8.6
Total Dissolved Solids (Calculated)	--	--	2000	--	600	6000	mg/L	121.472	138	87.872	792.96	445.44	917	297.344	129.28	201	156.032	575.36
Turbidity	--	--	--	--	5	--	NTU	33.1	--	9.69	564.52	50.6	--	273.6	4.97	--	53.15	3095.67
GENERAL CHEMISTRY																		
Cyanide	0.007	--	--	0.08	--	0.8	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MAHs																		
Benzene	0.95	--	0.001	0.001	--	0.01	mg/L	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	0.08	--	0.3	0.3	0.003	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene (Cumene)	0.03	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
M,P-Xylene	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
Naphthalene (BTEXN)	0.016	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
O-Xylene (1,2-Dimethylbenzene)	0.35	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
Styrene	--	--	--	0.03	0.004	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
Toluene	0.18	--	0.8	0.8	0.025	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
Total MAH*	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
Xylenes	--	--	0.6	0.6	0.02	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
MAJOR IONS																		
Alkalinity, Bicarbonate (As CaCO3)	--	--	--	--	--	--	mg/L	< 20	23	75	< 20	< 20	< 20	< 20	31	32	59	65
Alkalinity, Carbonate (As CaCO3)	--	--	--	--	--	--	mg/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Alkalinity, Hydroxide (As CaCO3)	--	--	--	--	--	--	mg/L	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Alkalinity, Total (As CaCO3)	--	--	--	--	--	--	mg/L	< 20	23	75	< 20	< 20	< 20	< 20	31	32	59	65
Sulfate (As SO4)	--	--	1000	--	250	5000	mg/L	34	79	16	410	340	720	150	30	49	45	100
METALS																		
Antimony	--	--	--	0.003	--	--	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Arsenic	0.013*	0.1	0.5	0.01	--	0.1	mg/L	0.017	0.047	0.031	0.005	0.1	0.14	0.2	0.31	0.26	0.51	0.73
Barium	--	--	--	2	--	20	mg/L	0.03	0.02	0.02	0.1	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02	0.04
Beryllium	--	0.1	--	0.06	--	--	mg/L	< 0.001	< 0.001	< 0.001	0.005	0.003	0.005	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium	0.0002	0.01	0.01	0.002	--	0.02	mg/L	< 0.0002	< 0.0002	< 0.0002	0.002	0.0065	0.011	0.0013	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium, total	--	0.1	1	--	--	0.5	mg/L	< 0.001	0.001	< 0.001	< 0.001	0.001	0.002	0.001	< 0.001	< 0.001	< 0.001	0.002
Cobalt	--	0.05	1	--	--	--	mg/L	0.001	0.001	< 0.001	0.24	0.19	0.32	0.043	< 0.001	< 0.001	< 0.001	0.004
Copper	0.0014	0.2	0.4	2	1	20	mg/L	0.001	0.003	0.001	0.017	0.42	0.78	0.12	0.002	0.003	0.002	0.005
Iron	--	0.2	--	--	0.3	--	mg/L	1.5	3.1	1.3	0.74	0.43	0.41	0.29	0.16	0.14	0.09	3.2
Lead	0.0034	2	0.1	0.01	--	0.1	mg/L	< 0.001	0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.009
Manganese	1.9	0.2	--	0.5	0.1	5	mg/L	0.018	0.02	0.015	2.2	1	1.6	0.19	< 0.005	< 0.005	0.009	0.064
Mercury	0.0006	0.002	0.002	0.001	--	0.01	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Molybdenum	--	0.01	0.15	0.05	--	--	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Nickel	0.011	0.2	1	0.02	--	0.2	mg/L	0.002	0.003	0.002	0.13	0.42	0.72	0.1	0.001	0.001	0.001	0.006
Selenium	0.011	0.02	0.02	0.01	--	0.1	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	0.00005	--	--	0.1	--	1	mg/L	--	< 0.005	--	--	--	--	--	--	--	--	--
Tin	--	--	--	--	--	--	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Vanadium	--	0.1	--	--	--	--	mg/L	< 0.005	< 0.005	< 0.005	0.018	< 0.005	< 0.005	0.015	< 0.005	< 0.005	< 0.005	0.023
Zinc	0.008	2	20	--	3	--	mg/L	0.007	0.007	0.009	0.3	1.8	3.1	0.32	< 0.005	0.019	0.006	0.033
METALS, DISSOLVED																		
Antimony	--	--	--	0.003	--	--	mg/L	< 0.005	--	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Arsenic	0.013*	0.1	0.5	0.01	--	0.1	mg/L	0.006	--	0.022	0.005	0.09	0.11	0.17	0.31	0.21	0.48	0.25
Barium	--	--	--	2	--	20	mg/L	0.03	--	0.02	0.1	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02	0.03
Beryllium	--	0.1	--	0.06	--	--	mg/L	< 0.001	--	< 0.001	0.005	0.003	0.004	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium	0.0002	0.01	0.01	0.002	--	0.02	mg/L	< 0.0002	--	< 0.0002	0.0018	0.0064	0.0094	0.0012	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium, total	--	0.1	1	--	--	0.5	mg/L	< 0.001	--	< 0.001	< 0.001	0.002	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	--	0.05	1	--	--	--	mg/L	< 0.001	--	< 0.001	0.24	0.19	0.26	0.034	< 0.001	< 0.001	< 0.001	< 0.001
Copper	0.0014	0.2	0.4	2	1	20	mg/L	< 0.001	--	< 0.001	0.017	0.42	0.63	0.11	0.002	0.001	0.001	0.001
Iron	--	0.2	--	--	0.3	--	mg/L	0.33	--	0.78	0.7	0.4	0.34	0.18	0.07	0.05	< 0.05	0.05
Lead	0.0034	2	0.1	0.01	--	0.1	mg/L	< 0.001	--	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Manganese	1.9	0.2	--	0.5	0.1	5	mg/L	0.017	--	0.01	2.1	1	1.3	0.1	< 0.005	< 0.005	< 0.005	0.026
Mercury	0.0006	0.002	0.002	0.001	--	0.01	mg/L	< 0.0001	--	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Molybdenum	--	0.01	0.15	0.05	--	--	mg/L	< 0.005	--	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Nickel	0.011	0.2	1	0.02	--	0.2	mg/L	0.002	--	0.001	0.13	0.41	0.58	0.1	0.001	< 0.001	< 0.001	0.003
Selenium	0.011	0.02	0.02	0.01	--	0.1	mg/L	< 0.001	--	< 0.001	< 0.001	0.001	0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Tin	--	--	--	--	--	--	mg/L	< 0.005	--	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Vanadium	--	0.1	--	--	--	--	mg/L	< 0.005	--	< 0.005	0.014	< 0.005	< 0.005	0.006	< 0.005	< 0.005	< 0.005	0.013
Zinc	0.008	2	20	--	3	--	mg/L	0.007	--	0.008	0.28	1.8	2.6	0.32	< 0.005	0.007	< 0.005	< 0.005
PAHs																		
Acenaphthene	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
Anthracene	0.0004	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
Benzo(b+j)fluoranthene	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
Benzo[a]anthracene	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
Benzo[a]pyrene	0.0002	--	0.00001	0.00001	--	0.0001	mg/L	--	--	--	--	--	--	--	--	--	--	--
Benzo[g,h,i]perylene	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
Benzo[k]fluoranthene	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--

Table 1 -
Surface Water Analytical Results - On-site Ponds/Dams

							Pond/Dam	Stormwater Dam (SWD)				Carbon-in Leach Dam 1 (CIL1)				Carbon-in Leach Dam 2 (CIL2)			
							Location ID	SWD_SW01	SWD_SW01	SWD_SW01	SWD_SW01	CIL1_SW01	CIL1_SW01	CIL1_SW01	CIL2_SW01	CIL2_SW01	CIL2_SW01	CIL2_SW01
							Sample Date	01 Jul 2024	01 Oct 2024	29 Jan 2025	30 Apr 2025	01 Jul 2024	01 Oct 2024	01 May 2025	01 Jul 2024	01 Oct 2024	29 Jan 2025	01 May 2025
Analyte/Analyte Grouping	ANZG Toxicant Default Guideline Values - 95% Level of Species Protection - Freshwater	ANZECC Irrigation Water: Long-Term Trigger Values	ANZECC Livestock Drinking Water Quality Groundwater	NHMRC ADWG 2015 Health	NHMRC ADWG 2015 Aesthetic	*NHMRC 10x Drinking Water Guidelines 2019*	Unit											
Chrysene	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
Dibenz[a,h]anthracene	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	0.0014	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
Fluorene	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-C,D)Pyrene	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
Naphthalene (SVOC)	0.016	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	0.002	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
Pyrene	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
Sum of PAHs	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
TPH																		
C10 - C14 Fraction	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
C10 - C36 Fraction (sum)	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
C15 - C28 Fraction	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
C29 - C36 Fraction	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
C6-C9	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
TRH																		
>C10 - C16 Fraction minus Naphthalene (F2)	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
>C10 - C40 Fraction (sum)	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
>C10-C16 Fraction (F2)	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
>C16-C34 Fraction (F3)	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
>C34 - C40 Fraction	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
C6-C10 (F1)	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--
C6-C10 Fraction minus BTEX (F1)	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	--	--	--

* based on criteria for As(V)

Table 1 -
Surface Water Analytical Results - On-site Ponds/Dams

							Pond/Dam	Processing Plant Stormwater Dam (PPSWD)				Fine Tailings Dam (FTD)		Fine Tailings Dam (FTD) Sump			
							Location ID	PPSWD_SW01	PPSWD_SW01	PPSWD_SW01	PPSWD_SW01	FTD_SW01	FTD_SW01	FTD_SUMP	FTD_SUMP	FTD_SUMP	FTD_SUMP
							Sample Date	01 Jul 2024	01 Oct 2024	29 Jan 2025	01 May 2025	01 Jul 2024	01 Oct 2024	01 Aug 2024	01 Oct 2024	29 Jan 2025	30 Apr 2025
Analyte/Analyte Grouping	ANZG Toxicant Default Guideline Values - 95% Level of Species Protection - Freshwater	ANZECC Irrigation Water: Long-Term Trigger Values	ANZECC Livestock Drinking Water Quality Groundwater	NHMRC ADWG 2015 Health	NHMRC ADWG 2015 Aesthetic	NHMRC 10x Drinking Water Guidelines 2019	Unit										
FIELD																	
Conductivity	--	--	--	--	--	--	us/cm	642	860	495.5	1342	1302	1769	--	1543	795	2324
Dissolved Oxygen	--	--	--	--	--	--	mg/L	12.55	10.57	10.96	10.75	11.82	9.5	9.4	1.87	3.22	2.45
Oxidation-Reduction Potential	--	--	--	--	--	--	mV	148.2	24.2	5.9	69.8	226.8	2.5	310	42.7	146.6	186.8
pH (Field)	--	6 - 9	--	6.5 - 8.5	5 - 9	--	SU	7.97	9.5	9.86	8.96	5.89	8.37	7.8	7.5	7.56	7.02
Temperature	--	--	--	--	--	--	deg c	--	17.5	24.7	18.7	--	21.3	--	13.2	19.2	16.9
Total Dissolved Solids (Calculated)	--	--	2000	--	600	6000	mg/L	410.88	550	317.12	858.88	833.28	1132	1300	988	508.8	1487.36
Turbidity	--	--	--	--	5	--	NTU	6.19	--	612.81	1695.83	5.83	--	--	--	775.52	2390.45
GENERAL CHEMISTRY																	
Cyanide	0.007	--	--	0.08	--	0.8	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MAHs																	
Benzene	0.95	--	0.001	0.001	--	0.01	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	--	--	--	--	--	--
Ethylbenzene	0.08	--	0.3	0.3	0.003	--	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	--	--	--	--	--	--
Isopropylbenzene (Cumene)	0.03	--	--	--	--	--	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	--	--	--	--	--	--
M,P-Xylene	--	--	--	--	--	--	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	--	--	--	--	--	--
Naphthalene (BTEXN)	0.016	--	--	--	--	--	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	--	--	--	--	--	--
O-Xylene (1,2-Dimethylbenzene)	0.35	--	--	--	--	--	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	--	--	--	--	--	--
Styrene	--	--	--	0.03	0.004	--	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	--	--	--	--	--	--
Toluene	0.18	--	0.8	0.8	0.025	--	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	--	--	--	--	--	--
Total MAH*	--	--	--	--	--	--	mg/L	< 0.003	< 0.003	< 0.003	< 0.003	--	--	--	--	--	--
Xylenes	--	--	0.6	0.6	0.02	--	mg/L	< 0.003	< 0.003	< 0.003	< 0.003	--	--	--	--	--	--
MAJOR IONS																	
Alkalinity, Bicarbonate (As CaCO3)	--	--	--	--	--	--	mg/L	42	30	<20	< 20	90	100	110	110	130	190
Alkalinity, Carbonate (As CaCO3)	--	--	--	--	--	--	mg/L	< 10	11	27	42	< 10	< 10	< 10	< 10	< 10	< 10
Alkalinity, Hydroxide (As CaCO3)	--	--	--	--	--	--	mg/L	< 20	< 20	<20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Alkalinity, Total (As CaCO3)	--	--	--	--	--	--	mg/L	42	41	45	61	92	100	110	110	130	190
Sulfate (As SO4)	--	--	1000	--	250	5000	mg/L	240	250	250	430	810	800	750	580	600	1000
METALS																	
Antimony	--	--	--	0.003	--	--	mg/L	< 0.005	< 0.005	<0.005	0.006	0.008	0.008	0.011	0.01	0.012	< 0.005
Arsenic	0.013*	0.1	0.5	0.01	--	0.1	mg/L	1.3	1.5	2.3	1.4	1.3	1.9	0.76	0.76	0.76	1.4
Barium	--	--	--	2	--	20	mg/L	< 0.02	< 0.02	< 0.02	0.03	0.05	0.05	0.04	0.04	0.03	0.03
Beryllium	--	0.1	--	0.06	--	--	mg/L	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium	0.0002	0.01	0.01	0.002	--	0.02	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0002	< 0.0002
Chromium, total	--	0.1	1	--	--	0.5	mg/L	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001
Cobalt	--	0.05	1	--	--	--	mg/L	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002
Copper	0.0014	0.2	0.4	2	1	20	mg/L	0.002	0.002	< 0.001	0.001	0.003	0.004	0.002	0.003	0.002	0.001
Iron	--	0.2	--	--	0.3	--	mg/L	0.08	0.06	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	4.8
Lead	0.0034	2	0.1	0.01	--	0.1	mg/L	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Manganese	1.9	0.2	--	0.5	0.1	5	mg/L	0.005	0.006	0.007	< 0.005	0.016	0.018	0.008	< 0.005	0.017	0.28
Mercury	0.0006	0.002	0.002	0.001	--	0.01	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Molybdenum	--	0.01	0.15	0.05	--	--	mg/L	0.01	0.009	0.007	0.018	0.035	0.036	0.037	0.032	0.029	0.036
Nickel	0.011	0.2	1	0.02	--	0.2	mg/L	0.002	0.002	0.002	0.003	0.006	0.006	0.005	0.005	0.004	0.009
Selenium	0.011	0.02	0.02	0.01	--	0.1	mg/L	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	0.001	0.001	< 0.001	< 0.001
Silver	0.00005	--	--	0.1	--	1	mg/L	--	--	--	--	--	--	--	--	--	--
Tin	--	--	--	--	--	--	mg/L	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Vanadium	--	0.1	--	--	--	--	mg/L	< 0.005	< 0.005	<0.005	0.013	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.018
Zinc	0.008	2	20	--	3	--	mg/L	0.007	0.021	0.005	< 0.005	0.014	0.012	0.054	0.041	0.031	0.057
METALS, DISSOLVED																	
Antimony	--	--	--	0.003	--	--	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	0.009	0.006	0.008	0.008	0.012	0.01
Arsenic	0.013*	0.1	0.5	0.01	--	0.1	mg/L	1.3	1.2	2.3	1.3	1.3	1.6	0.52	0.7	0.75	1.3
Barium	--	--	--	2	--	20	mg/L	< 0.02	< 0.02	< 0.02	0.02	0.05	0.04	0.04	0.03	0.03	0.03
Beryllium	--	0.1	--	0.06	--	--	mg/L	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium	0.0002	0.01	0.01	0.002	--	0.02	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0002	< 0.0002
Chromium, total	--	0.1	1	--	--	0.5	mg/L	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	--	0.05	1	--	--	--	mg/L	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Copper	0.0014	0.2	0.4	2	1	20	mg/L	0.002	0.002	< 0.001	0.001	0.003	0.002	0.002	0.002	0.002	0.001
Iron	--	0.2	--	--	0.3	--	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.58
Lead	0.0034	2	0.1	0.01	--	0.1	mg/L	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001
Manganese	1.9	0.2	--	0.5	0.1	5	mg/L	< 0.005	< 0.005	<0.005	< 0.005	0.011	0.007	< 0.005	< 0.005	0.017	0.18
Mercury	0.0006	0.002	0.002	0.001	--	0.01	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Molybdenum	--	0.01	0.15	0.05	--	--	mg/L	0.008	0.007	0.005	0.011	0.027	0.024	0.02	0.022	0.025	0.027
Nickel	0.011	0.2	1	0.02	--	0.2	mg/L	0.002	0.002	0.002	0.003	0.006	0.004	0.004	0.004	0.004	0.008
Selenium	0.011	0.02	0.02	0.01	--	0.1	mg/L	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	<0.001	0.001	< 0.001	< 0.001	< 0.001
Tin	--	--	--	--	--	--	mg/L	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Vanadium	--	0.1	--	--	--	--	mg/L	< 0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.006
Zinc	0.008	2	20	--	3	--	mg/L	0.007	0.009	< 0.005	< 0.005	0.014	0.006	0.022	0.027	0.029	0.047
PAHs																	
Acenaphthene	--	--	--	--	--	--	mg/L	< 0.001	< 0.001	<0.001	< 0.001	--	--	--	--	--	--
Acenaphthylene	--	--	--	--	--	--	mg/L	< 0.001	< 0.001	<0.001	< 0.001	--	--	--	--	--	--
Anthracene	0.0004	--	--	--	--	--	mg/L	< 0.001	< 0.001	<0.001	< 0.001	--	--	--	--	--	--
Benzo(b+j)fluoranthene	--	--	--	--	--	--	mg/L	< 0.001	< 0.001	<0.001	< 0.001	--	--	--	--	--	--
Benzo[a]anthracene	--	--	--	--	--	--	mg/L	< 0.001	< 0.001	<0.001	< 0.001	--	--	--	--	--	--
Benzo[a]pyrene	0.0002	--	0.00001	0.00001	--	0.0001	mg/L	< 0.001	< 0.001	<0.001	< 0.001	--	--	--	--	--	--
Benzo[g,h,i]perylene	--	--	--	--	--	--	mg/L	< 0.001	< 0.001	<0.001	< 0.001	--	--	--	--	--	--
Benzo[k]fluoranthene	--	--	--	--	--	--	mg/L	< 0.001	< 0.001	<0.001	< 0.001	--	--	--	--	--	--

Table 1 -
Surface Water Analytical Results - On-site Ponds/Dams

							Pond/Dam	Processing Plant Stormwater Dam (PPSWD)				Fine Tailings Dam (FTD)		Fine Tailings Dam (FTD) Sump			
							Location ID	PPSWD_SW01	PPSWD_SW01	PPSWD_SW01	PPSWD_SW01	FTD_SW01	FTD_SW01	FTD_SUMP	FTD_SUMP	FTD_SUMP	FTD_SUMP
							Sample Date	01 Jul 2024	01 Oct 2024	29 Jan 2025	01 May 2025	01 Jul 2024	01 Oct 2024	01 Aug 2024	01 Oct 2024	29 Jan 2025	30 Apr 2025
Analyte/Analyte Grouping	ANZG Toxicant Default Guideline Values - 95% Level of Species Protection - Freshwater	ANZECC Irrigation Water: Long-Term Trigger Values	ANZECC Livestock Drinking Water Quality Groundwater	NHMRC ADWG 2015 Health	NHMRC ADWG 2015 Aesthetic	*NHMRC 10x Drinking Water Guidelines 2019*	Unit										
Chrysene	--	--	--	--	--	--	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	--	--	--	--	--	--
Dibenz[a,h]anthracene	--	--	--	--	--	--	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	--	--	--	--	--	--
Fluoranthene	0.0014	--	--	--	--	--	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	--	--	--	--	--	--
Fluorene	--	--	--	--	--	--	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	--	--	--	--	--	--
Indeno(1,2,3-C,D)Pyrene	--	--	--	--	--	--	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	--	--	--	--	--	--
Naphthalene (SVOC)	0.016	--	--	--	--	--	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	--	--	--	--	--	--
Phenanthrene	0.002	--	--	--	--	--	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	--	--	--	--	--	--
Pyrene	--	--	--	--	--	--	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	--	--	--	--	--	--
Sum of PAHs	--	--	--	--	--	--	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	--	--	--	--	--	--
TPH																	
C10 - C14 Fraction	--	--	--	--	--	--	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	--	--	--	--	--	--
C10 - C36 Fraction (sum)	--	--	--	--	--	--	mg/L	< 0.1	< 0.1	< 0.1	< 0.1	--	--	--	--	--	--
C15 - C28 Fraction	--	--	--	--	--	--	mg/L	< 0.1	< 0.1	< 0.1	< 0.1	--	--	--	--	--	--
C29 - C36 Fraction	--	--	--	--	--	--	mg/L	< 0.1	< 0.1	< 0.1	< 0.1	--	--	--	--	--	--
C6-C9	--	--	--	--	--	--	mg/L	< 0.02	< 0.02	< 0.02	< 0.02	--	--	--	--	--	--
TRH																	
>C10 - C16 Fraction minus Naphthalene (F2)	--	--	--	--	--	--	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	--	--	--	--	--	--
>C10 - C40 Fraction (sum)	--	--	--	--	--	--	mg/L	< 0.1	< 0.1	< 0.1	< 0.1	--	--	--	--	--	--
>C10-C16 Fraction (F2)	--	--	--	--	--	--	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	--	--	--	--	--	--
>C16-C34 Fraction (F3)	--	--	--	--	--	--	mg/L	< 0.1	< 0.1	< 0.1	< 0.1	--	--	--	--	--	--
>C34 - C40 Fraction	--	--	--	--	--	--	mg/L	< 0.1	< 0.1	< 0.1	< 0.1	--	--	--	--	--	--
C6-C10 (F1)	--	--	--	--	--	--	mg/L	< 0.02	< 0.02	< 0.02	< 0.02	--	--	--	--	--	--
C6-C10 Fraction minus BTEX (F1)	--	--	--	--	--	--	mg/L	< 0.02	< 0.02	< 0.02	< 0.02	--	--	--	--	--	--

* based on criteria for As(V)

Table 1 -
Surface Water Analytical Results - On-site Ponds/Dams

Analyte/Analyte Grouping	ANZG Toxicant Default Guideline Values - 95% Level of Species Protection - Freshwater	ANZECC Irrigation Water: Long-Term Trigger Values	ANZECC Livestock Drinking Water Quality Groundwater	NHMRC ADWG 2015 Health	NHMRC ADWG 2015 Aesthetic	NHMRC 10x Drinking Water Guidelines 2019	Unit	Pond/Dam	Evaporation Pond (EVAP) - Water in sump from TSFs				Evaporation Pond (EVAP) - Surface water within pond				Evaporation Pond (EVAP) - Water discharged to the Carshalton shaft			
								Location ID	EVAP_SW01	EVAP_SW01	EVAP_SW01	EVAP_SW01	EVAP_SW02	EVAP_SW02	EVAP_SW02	EVAP_SW02	EVAP_SW03	EVAP_SW03	EVAP_SW03	EVAP_SW03
								Sample Date	01 Jul 2024	01 Oct 2024	29 Jan 2025	30 Apr 2025	01 Jul 2024	01 Oct 2024	29 Jan 2025	30 Apr 2025	01 Jul 2024	01 Oct 2024	29 Jan 2025	30 Apr 2025
FIELD																				
Conductivity	--	--	--	--	--	--	us/cm		5019	6496	3084	5965	3129	4469	3758	7002	4927	6453	3180	5899
Dissolved Oxygen	--	--	--	--	--	--	mg/L		6.85	5.06	5.78	6.66	16.97	14.45	0.74	11.42	8.16	5.74	7.53	7.62
Oxidation-Reduction Potential	--	--	--	--	--	--	mV		260	122.1	225.9	215.4	204.7	81.9	-220.8	166	159.7	130.2	206.6	146.6
pH (Field)	--	6 - 9	--	6.5 - 8.5	5 - 9	--	SU		6.04	6.89	6.92	6.73	7.82	8.59	7.53	7.91	6.39	7.18	7.56	7.52
Temperature	--	--	--	--	--	--	deg c		--	16.3	19.5	18.6	--	13.9	22.5	14.9	--	15.8	21.1	17.4
Total Dissolved Solids (Calculated)	--	--	2000	--	600	6000	mg/L		3212.16	4157	1973.76	3817.6	2002.56	2860	2405.12	4481.28	3153.28	4130	2035.2	3775.36
Turbidity	--	--	--	--	5	--	NTU		-0.05	--	-8.64	-8.48	3.06	--	16.1	47.73	0.93	--	3054.86	4836.14
GENERAL CHEMISTRY																				
Cyanide	0.007	--	--	0.08	--	0.8	mg/L		< 0.005	< 0.005	< 0.005	0.007	< 0.005	< 0.005	< 0.005	0.006	< 0.005	< 0.005	< 0.005	0.005
MAHs																				
Benzene	0.95	--	0.001	0.001	--	0.01	mg/L		--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001
Ethylbenzene	0.08	--	0.3	0.3	0.003	--	mg/L		--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001
Isopropylbenzene (Cumene)	0.03	--	--	--	--	--	mg/L		--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001
M,P-Xylene	--	--	--	--	--	--	mg/L		--	--	--	--	--	--	--	--	< 0.002	--	--	< 0.002
Naphthalene (BTEXN)	0.016	--	--	--	--	--	mg/L		--	--	--	--	--	--	--	--	< 0.01	--	--	< 0.01
O-Xylene (1,2-Dimethylbenzene)	0.35	--	--	--	--	--	mg/L		--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001
Styrene	--	--	--	0.03	0.004	--	mg/L		--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001
Toluene	0.18	--	0.8	0.8	0.025	--	mg/L		--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001
Total MAH*	--	--	--	--	--	--	mg/L		--	--	--	--	--	--	--	--	< 0.003	--	--	< 0.003
Xylenes	--	--	0.6	0.6	0.02	--	mg/L		--	--	--	--	--	--	--	--	< 0.003	--	--	< 0.003
MAJOR IONS																				
Alkalinity, Bicarbonate (As CaCO3)	--	--	--	--	--	--	mg/L		540	490	510	510	180	110	250	300	470	470	430	480
Alkalinity, Carbonate (As CaCO3)	--	--	--	--	--	--	mg/L		< 10	< 10	< 10	< 10	17	21	< 10	< 10	22	< 10	< 10	< 10
Alkalinity, Hydroxide (As CaCO3)	--	--	--	--	--	--	mg/L		< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Alkalinity, Total (As CaCO3)	--	--	--	--	--	--	mg/L		540	490	510	510	190	130	250	300	490	470	430	480
Sulfate (As SO4)	--	--	1000	--	250	5000	mg/L		2600	3200	3000	3000	2000	3100	3700	3600	2600	3200	3000	3000
METALS																				
Antimony	--	--	--	0.003	--	--	mg/L		0.005	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.006	0.006	0.005	< 0.005
Arsenic	0.013*	0.1	0.5	0.01	--	0.1	mg/L		0.098	0.098	0.086	0.08	0.052	0.071	0.23	0.13	0.16	0.16	0.22	0.14
Barium	--	--	--	2	--	20	mg/L		0.02	0.02	0.02	< 0.02	< 0.02	< 0.02	0.02	< 0.02	0.03	0.03	0.02	< 0.02
Beryllium	--	0.1	--	0.06	--	--	mg/L		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium	0.0002	0.01	0.01	0.002	--	0.02	mg/L		0.0004	0.0003	0.0003	0.0003	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0003	0.0003	0.0003	0.0003
Chromium, total	--	0.1	1	--	--	0.5	mg/L		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	--	0.05	1	--	--	--	mg/L		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Copper	0.0014	0.2	0.4	2	1	20	mg/L		0.002	0.002	0.002	0.002	< 0.001	< 0.001	< 0.001	0.001	0.002	0.002	0.002	0.002
Iron	--	0.2	--	--	0.3	--	mg/L		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.27	0.39	< 0.05	< 0.05	< 0.05	0.07
Lead	0.0034	2	0.1	0.01	--	0.1	mg/L		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Manganese	1.9	0.2	--	0.5	0.1	5	mg/L		0.025	0.02	0.026	0.036	< 0.005	< 0.005	0.25	0.021	< 0.005	< 0.005	< 0.005	0.009
Mercury	0.0006	0.002	0.002	0.001	--	0.01	mg/L		< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Molybdenum	--	0.01	0.15	0.05	--	--	mg/L		0.06	0.056	0.055	0.043	0.031	0.041	0.014	0.043	0.058	0.056	0.056	0.044
Nickel	0.011	0.2	1	0.02	--	0.2	mg/L		0.025	0.025	0.024	0.023	0.008	0.008	0.013	0.014	0.024	0.022	0.017	0.017
Selenium	0.011	0.02	0.02	0.01	--	0.1	mg/L		0.002	0.002	0.002	0.002	< 0.001	< 0.001	< 0.001	< 0.001	0.002	0.002	0.002	0.003
Silver	0.00005	--	--	0.1	--	1	mg/L		--	--	--	--	--	--	--	--	--	--	--	--
Tin	--	--	--	--	--	--	mg/L		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Vanadium	--	0.1	--	--	--	--	mg/L		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Zinc	0.008	2	20	--	3	--	mg/L		0.043	0.044	0.036	0.035	< 0.005	0.028	0.009	< 0.005	0.048	0.052	0.12	0.054
METALS, DISSOLVED																				
Antimony	--	--	--	0.003	--	--	mg/L		0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.006	< 0.005	0.005	< 0.005
Arsenic	0.013*	0.1	0.5	0.01	--	0.1	mg/L		0.095	0.086	0.078	0.083	0.052	0.067	0.21	0.12	0.16	0.15	0.21	0.12
Barium	--	--	--	2	--	20	mg/L		0.02	0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.03	0.02	0.02	< 0.02
Beryllium	--	0.1	--	0.06	--	--	mg/L		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium	0.0002	0.01	0.01	0.002	--	0.02	mg/L		0.0004	0.0003	0.0003	0.0003	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0004	0.0003	0.0002	0.0003
Chromium, total	--	0.1	1	--	--	0.5	mg/L		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	--	0.05	1	--	--	--	mg/L		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Copper	0.0014	0.2	0.4	2	1	20	mg/L		0.002	0.001	0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	0.001	0.001	0.001
Iron	--	0.2	--	--	0.3	--	mg/L		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.18	0.09	< 0.05	< 0.05	< 0.05	< 0.05
Lead	0.0034	2	0.1	0.01	--	0.1	mg/L		< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Manganese	1.9	0.2	--	0.5	0.1	5	mg/L		0.025	0.017	0.024	0.036	< 0.005	< 0.005	0.25	0.017	< 0.005	< 0.005	< 0.005	0.009
Mercury	0.0006	0.002	0.002	0.001	--	0.01	mg/L		< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Molybdenum	--	0.01	0.15	0.05	--	--	mg/L		0.041	0.035	0.038	0.025	0.025	0.026	0.013	0.038	0.044	0.037	0.043	0.025
Nickel	0.011	0.2	1	0.02	--	0.2	mg/L		0.025	0.02	0.022	0.023	0.008	0.008	0.012	0.013	0.024	0.018	0.017	0.016
Selenium	0.011	0.02	0.02	0.01	--	0.1	mg/L		0.002	0.002	0.001	0.002	< 0.001	< 0.001	< 0.001	< 0.001	0.002	0.002	0.002	0.002
Tin	--	--	--	--	--	--	mg/L		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Vanadium	--	0.1	--	--	--	--	mg/L		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Zinc	0.008	2	20	--	3	--	mg/L		0.043	0.031	0.032	0.034	< 0.005	< 0.005	< 0.005	< 0.005	0.048	0.036	0.07	0.044
PAHs																				
Acenaphthene	--	--	--	--	--	--	mg/L		--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001
Acenaphthylene	--	--	--	--	--	--	mg/L		--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001
Anthracene	0.0004	--	--	--	--	--	mg/L		--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001
Benzo(b+j)fluoranthene	--	--	--	--	--	--	mg/L		--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001
Benzo[a]anthracene	--	--	--	--	--	--	mg/L		--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001
Benzo[a]pyrene	0.0002	--	0.00001	0.00001	--	0.0001	mg/L		--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001
Benzo[g,h,i]perylene	--	--	--	--	--	--	mg/L		--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001
Benzo[k]fluoranthene	--	--	--	--	--	--	mg/L		--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001

Table 1 -
Surface Water Analytical Results - On-site Ponds/Dams

							Pond/Dam	Evaporation Pond (EVAP) - Water in sump from TSFs				Evaporation Pond (EVAP) - Surface water within pond				Evaporation Pond (EVAP) - Water discharged to the Carshalton shaft			
							Location ID	EVAP_SW01	EVAP_SW01	EVAP_SW01	EVAP_SW01	EVAP_SW02	EVAP_SW02	EVAP_SW02	EVAP_SW02	EVAP_SW03	EVAP_SW03	EVAP_SW03	EVAP_SW03
							Sample Date	01 Jul 2024	01 Oct 2024	29 Jan 2025	30 Apr 2025	01 Jul 2024	01 Oct 2024	29 Jan 2025	30 Apr 2025	01 Jul 2024	01 Oct 2024	29 Jan 2025	30 Apr 2025
Analyte/Analyte Grouping	ANZG Toxicant Default Guideline Values - 95% Level of Species Protection - Freshwater	ANZECC Irrigation Water: Long-Term Trigger Values	ANZECC Livestock Drinking Water Quality Groundwater	NHMRC ADWG 2015 Health	NHMRC ADWG 2015 Aesthetic	*NHMRC 10x Drinking Water Guidelines 2019*	Unit												
Chrysene	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001
Dibenz[a,h]anthracene	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001
Fluoranthene	0.0014	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001
Fluorene	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001
Indeno(1,2,3-C,D)Pyrene	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001
Naphthalene (SVOC)	0.016	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001
Phenanthrene	0.002	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001
Pyrene	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001
Sum of PAHs	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	< 0.001	--	--	< 0.001
TPH																			
C10 - C14 Fraction	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	< 0.05	--	--	< 0.05
C10 - C36 Fraction (sum)	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	< 0.1	--	--	< 0.1
C15 - C28 Fraction	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	< 0.1	--	--	< 0.1
C29 - C36 Fraction	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	< 0.1	--	--	< 0.1
C6-C9	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	< 0.02	--	--	< 0.02
TRH																			
>C10 - C16 Fraction minus Naphthalene (F2)	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	< 0.05	--	--	< 0.05
>C10 - C40 Fraction (sum)	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	< 0.1	--	--	< 0.1
>C10-C16 Fraction (F2)	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	< 0.05	--	--	< 0.05
>C16-C34 Fraction (F3)	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	< 0.1	--	--	< 0.1
>C34 - C40 Fraction	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	< 0.1	--	--	< 0.1
C6-C10 (F1)	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	< 0.02	--	--	< 0.02
C6-C10 Fraction minus BTEX (F1)	--	--	--	--	--	--	mg/L	--	--	--	--	--	--	--	--	< 0.02	--	--	< 0.02

* based on criteria for As(V)

Table 2 -
Surface Water Analytical Results - Off-Site Waterways

							Pond/Dam	Unnamed Creek 1 (UNC1)			Unnamed Creek 2 (UNC2)			
							Location ID	UNC1_SW01	UNC1_SW02	UNC1_SW03	UNC2_SW01	UNC2_SW03	UNC2_SW01	UNC2_SW03
							Sample Date	01 Oct 2024	01 Oct 2024	01 Oct 2024	03 Jul 2024	03 Jul 2024	01 Oct 2024	01 Oct 2024
Analyte/Analyte Grouping	ANZG Toxicant Default Guideline Values - 95% Level of Species Protection - Freshwater	ANZECC Irrigation Water: Long-Term Trigger Values	ANZECC Livestock Drinking Water Quality Groundwater	NHMRC ADWG 2015 Health	NHMRC ADWG 2015 Aesthetic	NHMRC 10x Drinking Water Guidelines 2019	Unit							
FIELD														
Conductivity	--	--	--	--	--	--	us/cm	212.1	176.6	268.4	224.4	89.5	279.4	110.6
Dissolved Oxygen	--	--	--	--	--	--	mg/L	5.94	4.99	6.8	9.55	7.16	5.74	2.94
Oxidation-Reduction Potential	--	--	--	--	--	--	mV	82.8	36.4	60.1	185.2	181.1	139.4	141.9
pH (Field)	--	6 - 9	--	6.5 - 8.5	5 - 9	--	SU	6.28	7.15	7.85	5.4	5.65	5.85	5.39
Temperature	--	--	--	--	--	--	deg c	14.3	15.1	14.8	--	--	17.8	15.7
Total Dissolved Solids (Calculated)	--	--	2000	--	600	6000	mg/L	136	113	172	143.616	57.28	179	71
Turbidity	--	--	--	--	5	--	NTU	--	--	--	303.67	493.73	--	--
GENERAL CHEMISTRY														
Cyanide	0.007	--	--	0.08	--	0.8	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MAJOR IONS														
Alkalinity, Bicarbonate (As CaCO3)	--	--	--	--	--	--	mg/L	< 20	< 20	74	< 20	< 20	< 20	< 20
Alkalinity, Carbonate (As CaCO3)	--	--	--	--	--	--	mg/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Alkalinity, Hydroxide (As CaCO3)	--	--	--	--	--	--	mg/L	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Alkalinity, Total (As CaCO3)	--	--	--	--	--	--	mg/L	< 20	< 20	74	< 20	< 20	< 20	< 20
Sulfate (As SO4)	--	--	1000	--	250	5000	mg/L	7.7	22	12	16	< 5	16	93
METALS														
Antimony	--	--	--	0.003	--	--	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Arsenic	0.013*	0.1	0.5	0.01	--	0.1	mg/L	0.014	0.053	0.047	0.006	0.005	0.013	0.008
Barium	--	--	--	2	--	20	mg/L	0.05	0.05	0.03	0.05	0.03	0.03	0.03
Beryllium	--	0.1	--	0.06	--	--	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium	0.0002	0.01	0.01	0.002	--	0.02	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium, total	--	0.1	1	--	--	0.5	mg/L	0.01	0.024	0.006	0.002	0.001	0.004	0.003
Cobalt	--	0.05	1	--	--	--	mg/L	0.008	0.01	0.002	0.002	0.002	0.01	0.006
Copper	0.0014	0.2	0.4	2	1	20	mg/L	0.008	0.019	0.01	0.009	0.004	0.01	0.008
Iron	--	0.2	--	--	0.3	--	mg/L	11	27	4.2	1.9	1.4	3.8	3.3
Lead	0.0034	2	0.1	0.01	--	0.1	mg/L	0.005	0.015	0.004	0.006	0.004	0.006	0.004
Manganese	1.9	0.2	--	0.5	0.1	5	mg/L	0.08	0.092	0.013	0.018	0.054	0.12	0.26
Mercury	0.0006	0.002	0.002	0.001	--	0.01	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Molybdenum	--	0.01	0.15	0.05	--	--	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Nickel	0.011	0.2	1	0.02	--	0.2	mg/L	0.009	0.028	0.007	0.006	0.004	0.009	0.006
Selenium	0.011	0.02	0.02	0.01	--	0.1	mg/L	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Silver	0.00005	--	--	0.1	--	1	mg/L	--	--	--	--	--	--	--
Tin	--	--	--	--	--	--	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Vanadium	--	0.1	--	--	--	--	mg/L	0.009	0.024	0.008	0.008	0.009	< 0.005	< 0.005
Zinc	0.008	2	20	--	3	--	mg/L	0.035	0.058	0.03	0.019	0.015	0.034	0.025
METALS, DISSOLVED														
Antimony	--	--	--	0.003	--	--	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Arsenic	0.013*	0.1	0.5	0.01	--	0.1	mg/L	0.003	0.005	0.009	0.003	0.002	0.013	0.011
Barium	--	--	--	2	--	20	mg/L	0.02	< 0.02	< 0.02	0.03	< 0.02	< 0.02	< 0.02
Beryllium	--	0.1	--	0.06	--	--	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium	0.0002	0.01	0.01	0.002	--	0.02	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium, total	--	0.1	1	--	--	0.5	mg/L	0.002	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	--	0.05	1	--	--	--	mg/L	0.002	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001
Copper	0.0014	0.2	0.4	2	1	20	mg/L	0.002	0.002	0.004	0.007	0.003	< 0.001	< 0.001
Iron	--	0.2	--	--	0.3	--	mg/L	1.1	0.51	0.24	0.45	0.39	1.2	1.4
Lead	0.0034	2	0.1	0.01	--	0.1	mg/L	< 0.001	< 0.001	< 0.001	0.003	0.001	< 0.001	< 0.001
Manganese	1.9	0.2	--	0.5	0.1	5	mg/L	0.037	0.023	< 0.005	0.013	0.04	0.092	0.18
Mercury	0.0006	0.002	0.002	0.001	--	0.01	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Molybdenum	--	0.01	0.15	0.05	--	--	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Nickel	0.011	0.2	1	0.02	--	0.2	mg/L	0.003	0.002	0.002	0.005	0.003	< 0.001	< 0.001
Selenium	0.011	0.02	0.02	0.01	--	0.1	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Tin	--	--	--	--	--	--	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Vanadium	--	0.1	--	--	--	--	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Zinc	0.008	2	20	--	3	--	mg/L	0.013	0.008	0.007	0.019	0.015	< 0.005	< 0.005

* based on criteria for As(V)

Table 3 -
Groundwater Gauging Results

Well ID	Date	Reference Elevation (mAHD)	SWL (mbTOC)	Total Depth (mbTOC)	Groundwater Elevation (mAHD)
CTD_SEEP01	1/07/2024	--	12.147	15.286	--
CTD_SEEP01	1/10/2024	--	12.359	15.311	--
CTD_SEEP01	29/01/2025	--	12.629	15.48	--
CTD_SEEP01	1/05/2025	--	12.807	15.379	--
KFGW_1	1/07/2024	280.35	Dry	5.886	--
KFGW_1	1/10/2024	280.348	Dry	5.906	--
KFGW_1	29/01/2025	280.348	Dry	5.879	--
KFGW_1	1/05/2025	280.348	Dry	5.876	--
KFGW_2A	1/07/2024	262.97	8.352	13.62	254.618
KFGW_2A	1/10/2024	262.97	8.031	13.609	254.939
KFGW_2A	29/01/2025	262.97	9.316	13.595	253.654
KFGW_2A	1/05/2025	262.97	9.933	13.586	253.037
KFGW_2B	2/07/2024	263.036	3.477	5.893	259.563
KFGW_2B	1/10/2024	263.036	3.314	5.899	259.722
KFGW_2B	29/01/2025	263.036	4.149	5.882	258.887
KFGW_2B	1/05/2025	263.036	4.878	5.843	258.158
KFGW_3	1/07/2024	273.38	Dry	9.356	--
KFGW_3	1/10/2024	273.379	Dry	9.356	--
KFGW_3	29/01/2025	273.379	Dry	9.332	--
KFGW_3	1/05/2025	273.379	Dry	5.359	--
KFGW_4	2/07/2024	287.32	Dry	6.346	--
KFGW_4	1/10/2024	287.318	Dry	5.375	--
KFGW_4	29/01/2025	287.318	Dry	5.35	--
KFGW_4	1/05/2025	287.318	Dry	7.289	--
KFGW_5	2/07/2024	--	Dry	7.276	--
KFGW_5	1/10/2024	--	Dry	7.276	--
KFGW_5	29/01/2025	--	Dry	7.264	--
KFGW_5	1/05/2025	--	Dry	9.354	--

Table 4 - Groundwater and Leachate Analytical Results

Analyte/Analyte Grouping	CAS Number	ANZG Toxicant Default Guideline Values - 95% Level of Species Protection - Freshwater	ANZECC Irrigation Water: Long-Term Trigger Values	ANZECC Livestock Drinking Water Quality Groundwater	NHMRC ADWG 2015 Health	NHMRC ADWG 2015 Aesthetic	NHMRC 10x Drinking Water Guidelines 2019	AUS Standard Buildings and Structures Groundwater	Fraction	Location ID	CTD_SEEP01				KFGW_2B (Shepparton/Alluvium Formation)				KFGW_2A (Castlemaine Group)			
										Sample Date	05 Jul 2024	01 Oct 2024	29 Jan 2025	30 Apr 2025	02 Jul 2024	01 Oct 2024	29 Jan 2025	01 May 2025	01 Jul 2024	01 Oct 2024	29 Jan 2025	01 May 2025
										Sample Type	PRIMARY	PRIMARY	PRIMARY	PRIMARY	PRIMARY	PRIMARY	PRIMARY	PRIMARY	PRIMARY	PRIMARY	PRIMARY	PRIMARY
										Unit												
FIELD																						
Conductivity	COND	--	--	--	--	--	--	--	T	us/cm	2854	4275	2088	4842	3931	5411	3345	7238	2707	4084	2235	4144
Dissolved Oxygen	DISS_OXYGEN	--	--	--	--	85	--	--	T	mg/L	5.71	2.28	3.63	4.9	0.1	0.02	0	1.62	0.85	0.23	0.12	0.25
Oxidation-Reduction Potential	ORP	--	--	--	--	--	--	--	T	mV	-169.8	-63.7	-13.7	132	13.5	-7.1	-15.3	-37.3	146	-121.6	22.9	9.6
pH (Field)	pH_Field	--	6 - 9	--	6.5 - 8.5	5 - 9	--	--	T	SU	7.25	6.95	7.2	7.22	5.24	5.7	6.16	6.46	4.9	6.11	6.16	6.12
Temperature	TEMP	--	--	--	--	--	--	--	T	deg c	16.5	18.1	17.3	18.7	14.7	14.1	20.5	18.8	12.4	16.1	24.3	16.2
Total Dissolved Solids (Calculated)	TDS_Calc	--	--	2000	--	600	6000	--	T	mg/L	1826.56	2736	1336.32	3098.88	2515.84	3463	2140.8	4632.32	1732.48	2614	1430.4	2652.16
Turbidity	TURB	--	--	--	--	5	--	--	T	NTU	157.52	--	740.02	1307	8.57	--	9.89	914.78	32.42	--	0.98	-1.08
GENERAL CHEMISTRY																						
Cyanide	57-12-5	0.007	--	--	0.08	--	0.8	--	T	mg/L	0.007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
MAHs																						
Benzene	71-43-2	0.95	--	0.001	0.001	--	0.01	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	100-41-4	0.08	--	0.3	0.3	0.003	--	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Isopropylbenzene (Cumene)	98-82-8	0.03	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
M,P-Xylene	179601-23-1	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Naphthalene (BTEXN)	91-20-3	0.016	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
O-Xylene (1,2-Dimethylbenzene)	95-47-6	0.35	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	100-42-5	--	--	--	0.03	0.004	--	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	108-88-3	0.18	--	0.8	0.8	0.025	--	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Total MAH*	TotalMAH	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Xylenes	1330-20-7	--	--	0.6	0.6	0.02	--	--	T	mg/L	--	--	--	--	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
MAJOR IONS																						
Alkalinity, Bicarbonate (As CaCO3)	ALKB	--	--	--	--	--	--	--	T	mg/L	260	500	640	540	220	230	280	460	290	260	290	260
Alkalinity, Carbonate (As CaCO3)	ALKC	--	--	--	--	--	--	--	T	mg/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Alkalinity, Hydroxide (As CaCO3)	ALKH	--	--	--	--	--	--	--	T	mg/L	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Alkalinity, Total (As CaCO3)	ALK	--	--	--	--	--	--	--	T	mg/L	260	500	640	540	220	230	280	460	290	260	290	260
Calcium	7440-70-2	--	--	1000	--	--	--	--	T	mg/L	120	--	--	--	270	270	320	400	7	4.5	5.5	5.5
Chloride (As Cl)	16887-00-6	--	--	--	--	250	--	6000	T	mg/L	27	--	--	--	950	530	760	770	690	740	690	660
Magnesium	7439-95-4	--	--	2000	--	--	--	--	T	mg/L	120	--	--	--	370	380	420	520	300	360	330	350
Potassium	7440-09-7	--	--	--	--	--	--	--	T	mg/L	48	--	--	--	35	33	54	60	7.6	5.9	6.1	6.9
Sodium	7440-23-5	--	--	--	--	180	--	--	T	mg/L	350	--	--	--	500	560	690	800	400	430	390	430
Sulfate (As SO4)	14808-79-8	--	--	1000	--	250	5000	1000	T	mg/L	920	2700	2800	3000	2100	2700	3400	3400	950	1100	1200	1300
Sulfide	18496-25-8	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	--	--	< 0.1	< 0.1	--	--	< 0.1	3
METALS																						
Antimony	7440-36-0	--	--	--	0.003	--	--	--	T	mg/L	--	0.015	< 0.005	< 0.005	--	--	--	--	--	--	--	--
Arsenic	7440-38-2	0.013*	0.1	0.5	0.01	--	0.1	--	T	mg/L	--	2.6	1.8	1.7	--	--	--	--	--	--	--	--
Barium	7440-39-3	--	--	--	2	--	20	--	T	mg/L	--	0.06	0.03	0.02	--	--	--	--	--	--	--	--
Beryllium	7440-41-7	--	0.1	--	0.06	--	--	--	T	mg/L	--	< 0.001	< 0.001	< 0.001	--	--	--	--	--	--	--	--
Cadmium	7440-43-9	0.0002	0.01	0.01	0.002	--	0.02	--	T	mg/L	--	0.0006	< 0.0002	< 0.0002	--	--	--	--	--	--	--	--
Chromium, total	7440-47-3	--	0.1	1	--	--	0.5	--	T	mg/L	--	0.018	0.005	0.002	--	--	--	--	--	--	--	--
Cobalt	7440-48-4	--	0.05	1	--	--	--	--	T	mg/L	--	0.063	0.008	0.012	--	--	--	--	--	--	--	--
Copper	7440-50-8	0.0014	0.2	0.4	2	1	20	--	T	mg/L	--	0.021	< 0.001	0.003	--	--	--	--	--	--	--	--
Iron	7439-89-6	--	0.2	--	--	0.3	--	--	T	mg/L	--	14	9.3	3.5	--	--	--	--	--	--	--	--
Lead	7439-92-1	0.0034	2	0.1	0.01	--	0.1	--	T	mg/L	--	0.2	0.013	0.059	--	--	--	--	--	--	--	--
Manganese	7439-96-5	1.9	0.2	--	0.5	0.1	5	--	T	mg/L	--	0.28	0.3	0.23	--	--	--	--	--	--	--	--
Mercury	7439-97-6	0.0006	0.002	0.002	0.001	--	0.01	--	T	mg/L	--	< 0.0001	< 0.0001	< 0.0001	--	--	--	--	--	--	--	--
Molybdenum	7439-98-7	--	0.01	0.15	0.05	--	--	--	T	mg/L	--	0.22	0.055	0.051	--	--	--	--	--	--	--	--
Nickel	7440-02-0	0.011	0.2	1	0.02	--	0.2	--	T	mg/L	--	0.27	0.05	0.075	--	--	--	--	--	--	--	--
Selenium	7782-49-2	0.011	0.02	0.02	0.01	--	0.1	--	T	mg/L	--	0.001	< 0.001	< 0.001	--	--	--	--	--	--	--	--
Tin	7440-31-5	--	--	--	--	--	--	--	T	mg/L	--	< 0.005	< 0.005	< 0.005	--	--	--	--	--	--	--	--
Vanadium	7440-62-2	--	0.1	--	--	--	--	--	T	mg/L	--	< 0.005	< 0.005	0.015	--	--	--	--	--	--	--	--
Zinc	7440-66-6	0.008	2	20	--	3	--	--	T	mg/L	--	0.21	0.046	0.047	--	--	--	--	--	--	--	--
METALS, DISSOLVED																						
Antimony	7440-36-0	--	--	--	0.003	--	--	--	D	mg/L	< 0.005	< 0.005	< 0.005	0.007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Arsenic	7440-38-2	0.013*	0.1	0.5	0.01	--	0.1	--	D	mg/L	1.1	1.4	1.5	0.65	0.069	0.059	0.11	0.3	0.025	0.008	0.016	0.012
Barium	7440-39-3	--	--	--	2	--	20	--	D	mg/L	0.04	0.03	0.02	0.02	0.08	0.06	0.07	0.06	0.07	0.06	0.06	0.05
Beryllium	7440-41-7	--	0.1	--	0.06	--	--	--	D	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	--
Cadmium	7440-43-9	0.0002	0.01	0.01	0.002	--	0.02	--	D	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium, total	7440-47-3	--	0.1	1	--	--	0.5	--	D	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cobalt	7440-48-4	--	0.05	1	--	--	--	--	D	mg/L	0.003	0.001	0.003	< 0.001	0.016	0.011	0.011	0.011	0.031	0.025	0.034	0.031
Copper	7440-50-8	0.0014	0.2	0.4	2	1	20	--	D	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.007	< 0.001	< 0.001	< 0.001
Iron	7439-89-6	--	0.2	--	--	0.3	--	--	D	mg/L	1.9	2.1	2.5	0.06	5.5	5	7.7	17	3.6	1.3	1.4	1.3
Lead	7439-92-1	0.0034	2	0.1	0.01	--	0.1	--	D	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Manganese	7439-96-5	1.9	0.2	--	0.5	0.1	5	--	D	mg/L	0.16	0.16	0.2	0.22	1.2	0.7	0.6	1.2	0.63	0.43	0.7	0.73
Mercury	7439-97-6	0.0006	0.002	0.002	0.001	--	0.01	--	D	mg/L	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Molybdenum	7439-98-7	--	0.01	0.15	0.05	--	--	--	D	mg/L	0.032	0.044	0.11	0.051	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Nickel	7440-02-0	0.011	0.2	1	0.02	--	0.2	--	D	mg/L	0.031	0.008	0.013	0.066	0.028	0.034	0.027	0.014	0.12	0.1	0.078	0.094
Selenium	7782-49-2	0.011	0.02	0.02	0.01	--	0.1	--	D	mg/L	0.004	0.004	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Tin	7440-31-5	--	--	--	--	--	--	--	D	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Vanadium	7440-62-2	--	0.1	--	--	--	--	--	D	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Zinc	7440-66-6	0.008	2	20	--	3	--	--	D	mg/L	0.013	0.006	0.007	0.027	0.023	0.04	0.028	0.014	0.08	0.042	0.055	0.12
PAHs																						
Acenaphthene	83-32-9	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	208-96-8	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	120-12-7	0.0004	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b+j)fluoranthene	edms_0016	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Benzo[a]anthracene	56-55-3	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Benzo[a]pyrene	50-32-8	0.0002	--	0.00001	0.00001	--	0.0001	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Benzo[g,h,i]perylene	191-24-2	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Benzo[k]fluoranthene	207-08-9	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	218-01-9	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz[a,h]anthracene	53-70-3	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	206-44-0	0.0014	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	86-73-7	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1,2,3-C,D)Pyrene	193-39-5	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene (SVOC)	91-20-3	0.016	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	85-01-8	0.002	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

Table 4 - Groundwater and Leachate Analytical Results

										Location ID	CTD_SEEP01				KFGW_2B (Shepparton/Alluvium Formation)				KFGW_2A (Castlemaine Group)			
										Sample Date	05 Jul 2024	01 Oct 2024	29 Jan 2025	30 Apr 2025	02 Jul 2024	01 Oct 2024	29 Jan 2025	01 May 2025	01 Jul 2024	01 Oct 2024	29 Jan 2025	01 May 2025
										Sample Type	PRIMARY	PRIMARY	PRIMARY	PRIMARY	PRIMARY	PRIMARY	PRIMARY	PRIMARY	PRIMARY	PRIMARY	PRIMARY	PRIMARY
Analyte/Analyte Grouping	CAS Number	ANZG Toxicant Default Guideline Values - 95% Level of Species Protection - Freshwater	ANZECC Irrigation Water: Long-Term Trigger Values	ANZECC Livestock Drinking Water Quality Groundwater	NHMRC ADWG 2015 Health	NHMRC ADWG 2015 Aesthetic	NHMRC 10x Drinking Water Guidelines 2019	AUS Standard Buildings and Structures Groundwater	Fraction	Unit												
Pyrene	129-00-0	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Sum of PAHs	TOTALPAH	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH																						
C10 - C14 Fraction	C10-C14	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
C10 - C36 Fraction (sum)	C10-C36	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
C15 - C28 Fraction	C15-C28	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
C29 - C36 Fraction	C29-C36	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
C6-C9	C6-C9	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
TRH																						
>C10 - C16 Fraction minus Naphthalene (F2)	F2-NAPHTHALENE	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
>C10 - C40 Fraction (sum)	C10-C40	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
>C10-C16 Fraction (F2)	C10-C16	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
>C16-C34 Fraction (F3)	C16-C34	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
>C34 - C40 Fraction	C34-C40	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
C6-C10 (F1)	C6-C10	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
C6-C10 Fraction minus BTEX (F1)	F1-BTEX	--	--	--	--	--	--	--	T	mg/L	--	--	--	--	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02

* based on criteria for As(V)

Table 5 - Depositional Dust Analytical Results

		Sample ID	KFDD01											
		Location	Western Boundary											
		Sampling Round	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25
Analyte/Analyte Grouping	EPA Publication 1961	Unit												
DUST FRACTIONS														
Sa-Ash		g/m2/month	< 0.1	0.18	4.7	0.4	0.24	0.59	0.5	0.45	1	0.92	< 0.1	1.2
Sc-Combustible Matter		g/m2/month	0.72	0.39	0.13	2.2	0.18	0.61	0.28	0.8	0.18	0.66	0.57	0.5
Si-Insoluble Solids	4	g/m2/month	0.72	0.57	4.9	2.6	0.42	1.2	0.77	1.3	1.2	1.6	0.59	1.7
Ss-Soluble Matter		g/m2/month	< 0.1	0.3	1.6	0.45	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
St-Total Solids		g/m2/month	0.72	0.87	6.5	3	0.48	1.2	0.85	1.3	1.3	1.6	0.6	1.8
INSOLUBLE ANALYTES														
Antimony, Insoluble		mg/m2/month	< 0.0051	< 0.055	< 0.03	< 0.027	< 0.028	< 0.028	< 0.027	< 0.028	< 0.015	< 0.027	< 0.028	< 0.028
Arsenic, Insoluble		mg/m2/month	< 0.0026	< 0.027	< 0.015	< 0.013	< 0.014	< 0.014	< 0.013	< 0.014	< 0.0073	< 0.014	< 0.014	< 0.014
Barium, Insoluble		mg/m2/month	6	5.8	3.9	3.8	3.9	1.9	4	12	3.2	4.8	2.2	2.5
Beryllium, Insoluble		mg/m2/month	< 0.00051	< 0.0055	< 0.003	< 0.0027	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0015	< 0.0027	< 0.0028	< 0.0028
Cadmium, Insoluble		mg/m2/month	< 0.00051	< 0.0055	< 0.003	< 0.0027	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0015	< 0.0027	< 0.0028	< 0.0028
Chromium, Insoluble		mg/m2/month	0.002	< 0.0055	< 0.003	< 0.0027	< 0.0028	< 0.0028	< 0.0027	< 0.0028	0.002	< 0.0027	< 0.0028	0.0028
Cobalt, Insoluble		mg/m2/month	< 0.00051	< 0.0055	< 0.003	< 0.0027	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0015	< 0.0027	< 0.0028	< 0.0028
Copper, Insoluble		mg/m2/month	0.0027	0.18	0.17	0.005	0.046	0.33	0.093	1.1	0.0079	0.086	0.0028	0.046
Iron, Insoluble		mg/m2/month	0.14	0.14	0.25	0.42	0.18	0.46	0.41	0.53	0.83	0.65	0.47	1.2
Lead, Insoluble		mg/m2/month	0.0026	< 0.016	< 0.0091	< 0.008	< 0.0085	< 0.0085	< 0.008	0.012	0.0076	< 0.0082	< 0.0085	< 0.0085
Manganese, Insoluble		mg/m2/month	0.0021	< 0.0055	0.003	0.0045	0.0028	0.0037	0.0048	0.0093	0.0075	0.006	0.004	0.011
Mercury, Insoluble		mg/m2/month	< 0.00021	< 0.00022	< 0.0012	< 0.0011	< 0.0011	< 0.00011	< 0.0011	< 0.0011	< 5.9e-005	< 0.00011	< 0.00011	< 0.0011
Molybdenum, Insoluble		mg/m2/month	0.0022	< 0.016	< 0.0091	< 0.008	< 0.0085	< 0.0085	< 0.008	< 0.0085	< 0.0044	< 0.0082	< 0.0085	< 0.0085
Nickel, Insoluble		mg/m2/month	< 0.001	< 0.011	< 0.0061	< 0.0053	< 0.0057	< 0.0057	< 0.0053	< 0.0057	< 0.0029	< 0.0055	< 0.0057	< 0.0057
Selenium, Insoluble		mg/m2/month	< 0.0051	< 0.055	< 0.03	< 0.027	< 0.028	< 0.028	< 0.027	< 0.028	< 0.015	< 0.027	< 0.028	< 0.028
Tin, Insoluble		mg/m2/month	< 0.0026	< 0.027	< 0.015	< 0.013	< 0.014	< 0.014	< 0.013	< 0.014	< 0.0073	< 0.014	< 0.014	< 0.014
Vanadium, Insoluble		mg/m2/month	< 0.001	< 0.011	< 0.0061	< 0.0053	< 0.0057	< 0.0057	< 0.0053	< 0.0057	< 0.0029	< 0.0055	< 0.0057	< 0.0057
Zinc, Insoluble		mg/m2/month	4.5	4.2	3	2.9	3.1	0.013	3.2	8.2	2.5	3.9	1.7	2
Cyanide, Insoluble		mg/m2/month	< 10	< 11	< 6.1	< 2.7	< 5.7	< 0.28	< 0.27	< 5.7	< 2.9	< 5.5	< 5.7	< 5.7
Sulphate by calculation, insoluble		mg/m2/month	--	< 0.82	0.71	0.55	0.46	0.44	< 0.4	1.3	0.65	0.58	0.46	0.46
SOLUBLE ANALYTES														
Antimony, Soluble		mg/m2/month	< 0.0051	< 0.011	< 0.0061	< 0.0027	< 0.0057	< 0.0057	< 0.0053	< 0.0057	< 0.0029	< 0.0055	< 0.0057	< 0.0057
Arsenic, Soluble		mg/m2/month	< 0.0026	< 0.0055	< 0.003	< 0.0013	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0015	< 0.0027	< 0.0028	< 0.0028
Barium, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Beryllium, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Cadmium, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Chromium, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Cobalt, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Copper, Soluble		mg/m2/month	< 0.00051	0.047	0.022	< 0.00027	0.0015	0.0079	0.0033	0.069	< 0.00029	0.0034	< 0.00057	0.0042
Iron, Soluble		mg/m2/month	< 0.001	< 0.0022	< 0.0012	< 0.00053	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.00059	< 0.0011	< 0.0011	< 0.0011
Lead, Soluble		mg/m2/month	< 0.0015	< 0.0033	< 0.0018	< 0.0008	< 0.0017	< 0.0017	< 0.0016	< 0.0017	< 0.00088	< 0.0016	< 0.0017	< 0.0017
Manganese, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	0.00064	< 0.00055	< 0.00057	< 0.00057
Mercury, Soluble		mg/m2/month	< 4.1e-005	< 4.4e-005	< 2.4e-005	< 0.00011	< 0.00023	< 2.3e-005	< 0.00021	< 0.00023	< 0.00012	< 0.00022	< 0.00023	< 0.00023
Molybdenum, Soluble		mg/m2/month	< 0.0015	< 0.0033	< 0.0018	< 0.0008	< 0.0017	< 0.0017	< 0.0016	< 0.0017	< 0.00088	< 0.0016	< 0.0017	< 0.0017
Nickel, Soluble		mg/m2/month	< 0.001	< 0.0022	< 0.0012	< 0.00053	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.00059	< 0.0011	< 0.0011	< 0.0011
Selenium, Soluble		mg/m2/month	< 0.0051	< 0.011	< 0.0061	< 0.0027	< 0.0057	< 0.0057	< 0.0053	< 0.0057	< 0.0029	< 0.0055	< 0.0057	< 0.0057
Tin, Soluble		mg/m2/month	< 0.0026	< 0.0055	< 0.003	< 0.0013	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0015	< 0.0027	< 0.0028	< 0.0028
Vanadium, Soluble		mg/m2/month	< 0.001	< 0.0022	< 0.0012	< 0.00053	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.00059	< 0.0011	< 0.0011	< 0.0011
Zinc, Soluble		mg/m2/month	0.0048	0.0065	0.0039	0.00096	0.0043	0.013	0.0077	0.0055	0.023	0.016	0.0089	0.0044
Cyanide, Soluble		mg/m2/month	< 0.021	< 0.0022	< 0.0012	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.023	< 0.022	< 0.011	< 0.011
Sulphate by calculation, soluble		mg/m2/month	--	< 0.16	< 0.091	< 0.04	< 0.085	< 0.085	< 0.08	< 0.085	0.068	< 0.082	< 0.085	< 0.085

Table 5 - Depositional Dust Analytical Results

		Sample ID	KFDD02											
		Location	Northeastern Boundary											
		Sampling Round	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25
Analyte/Analyte Grouping	EPA Publication 1961	Unit												
DUST FRACTIONS														
Sa-Ash		g/m2/month	< 0.1	0.31	0.45	0.19	< 0.1	0.37	0.34	0.22	0.18	0.74	< 0.1	1
Sc-Combustible Matter		g/m2/month	0.72	0.26	< 0.1	0.93	0.12	0.41	0.15	0.4	0.38	0.61	< 0.1	0.41
Si-Insoluble Solids	4	g/m2/month	0.72	0.57	0.53	1.1	0.1	0.78	0.49	0.61	0.56	1.4	< 0.1	1.4
Ss-Soluble Matter		g/m2/month	< 0.1	0.47	1.2	< 0.1	0.31	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
St-Total Solids		g/m2/month	0.72	1	1.7	1.2	0.41	0.85	0.5	0.63	0.64	1.4	0.15	1.5
INSOLUBLE ANALYTES														
Antimony, Insoluble		mg/m2/month	< 0.0051	< 0.055	< 0.03	< 0.027	< 0.028	< 0.028	< 0.027	< 0.028	< 0.015	< 0.027	< 0.028	< 0.028
Arsenic, Insoluble		mg/m2/month	< 0.0026	< 0.027	< 0.015	< 0.013	< 0.014	< 0.014	< 0.013	< 0.014	< 0.0073	< 0.014	< 0.014	< 0.014
Barium, Insoluble		mg/m2/month	7.2	6.4	4.1	3.9	4.3	2.2	4.1	11	3.2	5.1	2.4	2.5
Beryllium, Insoluble		mg/m2/month	< 0.00051	< 0.0055	< 0.003	< 0.0027	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0015	< 0.0027	< 0.0028	< 0.0028
Cadmium, Insoluble		mg/m2/month	< 0.00051	< 0.0055	< 0.003	< 0.0027	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0015	< 0.0027	< 0.0028	< 0.0028
Chromium, Insoluble		mg/m2/month	0.0023	< 0.0055	< 0.003	< 0.0027	< 0.0028	< 0.0028	< 0.0027	< 0.0028	0.0023	< 0.0027	< 0.0028	< 0.0028
Cobalt, Insoluble		mg/m2/month	< 0.00051	< 0.0055	< 0.003	< 0.0027	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0015	< 0.0027	< 0.0028	< 0.0028
Copper, Insoluble		mg/m2/month	0.0029	0.056	0.18	0.33	0.0031	0.0031	0.0037	0.4	0.0092	0.069	< 0.0028	0.17
Iron, Insoluble		mg/m2/month	0.13	0.12	0.21	0.31	0.13	0.39	0.41	0.4	0.88	0.64	0.43	0.82
Lead, Insoluble		mg/m2/month	< 0.0015	< 0.016	< 0.0091	< 0.008	< 0.0085	< 0.0085	< 0.008	0.012	0.012	< 0.0082	< 0.0085	< 0.0085
Manganese, Insoluble		mg/m2/month	0.0022	< 0.0055	< 0.003	0.004	< 0.0028	0.0037	0.0066	0.0071	0.0076	0.0058	0.0037	0.0099
Mercury, Insoluble		mg/m2/month	< 0.00021	< 0.00022	< 0.0012	< 0.0011	< 0.0011	< 0.00011	< 0.0011	< 0.0011	< 5.9e-005	< 0.00011	< 0.00011	< 0.0011
Molybdenum, Insoluble		mg/m2/month	< 0.0015	< 0.016	< 0.0091	< 0.008	< 0.0085	< 0.0085	< 0.008	< 0.0085	< 0.0044	< 0.0082	< 0.0085	< 0.0085
Nickel, Insoluble		mg/m2/month	< 0.001	< 0.011	< 0.0061	< 0.0053	< 0.0057	< 0.0057	< 0.0053	< 0.0057	< 0.0029	< 0.0055	< 0.0057	< 0.0057
Selenium, Insoluble		mg/m2/month	< 0.0051	< 0.055	< 0.03	< 0.027	< 0.028	< 0.028	< 0.027	< 0.028	< 0.015	< 0.027	< 0.028	< 0.028
Tin, Insoluble		mg/m2/month	< 0.0026	< 0.027	< 0.015	< 0.013	< 0.014	< 0.014	< 0.013	< 0.014	< 0.0073	< 0.014	< 0.014	< 0.014
Vanadium, Insoluble		mg/m2/month	< 0.001	< 0.011	< 0.0061	< 0.0053	< 0.0057	< 0.0057	< 0.0053	< 0.0057	< 0.0029	< 0.0055	< 0.0057	< 0.0057
Zinc, Insoluble		mg/m2/month	5.4	4.8	3.1	2.9	3.4	0.0022	3.3	7.3	2.5	4.1	1.8	2.1
Cyanide, Insoluble		mg/m2/month	< 10	< 11	< 6.1	< 2.7	< 5.7	< 0.28	< 0.27	< 5.7	< 2.9	< 5.5	< 5.7	< 5.7
Sulphate by calculation, insoluble		mg/m2/month	--	1.1	0.56	0.69	0.77	0.6	0.5	1.3	0.43	0.54	0.47	0.54
SOLUBLE ANALYTES														
Antimony, Soluble		mg/m2/month	< 0.0051	< 0.011	< 0.0061	< 0.0027	< 0.0057	< 0.0057	< 0.0053	< 0.0057	< 0.0029	< 0.0055	< 0.0057	< 0.0057
Arsenic, Soluble		mg/m2/month	< 0.0026	< 0.0055	< 0.003	< 0.0013	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0015	< 0.0027	< 0.0028	< 0.0028
Barium, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Beryllium, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Cadmium, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Chromium, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Cobalt, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Copper, Soluble		mg/m2/month	< 0.00051	0.0059	0.032	0.0094	< 0.00057	< 0.00057	< 0.00053	0.0093	< 0.00029	0.0045	< 0.00057	0.0049
Iron, Soluble		mg/m2/month	< 0.001	< 0.0022	< 0.0012	< 0.00053	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.00059	< 0.0011	< 0.0011	< 0.0011
Lead, Soluble		mg/m2/month	< 0.0015	< 0.0033	< 0.0018	< 0.0008	< 0.0017	< 0.0017	< 0.0016	< 0.0017	< 0.00088	< 0.0016	< 0.0017	< 0.0017
Manganese, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	0.00059	< 0.00055	< 0.00057	< 0.00057
Mercury, Soluble		mg/m2/month	< 4.1e-005	< 4.4e-005	< 2.4e-005	< 0.00011	< 0.00023	< 2.3e-005	< 0.00021	< 0.00023	< 0.00012	< 0.00022	< 0.00023	< 0.00023
Molybdenum, Soluble		mg/m2/month	< 0.0015	< 0.0033	< 0.0018	< 0.0008	< 0.0017	< 0.0017	< 0.0016	< 0.0017	< 0.00088	< 0.0016	< 0.0017	< 0.0017
Nickel, Soluble		mg/m2/month	< 0.001	< 0.0022	< 0.0012	< 0.00053	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.00059	< 0.0011	< 0.0011	< 0.0011
Selenium, Soluble		mg/m2/month	< 0.0051	< 0.011	< 0.0061	< 0.0027	< 0.0057	< 0.0057	< 0.0053	< 0.0057	< 0.0029	< 0.0055	< 0.0057	< 0.0057
Tin, Soluble		mg/m2/month	< 0.0026	< 0.0055	< 0.003	< 0.0013	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0015	< 0.0027	< 0.0028	< 0.0028
Vanadium, Soluble		mg/m2/month	< 0.001	< 0.0022	< 0.0012	< 0.00053	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.00059	< 0.0011	< 0.0011	< 0.0011
Zinc, Soluble		mg/m2/month	< 0.001	0.0027	0.0043	0.00064	0.0085	0.0022	0.0036	0.01	0.016	0.035	0.011	0.01
Cyanide, Soluble		mg/m2/month	< 0.021	< 0.0022	< 0.0012	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.023	< 0.022	< 0.011	< 0.011
Sulphate by calculation, soluble		mg/m2/month	--	< 0.16	< 0.091	< 0.04	< 0.085	< 0.085	< 0.08	< 0.085	0.056	< 0.082	< 0.085	< 0.085

Table 5 - Depositional Dust Analytical Results

		Sample ID	KFDD03											
		Location	Northern Boundary											
		Sampling Round	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25
Analyte/Analyte Grouping	EPA Publication 1961	Unit												
DUST FRACTIONS														
Sa-Ash		g/m2/month	< 0.1	0.2	0.87	0.85	< 0.1	0.55	0.51	0.27	0.5	0.88	< 0.1	1.1
Sc-Combustible Matter		g/m2/month	0.51	0.24	2	5.2	0.15	0.58	0.21	0.23	1.1	1.1	0.54	0.41
Si-Insoluble Solids	4	g/m2/month	0.51	0.44	2.8	6.1	0.18	1.1	0.72	0.5	1.6	1.9	0.57	1.5
Ss-Soluble Matter		g/m2/month	< 0.1	< 0.1	9.1	6.7	0.22	< 0.1	< 0.1	< 0.1	0.12	< 0.1	< 0.1	< 0.1
St-Total Solids		g/m2/month	0.51	0.45	12	13	0.4	1.2	0.76	0.58	1.7	2	0.62	1.5
INSOLUBLE ANALYTES														
Antimony, Insoluble		mg/m2/month	< 0.0051	< 0.055	< 0.12	< 0.11	< 0.028	< 0.028	< 0.027	< 0.028	< 0.015	< 0.027	< 0.028	< 0.028
Arsenic, Insoluble		mg/m2/month	< 0.0026	< 0.027	< 0.061	< 0.053	< 0.014	< 0.014	< 0.013	< 0.014	< 0.0073	< 0.014	< 0.014	< 0.014
Barium, Insoluble		mg/m2/month	6.6	5.2	16	17	4.2	2.1	4.4	13	3.1	4.2	2.2	2.5
Beryllium, Insoluble		mg/m2/month	< 0.00051	< 0.0055	< 0.012	< 0.011	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0015	< 0.0027	< 0.0028	< 0.0028
Cadmium, Insoluble		mg/m2/month	< 0.00051	< 0.0055	< 0.012	< 0.011	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0015	< 0.0027	< 0.0028	< 0.0028
Chromium, Insoluble		mg/m2/month	0.0019	< 0.0055	< 0.012	< 0.011	< 0.0028	< 0.0028	< 0.0027	< 0.0028	0.0023	< 0.0027	< 0.0028	0.0028
Cobalt, Insoluble		mg/m2/month	0.00072	< 0.0055	< 0.012	< 0.011	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0015	< 0.0027	< 0.0028	< 0.0028
Copper, Insoluble		mg/m2/month	0.0024	0.22	0.067	0.023	< 0.0028	0.0042	0.016	0.011	0.0042	0.0058	0.0037	0.0048
Iron, Insoluble		mg/m2/month	0.26	0.14	2.1	0.44	0.14	0.45	0.4	0.56	0.85	0.77	0.48	0.96
Lead, Insoluble		mg/m2/month	< 0.0015	< 0.016	< 0.036	< 0.032	< 0.0085	< 0.0085	< 0.008	0.012	< 0.0044	< 0.0082	< 0.0085	< 0.0085
Manganese, Insoluble		mg/m2/month	0.0028	< 0.0055	0.2	0.014	0.0028	0.0045	0.0058	0.011	0.0078	0.0077	0.004	0.01
Mercury, Insoluble		mg/m2/month	< 0.00021	< 0.00022	< 0.0049	< 0.0042	< 0.0011	< 0.00011	< 0.0011	< 0.0011	< 5.9e-005	< 0.00011	< 0.00011	< 0.0011
Molybdenum, Insoluble		mg/m2/month	< 0.0015	< 0.016	< 0.036	< 0.032	< 0.0085	< 0.0085	< 0.008	< 0.0085	< 0.0044	< 0.0082	< 0.0085	< 0.0085
Nickel, Insoluble		mg/m2/month	< 0.001	< 0.011	< 0.024	< 0.021	< 0.0057	< 0.0057	< 0.0053	< 0.0057	< 0.0029	< 0.0055	< 0.0057	< 0.0057
Selenium, Insoluble		mg/m2/month	< 0.0051	< 0.055	< 0.12	< 0.11	< 0.028	< 0.028	< 0.027	< 0.028	< 0.015	< 0.027	< 0.028	< 0.028
Tin, Insoluble		mg/m2/month	< 0.0026	< 0.027	< 0.061	< 0.053	< 0.014	< 0.014	< 0.013	< 0.014	< 0.0073	< 0.014	< 0.014	< 0.014
Vanadium, Insoluble		mg/m2/month	< 0.001	< 0.011	< 0.024	< 0.021	< 0.0057	< 0.0057	< 0.0053	< 0.0057	< 0.0029	< 0.0055	< 0.0057	< 0.0057
Zinc, Insoluble		mg/m2/month	5	3.8	13	13	3.3	0.01	3.5	8.7	2.5	3.6	1.7	2
Cyanide, Insoluble		mg/m2/month	< 10	< 11	< 6.1	< 2.7	< 5.7	< 0.28	< 0.27	< 5.7	< 2.9	< 5.5	< 5.7	< 5.7
Sulphate by calculation, insoluble		mg/m2/month	--	< 0.82	11	4.1	0.51	1	0.71	1.7	0.45	0.67	0.47	< 0.42
SOLUBLE ANALYTES														
Antimony, Soluble		mg/m2/month	< 0.0051	< 0.011	< 0.0061	< 0.0027	< 0.0057	< 0.0057	< 0.0053	< 0.0057	< 0.0029	< 0.0055	< 0.0057	< 0.0057
Arsenic, Soluble		mg/m2/month	< 0.0026	< 0.0055	< 0.003	< 0.0013	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0015	< 0.0027	< 0.0028	< 0.0028
Barium, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Beryllium, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Cadmium, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Chromium, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Cobalt, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Copper, Soluble		mg/m2/month	< 0.00051	0.028	0.00085	0.00069	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Iron, Soluble		mg/m2/month	< 0.001	< 0.0022	< 0.0012	0.0029	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.00059	< 0.0011	< 0.0011	< 0.0011
Lead, Soluble		mg/m2/month	< 0.0015	< 0.0033	< 0.0018	< 0.0008	< 0.0017	< 0.0017	< 0.0016	< 0.0017	< 0.00088	< 0.0016	< 0.0017	< 0.0017
Manganese, Soluble		mg/m2/month	< 0.00051	< 0.0011	0.0016	0.00027	< 0.00057	0.00057	< 0.00053	< 0.00057	0.00067	0.00077	< 0.00057	< 0.00057
Mercury, Soluble		mg/m2/month	< 4.1e-005	< 4.4e-005	< 2.4e-005	< 0.00011	< 0.00023	< 2.3e-005	< 0.00021	< 0.00023	< 0.00012	< 0.00022	< 0.00023	< 0.00023
Molybdenum, Soluble		mg/m2/month	< 0.0015	< 0.0033	< 0.0018	< 0.0008	< 0.0017	< 0.0017	< 0.0016	< 0.0017	< 0.00088	< 0.0016	< 0.0017	< 0.0017
Nickel, Soluble		mg/m2/month	< 0.001	< 0.0022	< 0.0012	< 0.00053	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.00059	< 0.0011	< 0.0011	< 0.0011
Selenium, Soluble		mg/m2/month	< 0.0051	< 0.011	< 0.0061	< 0.0027	< 0.0057	< 0.0057	< 0.0053	< 0.0057	< 0.0029	< 0.0055	< 0.0057	< 0.0057
Tin, Soluble		mg/m2/month	< 0.0026	< 0.0055	< 0.003	< 0.0013	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0015	< 0.0027	< 0.0028	< 0.0028
Vanadium, Soluble		mg/m2/month	< 0.001	< 0.0022	< 0.0012	< 0.00053	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.00059	< 0.0011	< 0.0011	< 0.0011
Zinc, Soluble		mg/m2/month	0.0057	0.0036	0.005	0.0028	0.013	0.01	0.0055	< 0.0011	0.017	0.02	0.011	0.0044
Cyanide, Soluble		mg/m2/month	< 0.021	< 0.0022	< 0.0012	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.023	< 0.022	< 0.011	< 0.011
Sulphate by calculation, soluble		mg/m2/month	--	< 0.16	0.57	0.84	< 0.085	0.35	< 0.08	< 0.085	0.059	< 0.082	< 0.085	< 0.085

Table 5 - Depositional Dust Analytical Results

		Sample ID	KFDD04											
		Location	Eastern Boundary											
		Sampling Round	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25
Analyte/Analyte Grouping	EPA Publication 1961	Unit												
DUST FRACTIONS														
Sa-Ash		g/m2/month	< 0.1	0.33	0.57	0.42	0.18	0.41	0.43	0.51	1.1	0.92	< 0.1	0.97
Sc-Combustible Matter		g/m2/month	0.15	0.26	0.23	0.88	0.22	0.43	0.22	0.66	< 0.1	0.96	0.72	0.29
Si-Insoluble Solids	4	g/m2/month	0.15	0.59	0.8	1.3	0.4	0.84	0.66	1.2	1.2	1.9	0.77	1.3
Ss-Soluble Matter		g/m2/month	< 0.1	0.84	1.2	1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
St-Total Solids		g/m2/month	0.15	1.4	2	2.3	0.44	0.87	0.74	1.2	1.3	1.9	0.85	1.3
INSOLUBLE ANALYTES														
Antimony, Insoluble		mg/m2/month	< 0.0051	< 0.055	< 0.03	< 0.027	< 0.028	< 0.028	< 0.027	< 0.028	< 0.015	< 0.027	< 0.028	< 0.028
Arsenic, Insoluble		mg/m2/month	< 0.0026	< 0.027	< 0.015	< 0.013	< 0.014	< 0.014	< 0.013	< 0.014	< 0.0073	< 0.014	< 0.014	< 0.014
Barium, Insoluble		mg/m2/month	6.4	6.1	4.2	4.3	4.3	2.2	4.2	12	3.3	4.8	2.2	3.1
Beryllium, Insoluble		mg/m2/month	< 0.00051	< 0.0055	< 0.003	< 0.0027	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0015	< 0.0027	< 0.0028	< 0.0028
Cadmium, Insoluble		mg/m2/month	< 0.00051	< 0.0055	< 0.003	< 0.0027	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0015	< 0.0027	< 0.0028	< 0.0028
Chromium, Insoluble		mg/m2/month	0.0018	< 0.0055	< 0.003	< 0.0027	< 0.0028	< 0.0028	< 0.0027	< 0.0028	0.0028	< 0.0027	< 0.0028	< 0.0028
Cobalt, Insoluble		mg/m2/month	< 0.00051	< 0.0055	< 0.003	< 0.0027	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0015	< 0.0027	< 0.0028	< 0.0028
Copper, Insoluble		mg/m2/month	0.0022	0.23	0.014	0.05	0.044	0.0034	< 0.0027	0.13	0.005	0.094	< 0.0028	0.022
Iron, Insoluble		mg/m2/month	0.11	0.17	0.17	0.23	0.14	0.29	0.35	0.56	0.83	0.66	0.47	0.8
Lead, Insoluble		mg/m2/month	< 0.0015	< 0.016	< 0.0091	< 0.008	< 0.0085	< 0.0085	< 0.008	0.011	0.0064	< 0.0082	< 0.0085	< 0.0085
Manganese, Insoluble		mg/m2/month	0.0019	< 0.0055	< 0.003	0.0027	< 0.0028	0.0031	0.0045	0.0088	0.007	0.0063	0.0042	0.0091
Mercury, Insoluble		mg/m2/month	< 0.00021	< 0.00022	< 0.0012	< 0.0011	< 0.0011	< 0.00011	< 0.0011	< 0.0011	< 5.9e-005	< 0.00011	< 0.00011	< 0.0011
Molybdenum, Insoluble		mg/m2/month	< 0.0015	< 0.016	< 0.0091	< 0.008	< 0.0085	< 0.0085	< 0.008	< 0.0085	< 0.0044	< 0.0082	< 0.0085	< 0.0085
Nickel, Insoluble		mg/m2/month	< 0.001	< 0.011	< 0.0061	< 0.0053	< 0.0057	< 0.0057	< 0.0053	< 0.0057	< 0.0029	< 0.0055	< 0.0057	< 0.0057
Selenium, Insoluble		mg/m2/month	< 0.0051	< 0.055	< 0.03	< 0.027	< 0.028	< 0.028	< 0.027	< 0.028	< 0.015	< 0.027	< 0.028	< 0.028
Tin, Insoluble		mg/m2/month	< 0.0026	< 0.027	< 0.015	< 0.013	< 0.014	< 0.014	< 0.013	< 0.014	< 0.0073	< 0.014	< 0.014	< 0.014
Vanadium, Insoluble		mg/m2/month	< 0.001	< 0.011	< 0.0061	< 0.0053	< 0.0057	< 0.0057	< 0.0053	< 0.0057	< 0.0029	< 0.0055	< 0.0057	< 0.0057
Zinc, Insoluble		mg/m2/month	4.8	4.5	3.2	3.2	3.3	0.01	3.3	8.1	2.5	3.9	1.7	2.5
Cyanide, Insoluble		mg/m2/month	< 10	< 11	< 6.1	< 2.7	< 5.7	< 0.28	< 0.27	< 5.7	< 2.9	< 5.5	< 5.7	< 5.7
Sulphate by calculation, insoluble		mg/m2/month	--	1.3	0.68	0.66	0.51	0.63	0.45	1.5	0.34	0.87	0.54	0.5
SOLUBLE ANALYTES														
Antimony, Soluble		mg/m2/month	< 0.0051	< 0.011	< 0.0061	< 0.0027	< 0.0057	< 0.0057	< 0.0053	< 0.0057	< 0.0029	< 0.0055	< 0.0057	< 0.0057
Arsenic, Soluble		mg/m2/month	< 0.0026	< 0.0055	< 0.003	< 0.0013	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0015	< 0.0027	< 0.0028	< 0.0028
Barium, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Beryllium, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Cadmium, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Chromium, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Cobalt, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Copper, Soluble		mg/m2/month	< 0.00051	0.073	< 0.00061	0.0008	0.0026	< 0.00057	< 0.00053	0.0041	< 0.00029	0.0044	< 0.00057	< 0.00057
Iron, Soluble		mg/m2/month	< 0.001	< 0.0022	< 0.0012	< 0.00053	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.00059	< 0.0011	< 0.0011	< 0.0011
Lead, Soluble		mg/m2/month	< 0.0015	< 0.0033	< 0.0018	< 0.0008	< 0.0017	< 0.0017	< 0.0016	< 0.0017	< 0.00088	< 0.0016	< 0.0017	< 0.0017
Manganese, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	0.00061	< 0.00055	< 0.00057	< 0.00057
Mercury, Soluble		mg/m2/month	< 4.1e-005	< 4.4e-005	< 2.4e-005	< 0.00011	< 0.00023	< 2.3e-005	< 0.00021	< 0.00023	< 0.00012	< 0.00022	< 0.00023	< 0.00023
Molybdenum, Soluble		mg/m2/month	< 0.0015	< 0.0033	< 0.0018	< 0.0008	< 0.0017	< 0.0017	< 0.0016	< 0.0017	< 0.00088	< 0.0016	< 0.0017	< 0.0017
Nickel, Soluble		mg/m2/month	< 0.001	< 0.0022	< 0.0012	< 0.00053	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.00059	< 0.0011	< 0.0011	< 0.0011
Selenium, Soluble		mg/m2/month	< 0.0051	< 0.011	< 0.0061	< 0.0027	< 0.0057	< 0.0057	< 0.0053	< 0.0057	< 0.0029	< 0.0055	< 0.0057	< 0.0057
Tin, Soluble		mg/m2/month	< 0.0026	< 0.0055	< 0.003	< 0.0013	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0015	< 0.0027	< 0.0028	< 0.0028
Vanadium, Soluble		mg/m2/month	< 0.001	< 0.0022	< 0.0012	< 0.00053	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.00059	< 0.0011	< 0.0011	< 0.0011
Zinc, Soluble		mg/m2/month	0.0076	0.0068	< 0.0012	0.0051	0.0056	0.01	0.0033	0.0054	0.0042	0.019	0.0044	0.0048
Cyanide, Soluble		mg/m2/month	< 0.021	< 0.0022	< 0.0012	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.023	< 0.022	< 0.011	< 0.011
Sulphate by calculation, soluble		mg/m2/month	--	< 0.16	< 0.091	0.084	< 0.085	< 0.085	< 0.08	< 0.085	< 0.044	< 0.082	< 0.085	< 0.085

Table 5 - Depositional Dust Analytical Results

		Sample ID	KFDD05-BG											
		Location	Background											
		Sampling Round	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25
Analyte/Analyte Grouping	EPA Publication 1961	Unit												
DUST FRACTIONS														
Sa-Ash		g/m2/month	< 0.1	0.44	0.79	5.4	0.1	0.5	0.49	0.42	0.94	1.1	< 0.1	0.88
Sc-Combustible Matter		g/m2/month	< 0.1	< 0.1	0.17	16	0.59	0.4	< 0.1	0.84	0.73	0.74	1.1	0.57
Si-Insoluble Solids	4	g/m2/month	< 0.1	0.46	0.96	22	0.69	0.89	0.58	1.3	1.7	1.9	1.2	1.4
Ss-Soluble Matter		g/m2/month	< 0.1	< 0.1	< 0.1	12	0.11	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.7	< 0.1
St-Total Solids		g/m2/month	< 0.1	0.49	1	33	0.8	0.96	0.62	1.3	1.7	1.9	2.8	1.5
INSOLUBLE ANALYTES														
Antimony, Insoluble		mg/m2/month	< 0.0051	< 0.055	< 0.03	< 0.11	< 0.028	< 0.028	< 0.027	< 0.028	< 0.029	< 0.027	< 0.028	< 0.028
Arsenic, Insoluble		mg/m2/month	< 0.0026	< 0.027	< 0.015	< 0.053	< 0.014	< 0.014	< 0.013	< 0.014	< 0.015	< 0.014	< 0.014	< 0.014
Barium, Insoluble		mg/m2/month	5.8	6.3	4.5	16	4.5	2.2	4.4	12	6.7	4.9	2	3
Beryllium, Insoluble		mg/m2/month	< 0.00051	< 0.0055	< 0.003	< 0.011	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0029	< 0.0027	< 0.0028	< 0.0028
Cadmium, Insoluble		mg/m2/month	< 0.00051	< 0.0055	< 0.003	< 0.011	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0029	< 0.0027	< 0.0028	< 0.0028
Chromium, Insoluble		mg/m2/month	0.0019	< 0.0055	< 0.003	< 0.011	< 0.0028	< 0.0028	< 0.0027	< 0.0028	0.005	< 0.0027	< 0.0028	0.0028
Cobalt, Insoluble		mg/m2/month	0.00062	< 0.0055	< 0.003	< 0.011	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0029	< 0.0027	< 0.0028	< 0.0028
Copper, Insoluble		mg/m2/month	0.0024	0.15	0.16	0.084	< 0.0028	0.0048	0.02	0.0093	0.023	0.023	0.0028	0.25
Iron, Insoluble		mg/m2/month	0.17	0.17	0.18	2.4	0.17	0.41	0.31	0.87	1.5	0.78	0.49	1
Lead, Insoluble		mg/m2/month	0.0015	< 0.016	< 0.0091	< 0.032	< 0.0085	< 0.0085	< 0.008	0.011	< 0.0088	< 0.0082	< 0.0085	
Manganese, Insoluble		mg/m2/month	0.004	< 0.0055	< 0.003	0.15	< 0.0028	0.004	0.0037	0.011	0.019	0.0077	0.0042	0.01
Mercury, Insoluble		mg/m2/month	< 0.00021	< 0.00022	< 0.0012	< 0.0042	< 0.0011	< 0.00011	< 0.0011	< 0.0011	< 0.00012	< 0.00011	< 0.00011	< 0.0011
Molybdenum, Insoluble		mg/m2/month	< 0.0015	< 0.016	< 0.0091	< 0.032	< 0.0085	< 0.0085	< 0.008	< 0.0085	< 0.0088	< 0.0082	< 0.0085	< 0.0085
Nickel, Insoluble		mg/m2/month	< 0.001	< 0.011	< 0.0061	< 0.021	< 0.0057	< 0.0057	< 0.0053	< 0.0057	< 0.0059	< 0.0055	< 0.0057	< 0.0057
Selenium, Insoluble		mg/m2/month	< 0.0051	< 0.055	< 0.03	< 0.11	< 0.028	< 0.028	< 0.027	< 0.028	< 0.029	< 0.027	< 0.028	< 0.028
Tin, Insoluble		mg/m2/month	< 0.0026	< 0.027	< 0.015	< 0.053	< 0.014	< 0.014	< 0.013	< 0.014	< 0.015	< 0.014	< 0.014	< 0.014
Vanadium, Insoluble		mg/m2/month	< 0.001	< 0.011	< 0.0061	< 0.021	< 0.0057	< 0.0057	< 0.0053	< 0.0057	< 0.0059	< 0.0055	< 0.0057	< 0.0057
Zinc, Insoluble		mg/m2/month	4.4	4.7	3.5	12	3.6	0.0098	3.5	7.8	5.2	4	1.5	2.4
Cyanide, Insoluble		mg/m2/month	< 10	< 11	< 6.1	< 2.7	< 5.7	< 0.28	< 0.27	< 5.7	< 2.9	< 5.5	< 5.7	< 5.7
Sulphate by calculation, insoluble		mg/m2/month	--	0.98	0.77	8.1	0.58	0.81	0.5	1.4	0.94	0.91	0.58	0.5
SOLUBLE ANALYTES														
Antimony, Soluble		mg/m2/month	< 0.0051	< 0.011	< 0.0061	< 0.0027	< 0.0057	< 0.0057	< 0.0053	< 0.0057	< 0.0029	< 0.0055	< 0.0057	< 0.0057
Arsenic, Soluble		mg/m2/month	< 0.0026	< 0.0055	< 0.003	0.0051	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0015	< 0.0027	< 0.0028	< 0.0028
Barium, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Beryllium, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Cadmium, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Chromium, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Cobalt, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	< 0.00027	< 0.00057	< 0.00057	< 0.00053	< 0.00057	< 0.00029	< 0.00055	< 0.00057	< 0.00057
Copper, Soluble		mg/m2/month	< 0.00051	0.033	0.017	0.0024	< 0.00057	< 0.00057	< 0.00053	< 0.00057	0.0011	0.00088	< 0.00057	0.0046
Iron, Soluble		mg/m2/month	< 0.001	< 0.0022	< 0.0012	0.0041	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.00059	< 0.0011	< 0.0011	< 0.0011
Lead, Soluble		mg/m2/month	< 0.0015	< 0.0033	< 0.0018	< 0.0008	< 0.0017	< 0.0017	< 0.0016	< 0.0017	< 0.00088	< 0.0016	< 0.0017	< 0.0017
Manganese, Soluble		mg/m2/month	< 0.00051	< 0.0011	< 0.00061	0.0005	< 0.00057	< 0.00057	< 0.00053	< 0.00057	0.0007	0.00066	< 0.00057	< 0.00057
Mercury, Soluble		mg/m2/month	< 4.1e-005	< 4.4e-005	< 2.4e-005	< 0.00011	< 0.00023	< 2.3e-005	< 0.00021	< 0.00023	< 0.00012	< 0.00022	< 0.00023	< 0.00023
Molybdenum, Soluble		mg/m2/month	< 0.0015	< 0.0033	< 0.0018	< 0.0008	< 0.0017	< 0.0017	< 0.0016	< 0.0017	< 0.00088	< 0.0016	< 0.0017	< 0.0017
Nickel, Soluble		mg/m2/month	< 0.001	< 0.0022	< 0.0012	< 0.00053	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.00059	< 0.0011	< 0.0011	< 0.0011
Selenium, Soluble		mg/m2/month	< 0.0051	< 0.011	< 0.0061	< 0.0027	< 0.0057	< 0.0057	< 0.0053	< 0.0057	< 0.0029	< 0.0055	< 0.0057	< 0.0057
Tin, Soluble		mg/m2/month	< 0.0026	< 0.0055	< 0.003	< 0.0013	< 0.0028	< 0.0028	< 0.0027	< 0.0028	< 0.0015	< 0.0027	< 0.0028	< 0.0028
Vanadium, Soluble		mg/m2/month	< 0.001	< 0.0022	< 0.0012	< 0.00053	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.00059	< 0.0011	< 0.0011	< 0.0011
Zinc, Soluble		mg/m2/month	0.0046	0.0053	0.0076	0.0034	< 0.0011	0.0098	0.0056	0.0016	0.0059	0.028	0.009	0.0044
Cyanide, Soluble		mg/m2/month	< 0.021	< 0.0022	< 0.0012	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.023	< 0.022	< 0.011	< 0.011
Sulphate by calculation, soluble		mg/m2/month	--	< 0.16	< 0.091	1.7	< 0.085	< 0.085	< 0.08	< 0.085	0.061	< 0.082	0.13	< 0.085

Table 6 - Real-time Dust Monitoring Results Summary

Monitor/Location	Month/Year	Operational Summary		Monitoring Results Summary													
					PM 2.5						PM 10						
		% Run time	Downtime (minutes)	Fraction	1 minute average	10 minute average	15 minute average	30 minute average	1 hour average	24 hour average	1 minute average	10 minute average	15 minute average	30 minute average	1 hour average	24 hour average
				Criteria	--	--	--	--	--	25	--	165	150	120	80	50
KFRTD-01 (ER0224025)	Jun-24	99.8%	80	Minimum	0.69	0.69	0.69	0.69	0.69	1.15	0.69	0.73	0.74	0.86	0.77	2.27
				Maximum	121.99	38.52	28.12	16.84	12.85	4.71	141.91	44.76	32.71	17.48	24.38	12.20
				Average	2.30	2.30	2.30	2.30	2.30	2.33	4.79	4.79	4.79	4.79	4.79	4.92
	Jul-24	99.8%	81	Minimum	0	0.06	0.08	0.11	0.27	0.87	0.52	0.65	0.65	0.66	0.68	1.28
				Maximum	153.85	78.94	62.01	47.30	29.33	4.54	190.61	100.87	80.96	61.77	37.80	11.98
				Average	2.13	2.13	2.13	2.13	2.13	2.13	4.38	4.38	4.38	4.38	4.38	4.40
	Aug-24	99.7%	114	Minimum	0.69	0.69	0.69	0.69	0.69	1.12	0.69	0.69	0.69	0.69	0.69	1.80
				Maximum	131.07	53.98	38.23	20.21	11.82	4.97	159.44	65.88	47.10	26.35	26.12	17.68
				Average	2.73	2.73	2.73	2.73	2.73	2.71	5.92	5.92	5.92	5.92	5.92	5.78
	Sep-24	99.5%	237	Minimum	0.44	0.63	0.65	0.67	0.68	0.90	0.69	0.69	0.69	0.69	0.69	1.67
				Maximum	47.48	21.79	21.68	18.99	14.18	5.80	62.11	30.33	30.26	21.47	27.13	14.39
				Average	2.24	2.24	2.24	2.24	2.24	2.26	5.36	5.36	5.36	5.36	5.36	5.46
	Oct-24	99.4%	261	Minimum	0.05	0.26	0.29	0.40	0.49	0.80	0.43	0.65	0.66	0.68	0.68	1.04
				Maximum	14.13	9.15	8.59	7.56	5.97	4.28	55.02	18.54	18.39	18.27	18.00	11.35
				Average	2.34	2.34	2.34	2.35	2.34	2.36	5.49	5.49	5.49	5.49	5.48	5.52
	Nov-24	99.7%	144	Minimum	0.69	0	0	0	0	0.00	1	0	0	0	0.00	0
				Maximum	129.00	60.89	49.71	29.24	15.44	3.54	906.26	126.01	85.96	45.75	24.47	9.43
				Average	1.97	1.97	1.97	1.97	1.97	1.91	5.05	5.05	5.04	5.04	5.04	4.77
	Dec-24	77.2%	10,159	Minimum	0	0	0	0	0	0	0	0	0	0	0	0
				Maximum	43.78	43.38	42.89	40.77	30.95	5.12	177.02	48.68	48.49	46.20	35.18	12.21
				Average	2.05	2.05	2.05	2.05	2.05	1.95	6.00	6.00	6.00	5.99	5.98	5.75
	Jan-25	99.3%	315	Minimum	0.69	0.69	0.69	0.69	0.69	0.93	0.69	0.69	0.69	0.71	0.73	1.74
				Maximum	13.20	13.13	13.13	13.02	12.70	4.06	569.58	78.28	55.14	32.00	22.37	12.84
				Average	2.39	2.39	2.39	2.39	2.39	2.39	5.92	5.92	5.92	5.92	5.92	5.92
	Feb-25	99.8%	97	Minimum	0.69	0.69	0.69	0.69	0.69	0.92	0.69	0.70	0.73	0.84	1.03	1.75
				Maximum	34.33	33.44	33.23	32.38	30.43	13.02	36.70	35.86	35.64	34.94	32.97	17.98
				Average	3.17	3.17	3.17	3.17	3.17	3.16	6.49	6.49	6.49	6.49	6.49	6.48
	Mar-25	99.8%	111	Minimum	0	0.03	0.03	0.05	0.18	0.79	0.64	0.68	0.68	0.69	0.69	1.77
				Maximum	13.80	12.42	11.81	10.42	10.02	5.01	29.00	24.99	21.42	18.36	18.17	11.33
				Average	2.50	2.50	2.50	2.50	2.50	2.50	5.75	5.75	5.75	5.75	5.75	5.71
	Apr-25	100%	10	Minimum	0	0.03	0.04	0.06	0.10	0.79	0.38	0.63	0.65	0.66	0.67	1.51
				Maximum	15.18	15.16	15.05	14.73	14.13	5.81	44.23	28.01	27.00	25.61	24.99	15.11
				Average	2.43	2.43	2.43	2.43	2.43	2.45	6.13	6.13	6.13	6.14	6.13	6.17
	May-25	96.5%	1,618	Minimum	0.69	0.69	0.69	0.69	0.69	0.97	0.69	0.69	0.69	0.84	0.91	2.29
				Maximum	41.19	18.65	15.44	12.55	11.17	4.05	219.98	**170.97**	**157.41**	**138.04**	**121.43**	27.17
				Average	2.30	2.30	2.30	2.30	2.30	2.29	6.04	6.04	6.04	6.04	6.04	6.03
	Annual	97.5%	13,227	Minimum	0	0	0	0	0	0	0	0	0	0	0	0
				Maximum	153.85	78.94	62.01	47.30	30.95	13.02	906.26	**170.97**	**157.41**	**138.04**	**121.43**	27.17
				Average	2.39	2.38	2.38	2.38	2.38	2.37	5.60	5.60	5.60	5.60	5.60	5.57
KFRTD-02 (ER0224024)	Jun-24	87.3%	5,494	Minimum	0.41	0.41	0.41	0.41	0.41	0.67	0.41	0.42	0.43	0.51	0.65	1.30
				Maximum	17.77	13.56	12.17	9.74	9.18	3.23	32.88	26.68	26.05	21.02	19.45	8.07
				Average	1.52	1.52	1.52	1.52	1.52	1.54	3.18	3.18	3.18	3.18	3.18	3.29
	Jul-24	0.0%	44,640	--	No data collected due to vandalised equipment											
	Aug-24	98.7%	577	Minimum	0.41	0	0	0.00	0	0	0.41	0	0	0	0	0
				Maximum	23.19	10.60	9.43	9.20	7.25	2.87	40.23	20.26	19.22	18.93	18.04	12.69
				Average	1.62	1.62	1.62	1.62	1.62	1.59	4.41	4.41	4.41	4.40	4.40	4.26
	Sep-24	99.5%	219	Minimum	0.41	0.41	0.41	0.41	0.41	0.61	0.41	0.41	0.41	0.41	0.41	1.25
				Maximum	30.46	8.65	7.21	5.02	3.59	2.46	74.83	13.81	13.52	13.24	13.01	10.06
				Average	1.39	1.39	1.39	1.39	1.39	1.39	4.67	4.68	4.67	4.68	4.68	4.73
	Oct-24	99.5%	216	Minimum	0.12	0.33	0.34	0.37	0.39	0.49	0.39	0.41	0.41	0.41	0.41	0.75
				Maximum	5.13	4.73	4.43	3.87	3.13	2.39	24.59	14.75	14.76	14.63	14.25	9.08
				Average	1.43	1.43	1.43	1.43	1.43	1.44	4.78	4.78	4.78	4.78	4.78	4.84
	Nov-24	77.1%	9,909	Minimum	0.10	0	0	0	0	0	0.29	0	0	0	0	0
				Maximum	30.83	23.77	19.11	13.55	8.40	3.02	246.82	51.33	51.30	51.28	51.26	15.41
				Average	1.95	1.95	1.94	1.94	1.94	1.79	5.44	5.42	5.41	5.40	5.37	4.55
	Dec-24	96.7%	1,468	Minimum	0	0	0	0	0	0	0	0	0	0	0	0
				Maximum	39.31	2.87	38.30	6.37	27.63	4.51	209.01	23.17	43.14	12.19	31.09	9.42
				Average	2.13	2.85	2.13	2.11	2.13	2.07	4.20	3.73	4.20	4.16	4.19	4.08
	Jan-25	99.8%	94	Minimum	0.41	0	0	0	0	0	0.41	0	0	0	0	0
				Maximum	8.61	8.40	8.33	8.22	8.09	3.61	15.76	11.79	15.08	12.50	14.80	8.62
				Average	1.75	1.41	1.75	1.75	1.75	1.73	3.42	2.87	3.42	3.41	3.42	3.38
	Feb-25	99.9%	31	Minimum	0.41	0.41	0.41	0.41	0.41	0.52	0.41	0.41	0.41	0.41	0.42	0.85
				Maximum	24.10	23.55	23.11	22.60	21.44	8.63	25.56	24.94	24.48	24.01	22.82	10.78
				Average	1.86	1.86	1.86	1.86	1.86	1.86	3.10	3.10	3.10	3.10	3.10	3.10
	Mar-25	99.8%	98	Minimum	0	0	0	0	0.07	0.44	0.38	0.41	0.41	0.41	0.41	0.77
				Maximum	15.12	9.10	8.57	7.45	6.43	3.05	22.76	10.34	9.78	9.00	8.89	5.59
				Average	1.45	1.45	1.45	1.45	1.45	1.44	2.65	2.65	2.65	2.65	2.65	2.63
	Apr-25	99.9%	41	Minimum	0	0	0	0	0	0.45	0.12	0.29	0.32	0.35	0.36	0.73
				Maximum	10.20	10.00	9.97	9.85	9.54	3.58	15.48	15.23	15.20	15.09	14.74	7.23
				Average	1.41	1.41	1.41	1.41	1.41	1.42	2.81	2.81	2.81	2.81	2.81	2.82
	May-25	96.4%	1,656	Minimum	0.41	0.41	0.41	0.41	0.41	0.51	0.41	0.41	0.41	0.41	0.42	1.02
				Maximum	15.94	12.66	11.72	8.57	6.35	2.55	103.98	84.16	75.40	64.31	55.45	12.04
				Average	1.27	1.27	1.27	1.27	1.26	1.26	2.80	2.80	2.80	2.80	2.80	2.80
	Annual	87.8%	64,443	Minimum	0	0	0	0	0	0	0	0	0	0	0	0
				Maximum	39.31	23.77	38.30	22.60	27.63	8.63	246.82	84.16	75.40	64.31	55.45	15.41
				Average	1.61	1.54	1.61	1.60	1.61	1.59	3.74	3.69	3.74	3.73	3.73	3.67