



## Application for Licence Amendment

### Part V Division 3 of the *Environmental Protection Act 1986*

---

|                          |   |
|--------------------------|---|
| <b>Licence Number</b>    | L9324/2022/1  |
| <b>Licence Holder</b>    | Greenmount Resources Pty Ltd  |
| <b>ACN</b>               | 607 613 650   |
| <b>File Number</b>       | DER2022/000042  |
| <b>Premises</b>          | Karlawinda Gold Project<br><br>Mining Lease – M52/1070<br>CAPRICORN WA 6642<br><br>As defined by the Premises map attached to the Revised Licence |
| <b>Date of Report</b>    | 24 December 2024 (FINAL)  |
| <b>Proposed Decision</b> | Revised licence granted   |

## Table of Contents

|  |           |
|--|-----------|
| <b>1. Decision summary</b>   | <b>1</b>  |
| <b>2. Scope of assessment</b>  | <b>1</b>  |
| 2.1 Regulatory framework   | 1         |
| 2.2 Amendment summary  | 1         |
| 2.3 TSF summary characteristics and operations                           | 1         |
| 2.3.1 Water Recovery System  | 3         |
| 2.3.2 Tailings Deposition  | 3         |
| 2.3.3 Material Characterisation  | 3         |
| 2.3.4 Seepage Assessment   | 7         |
| 2.3.5 Hydrology  | 8         |
| 2.4 Other Amendments   | 9         |
| 2.4.1 Inclusion of Category 6: Mine dewatering                           | 9         |
| 2.4.2 Additional TSF changes   | 11        |
| 2.4.3 Infrastructure constructed   | 12        |
| 2.5 Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) | 12        |
| <b>3. Risk assessment</b>  | <b>13</b> |
| 3.1 Source-pathways and receptors  | 14        |
| 3.1.1 Emissions and controls   | 14        |
| 3.1.2 Receptors  | 15        |
| 3.2 Risk ratings   | 17        |
| <b>4. Consultation</b>   | <b>21</b> |
| <b>5. Conclusion</b>   | <b>21</b> |
| 5.1 Summary of amendments  | 21        |
| <b>References</b>  | <b>23</b> |
| <b>Appendix 2: Water quality results – TSF monitoring bores</b>          | <b>24</b> |
|  | <b>29</b> |

|   |    |
|---|----|
| Table 1: Indicative Construction Schedule (Capricorn Metals 2024)                     | 3  |
| Table 2: Tailings Testwork Summary  | 4  |
| Table 3: Tailings Characterisation (CMW 2024)   | 4  |
| Table 4: Multi-Element-Analysis Results for Tailings-Solids Samples (GCA 2018)        | 5  |
| Table 5: Analysis Results for Tailings-Slurry-Water Samples (GCA 2018)                | 6  |
| Table 6: Results of Seepage Analysis (source: CMW 2024)                               | 8  |
| Table 7: Monthly water abstraction and dust suppression volumes                       | 9  |
| Table 8: Water quality Mining Turkey Nest and mine pit (Capricorn Metals 2024d and e) | 10 |

Table 9: Licence Holder controls (Capricorn 2024) ..... 14

Table 10: Environmental receptors and distance from prescribed activity ..... 16

Table 11. Risk assessment of potential emissions and discharges from the Premises during construction and operation..... 18

Table 12: Consultation .....21

Table 13: Summary of licence amendments .....21

Figure 1: TSF Stage 7 Raise (CMW 2024).....2

Figure 2: Water table contours at the end of mine life, considering partial and full consolidation ..... 7

Figure 3: SWL monitoring bores.....8

Figure 4: Mining Turkey Nest ..... 10

## 1. Decision summary

Licence L9324/2022/1 is held by Greenmount Resources Pty Ltd (Licence Holder) for the Karlawinda Gold Project (the Premises), located at Mining Lease M52/1070, Capricorn.

This Amendment Report documents the assessment of potential risks to the environment and public health from proposed changes to the emissions and discharges during the construction and operation of the Premises. As a result of this assessment, Revised Licence L9324/2022/1 has been granted.

## 2. Scope of assessment

### 2.1 Regulatory framework

In completing the assessment documented in this Amendment Report, the department has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at <https://dwer.wa.gov.au/regulatory-documents>.

### 2.2 Amendment summary

On 16 July 2024, the Licence Holder submitted an application to the department to amend Licence L9324/2022/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act).

The amendment being sought is for the construction and operation of Stage 6 and Stage 7 embankment rise of the Tailings Storage Facility (TSF) – refer to section 2.3.

No changes to the previously assessed design capacity for Categories 5, 64 or 85 have been requested by the Licence Holder.

During this amendment, the department has added Category 6 for mine dewatering – refer to section 2.4.

### 2.3 TSF summary characteristics and operations

The existing TSF is a single-cell circular integrated waste landform (IWL) TSF. The TSF was designed to comprise of six stages of construction including the Starter embankment, to reach the maximum height of 25 m at 608.5 mRL.

The proposed Stage 6 and Stage 7 embankment raises will provide a total storage volume of approximately 38.9 million cubic metres ( $\text{Mm}^3$ ), equivalent to a storage capacity of 53.5 million tonnes (Mt), based on  $6.6 \text{ Mm}^3$  at tailings dry density of 1.25 tonnes per  $\text{m}^3$  ( $\text{t/m}^3$ ) (dry) and  $32.3 \text{ Mm}^3$  at  $1.4 \text{ t/m}^3$ , tailings beach slope of 1%, and minimum operational and total freeboards of 0.3 m and 0.5 m respectively.

Stage 7 will have a crest level of 623 mRL Australian Height Datum (AHD), or a maximum embankment height of approximately 39 m as shown in Figure 1. The raises will utilise an upstream zone (Zone A) of compacted clayey/silty mine waste, and downstream zones of traffic compacted mine waste (Zone B) and waste placed using waste dump construction techniques (Zone C).

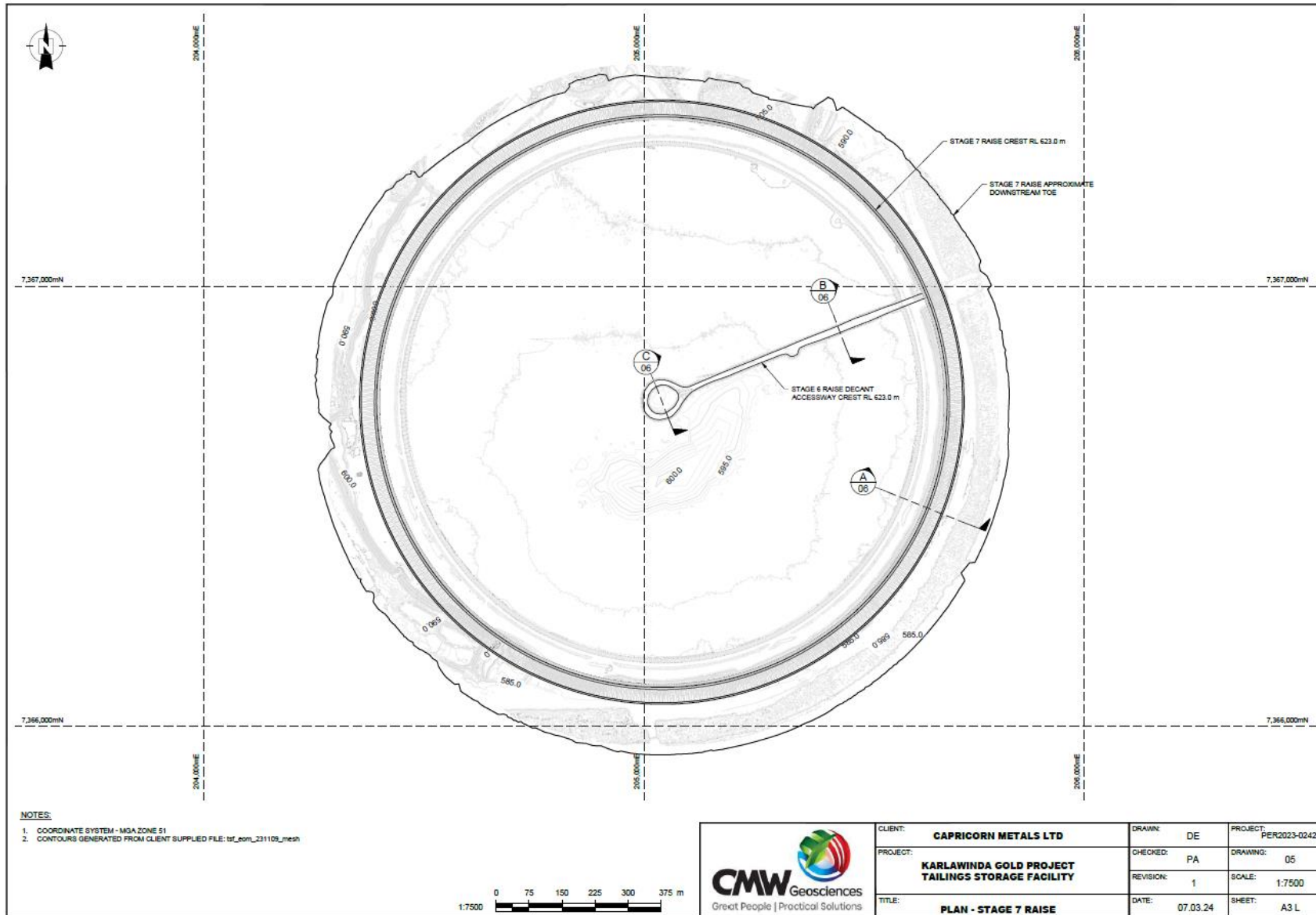


Figure 1: TSF Stage 7 Raise (CMW 2024)

The proposed schedule competition dates for the TSF Stage lifts are provided in Table 1:

**Table 1: Indicative Construction Schedule (Capricorn Metals 2024)**

| Component – TSF Embankment stage | Estimated Construction Completion Date |
|----------------------------------|--|
| TSF – Stage 6 (620.5 mRL)        | Q2 2027                                |
| TSF – Stage 7 (623.0 mRL)        | Q1 2028                                |

### 2.3.1 Water Recovery System

The TSF has an existing decant accessway and rock ring decant structure. These will be raised along with the perimeter embankments, using the centreline construction method.

Each embankment raise is offset by a minimum distance of 1.5 m from the upstream crest of the previous embankment stage, to allow for continuous use of the above ground tailings slurry pipeline. All existing pipework will be utilised / retained for future lifts (Capricorn Metals Ltd 2024c).

The tailings slurry water and surface water is removed from the TSF using a mounted decant pump in the rock ring type central decant structure. The return water is pumped directly to the process plant for reuse.

The minimum capacity of the water recovery system should be not less than 590 tonnes per hour (tph) (30% water return plus removal of a 1:100 year Annual Exceedance Probability (AEP) 72 hour storm event over 1 month) including the additional capacity needed to recover water from other storm events scenarios modelled (CMW 2024).

### 2.3.2 Tailings Deposition

The tailings should have between 40% to 55% solids (depending on ore type) and is to be deposited around the TSF surface to maximise tailings density.

Tailings deposition is via multiple spigots located on the upstream perimeter embankment crest and is managed to prevent prolonged ponding near the embankment. The aim is to maintain the supernatant pond within and around the rock ring decant. The supernatant pond distance is to be further than 250 m from the embankment, which is the equivalent to approximately 30% of the tailings area (CMW 2024).

Surface water liberated from tailings is continually recovered from the tailing surface.

### 2.3.3 Material Characterisation

The tailings characteristics were obtained by tailings testwork which was performed by Trilab Pty Ltd, in August 2022. The analysis was done by analysing two representative tailing types 'Oxide Tailings' and 'Laterite Tailings' (Table 2), which at the time represented the typical tailings processed at the Premises.

The Licence Holder has advised that 'Fresh Tailings' started to be produced in June 2023. 'Fresh Tailings' are expected to have higher densities than the 'Oxide Tailings' and 'Laterite Tailings'.

**Table 2: Tailings Testwork Summary**

| Engineering properties     | Oxide Tailings                                       | Laterite Tailings                                  |
|----------------------------|--|--|
| % Fines                    | 61% (13% passing 2.8 microns)                        | 57% (10% passing 2.5 micron)                       |
| Plasticity                 | High Plasticity, PI 20%                              | Low Plasticity, PI 9%                              |
| Air Drying Density         | 1.24 t/m <sup>3</sup> (dry), after approx. 15 days   | 1.44 t/m <sup>3</sup> (dry), after approx. 15 days |
| Undrained settling density | 0.89 t/m <sup>3</sup> (dry), after 3 hrs.            | 1.06 t/m <sup>3</sup> (dry), after 1 hr.           |
| Drained settling density   | 1.26 t/m <sup>3</sup> (dry), after 23 hrs.           | 1.24 t/m <sup>3</sup> (dry), after 6 hrs.          |
| Hydraulic conductivity     | 1.1 x 10 <sup>-8</sup> to 2.4 x 10 <sup>-9</sup> m/s | 1 x 10 <sup>-8</sup> to 2.2 x 10 <sup>-9</sup> m/s |

Tailings geochemical characterisation was undertaken as part of the initial study for the TSF at the Premises. The findings from *GCA 2018* are summarised in Table 3.

**Table 3: Tailings Characterisation (CMW 2024)**

| Sample Description  | Characterisation  |
|---|---|
| Oxide Tailings (Bulk)<br>(shown as Oxide-Ore-Tailings in Table 4 below)   | <ul style="list-style-type: none"> <li>Negligible-sulfides (Sulfide-S = 0.01%).</li> <li>Non-Acid Forming (NAF).</li> <li>Major and minor-elements typically below, or close to, those recorded for soils, regoliths, and bedrocks derived from un-mineralised terrain, with the exception of arsenic.</li> </ul>   |
| Oxide Tailings (Water)<br>(results shown in Table 5 below)                | <ul style="list-style-type: none"> <li>Alkaline (pH = 10).</li> <li>Fresh (Total Dissolved Solids (TDS) = 896 mg/L).</li> <li>Low in Weak Acid Dissociable (WAD) cyanide (less than 50 mg/L).</li> <li>Low cyanide-complexing metals (e.g. Iron (Fe) and Zinc (Zn)) concentrations.</li> <li>Major and minor-elements typically below, or close to, those recorded for soils, regoliths, and bedrocks derived from un-mineralised terrain, including arsenic (0.1 mg/L).</li> </ul> |
| Fresh Tailings (Bulk)<br>(shown as Primary-Ore-Tailings in Table 4 below) | <ul style="list-style-type: none"> <li>Contained trace-sulfide minerals (Sulfide-S = 0.071%).</li> <li>Potentially-acid forming (PAF).</li> <li>Major and minor-elements typically below, or close to, those recorded for soils, regoliths, and bedrocks derived from un-mineralised terrain, with the exception for arsenic and molybdenum.</li> </ul>   |
| Fresh Tailings (Water)<br>(results shown in Table 5 below)                | <ul style="list-style-type: none"> <li>Alkaline (pH = 10).</li> <li>Slightly brackish (TDS = 1,400 mg/L).</li> <li>Low free cyanide (less than 50 mg/L).</li> <li>Elevated cyanide-complexing metals (Iron (Fe) and Copper (Cu)).</li> </ul>  |

| Sample Description | Characterisation   |
|--------------------|--|
|                    | <ul style="list-style-type: none"> <li>Major and minor-elements typically below, or close to, those recorded for soils, regoliths, and bedrocks derived from un-mineralised terrain, including arsenic (~1.2 mg/L).</li> </ul> |

**Table 4: Multi-Element-Analysis Results for Tailings-Solids Samples (GCA 2018)**

| GCA-SAMPLE NO.                         | TAILINGS TYPE        | S     | Ca  | Mg   | Na   | K    | Al   | Fe   | Si   | As    | Sb    | Se   | Mo   | B   | F   |
|--|----------------------|-------|-----|------|------|------|------|------|------|-------|-------|------|------|-----|-----|
|  |                      | %     |     |      |      |      |      |      |      |       | mg/kg |      |      |     |     |
| GCA11652                               | Oxide-Ore-Tailings   | <0.01 | 1.1 | 1.08 | 1.84 | 0.46 | 6.20 | 9.15 | 27.9 | 72.2  | 0.88  | 0.10 | 8.9  | <50 | 255 |
| GCA11653                               | Primary-Ore-Tailings | 0.84  | 3.2 | 1.66 | 2.68 | 0.58 | 5.96 | 7.79 | 29.6 | 248.0 | 0.52  | 0.23 | 38.6 | <50 | 273 |
| Average-Crustal Abundance (Bowen 1979) |                      |       |     |      |      |      |      |      |      | 1.5   | 0.2   | 0.05 | 1.5  | 10  | 950 |

| GCA-SAMPLE NO.            | TAILINGS TYPE        | Ag    | Tl   | Ba    | Sr    | Bi   | P     | Mn    | Sn  | V   | Th   | U    |
|---------------------------|----------------------|-------|------|-------|-------|------|-------|-------|-----|-----|------|------|
|                           |                      | mg/kg |      |       |       |      |       |       |     |     |      |      |
| GCA11652                  | Oxide-Ore-Tailings   | 0.27  | 0.22 | 211.0 | 132.1 | 0.18 | 551   | 1,244 | 1.3 | 171 | 3.45 | 1.23 |
| GCA11653                  | Primary-Ore-Tailings | 0.06  | 0.15 | 152.1 | 125.0 | 0.13 | 724   | 870   | 1.5 | 112 | 3.91 | 1.05 |
| Average-Crustal Abundance |                      | 0.07  | 0.6  | 500   | 370   | 0.05 | 1,000 | 950   | 2.2 | 160 | 12   | 2.4  |

| GCA-SAMPLE NO.            | TAILINGS TYPE        | Ni    | Cr  | Co   | Cu | Zn    | Cd   | Pb  | Hg    |
|---------------------------|----------------------|-------|-----|------|----|-------|------|-----|-------|
|                           |                      | mg/kg |     |      |    | mg/kg |      |     |       |
| GCA11652                  | Oxide-Ore-Tailings   | 154   | 233 | 65.9 | 87 | 120   | 0.07 | 3.4 | 0.02  |
| GCA11653                  | Primary-Ore-Tailings | 267   | 499 | 29.0 | 59 | 56    | 0.03 | 3.8 | <0.01 |
| Average-Crustal Abundance |                      | 80    | 100 | 20   | 50 | 75    | 0.11 | 14  | 0.05  |



Table 5: Analysis Results for Tailings-Slurry-Water Samples (GCA 2018)

| ELEMENT/<br>PARAMETER        | Oxide-<br>Ore-<br>Tailings<br>(GCA11652) | Primary-<br>Ore-<br>Tailings<br>(GCA11653) | ELEMENT/<br>PARAMETER                   | Oxide-<br>Ore-<br>Tailings<br>(GCA11652) | Primary-<br>Ore-<br>Tailings<br>(GCA11653) |
|------------------------------|--|--|---|--|--|
| <i>Major-Parameters</i>      |  |  | <i>Cyanide-Complexing Metals (mg/L)</i> |  |  |
| pH                           | 9.9                                      | 10.3 (10.2)                                | Fe                                      | 0.15 (0.17)                              | 34.0                                       |
| pH (GCA)                     | 10.0                                     | 10.4                                       | Cu                                      | 1.88 (1.90)                              | 11.6                                       |
| EC (µS/cm)                   | 1,742                                    | 2,485 (2,480)                              | Ni                                      | 0.42 (0.43)                              | 1.28                                       |
| EC (GCA, µS/cm)              | 1,771                                    | 2,350                                      | Zn                                      | 0.81 (0.83)                              | 0.06                                       |
| TDS-(grav.) [ mg/L]          | 896                                      | 1,363 (1,395)                              | Co                                      | 0.0961 (0.0933)                          | 0.202                                      |
|                              |  |  | Ag                                      | 0.14                                     | <0.01                                      |
| <i>Major-Ions (mg/L)</i>     |  |  | <i>Minor-Ions (µg/L)</i>                |  |  |
| Na                           | 268.7 (272.7)                            | 457.7                                      | As                                      | 7.4 (8.1)                                | 7,400                                      |
| K                            | 8.1 (8.0)                                | 16.4                                       | Sb                                      | 0.42 (0.42)                              | 9.60                                       |
| Mg                           | 4.21 (4.16)                              | 0.12                                       | Se                                      | 1.0 (0.7)                                | 0.5  |
| Ca                           | 57.97 (58.06)                            | 5.48                                       | B                                       | <10 (<10)                                | 70   |
| Cl                           | 560 (558)                                | 648  | Mo                                      | 117.2 (114.1)                            | 6.48                                       |
| SO4                          | 40 (40)                                  | 110  | Mn                                      | <10 (<10)                                | <10  |
| HCO3 (as CaCO3)              | <2                                       | <2 (<2)                                    | Al                                      | 0.23 (0.23)                              | 0.44                                       |
| CO3 (as CaCO3)               | 153                                      | 241 (241)                                  | Cd                                      | 6.8 (7.5)                                | <0.5                                       |
| OH (as CaCO3)                | 323                                      | 328 (328)                                  | Pb                                      | 4 (5)                                    | <2   |
| F                            | 0.2                                      | 0.8 (0.8)                                  | Cr                                      | 60 (60)                                  | <10  |
| Si                           | 1.59 (1.57)                              | 10.23                                      | Hg                                      | 1.3 (1.3)                                | <0.1                                       |
| <i>Nitrogen-Forms (mg/L)</i> |  |  | Bi                                      | 0.006 (0.027)                            | <0.005                                     |
| NH3-N                        | 1.6                                      | 2.4  | P                                       | <100 (<100)                              | <100                                       |
| NO3-N                        | 0.86                                     | 0.36                                       | Ba                                      | 31.90 (31.27)                            | 5.16                                       |
| <i>Cyanide-Forms (mg/L)</i>  |  |  | Sr                                      | 260.9 (263.4)                            | 28   |
| CNtot                        | 307                                      | 369  | Tl                                      | 0.02 (0.05)                              | <0.01                                      |
| CNwad                        | 291                                      | 296  | V                                       | <10 (<10)                                | 10   |
| CNfree                       | 290                                      | 268  | Sn                                      | 0.5 (0.5)                                | <0.1                                       |
| SCN                          | 1.1                                      | 38.3                                       | U                                       | 0.106 (0.118)                            | 0.236                                      |
|                              |  |  | Th                                      | 0.011 (0.016)                            | <0.005                                     |

Notes:

EC = Electrical-Conductivity; CNtot = Total-Cyanide; CNwad = Weak-Acid-Dissociable Cyanide; CNfree = Free-Cyanide

TDS-(grav.) = Total-Dissolved-Solids-(gravimetric)

Values in parentheses represent duplicate determinations.

Table 4 shows that Lead (Pb), Silicon (Si), Titanium (Ti), Barium (Ba), Strontium (Sr), Bismuth (Bi), Tin (Sn), Thorium (Th), and Aluminum (Al) were analysed for the tailings samples.

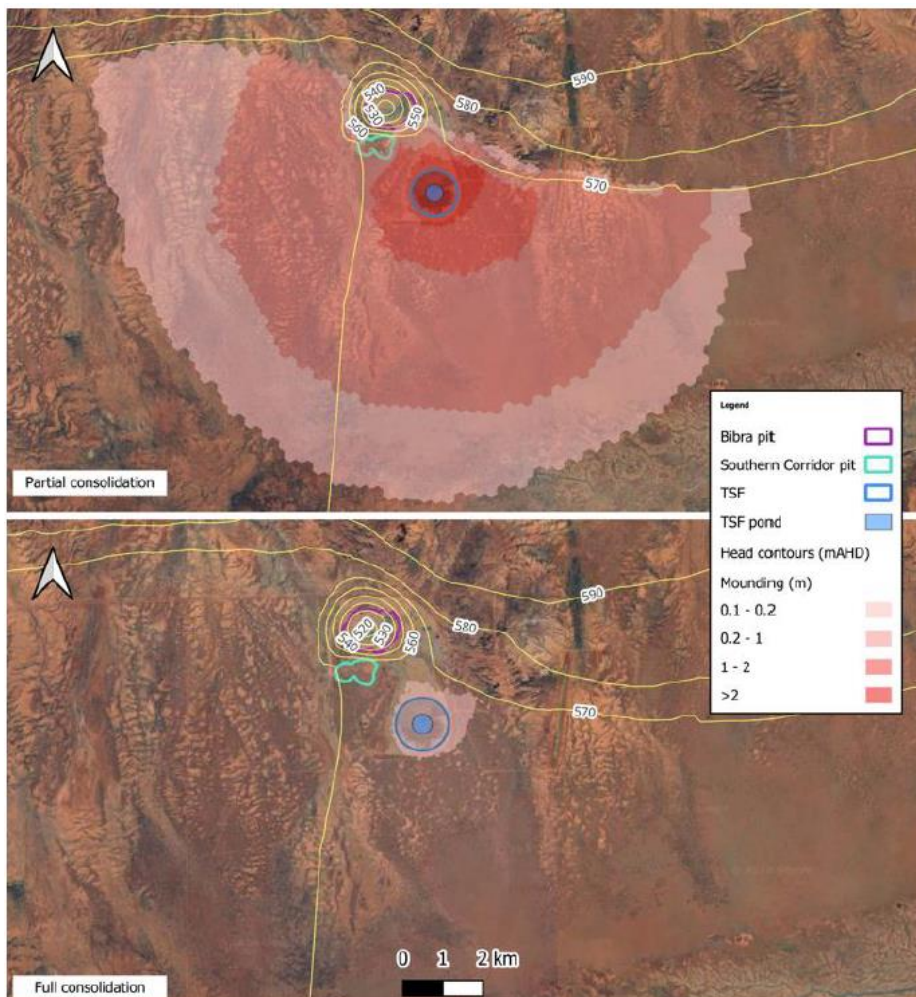
These parameters are not currently included in the ambient groundwater monitoring requirements for the TSF under the existing Licence. During this amendment, the department has included those listed parameters to the Licence through Condition 10, Table 6.

### 2.3.4 Seepage Assessment

EMM Consulting (EMM) developed a numerical flow model using the estimated flow rates, to simulate the partial tailings consolidation and full tailings consolidations from Stage 3 (605.5 mRL) to Stage 7 (623.0 mRL), extrapolating across the mine life.

Tailings when deposited in the TSF have an elevated water content (partial consolidated) and as the time passes, they lose water as water voids are compressed and the tailings become fully consolidated, reaching its maximum density.

The flow model shows that “for the partially consolidated tailings, significant mounding occurred, affecting an area of 122.69 km<sup>2</sup>. Within this, 54.25 km<sup>2</sup> experienced mounding of 0.1 to 0.2 m, 58.57 km<sup>2</sup> saw 0.2 to 1.0 m, 7.23 km<sup>2</sup> had 1.0 to 2.0 m, and 2.64 km<sup>2</sup> exceeded 2.0 m. In contrast, the fully consolidated tailings resulted in a maximum mounding of 0.1 to 0.2 m, impacting an area of 2.4 km<sup>2</sup>” (EMM 2024). The model results are shown in Figure 2.



**Figure 2: Water table contours at the end of mine life, considering partial and full consolidation**

The conclusion of the seepage assessment derived from this model is that:

*“The long-term impacts on groundwater from TSF1 were assessed 12 years post-mining operations. For partially consolidated tailings, groundwater mounding was expected to reach >2 m and decreasing over 2 km to <1 m. For fully consolidated tailings, groundwater mounding would be minimal with <0.2 m within km of TSF1.*

*The risk of seepage could most likely be mitigated completely by the dewatering required to facilitate mining of the open voids. Particle tracking shows that any seepage reports to the*

Southern Corridor Pit and Bibra Pit due to the groundwater gradient resulting from dewatering activities, and is kept within the footprint of the mining, processing, and tailings operations” (EMM 2024).

The seepage estimation for the TSF at 623.0 mRL and at 600.5 mRL with a decant pond at ≥250 m is provided in Table 6.

**Table 6: Results of Seepage Analysis** (source: CMW 2024)

| mRL   | Tailings Consolidation | Seepage Flow (m <sup>3</sup> /day/m of embankment) | Approx. Starter embankment length (m) | Estimated Seepage per day for Embankment Section (m <sup>3</sup> /day) |
|-------|------------------------|--|---------------------------------------|--|
| 623.0 | Partial                | 2.8 x 10 <sup>-2</sup>                             | 3,560                                 | 99   |
|       | Full                   | 1.1 x 10 <sup>-2</sup>                             |                                       | 38   |
| 600.5 | Partial                | 6.1 x 10 <sup>-3</sup>                             |                                       | 22   |
|       | Full                   | 3.2 x 10 <sup>-3</sup>                             |                                       | 12   |

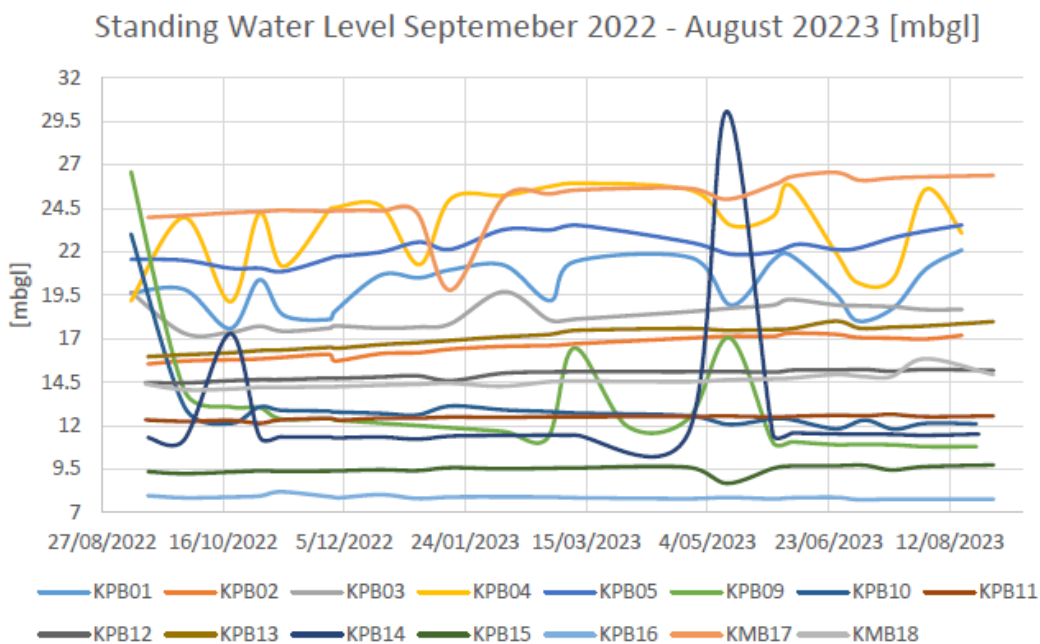
### 2.3.5 Hydrology

#### Groundwater

Licence L9324/2022/1 has existing ambient groundwater monitoring requirements. Water quality results for the TSF monitoring bores are shown in Appendix 2.

The groundwater monitoring results show elevated Chromium levels for all monitoring bores, ranging from 0.0017 – 0.017 mg/L. Arsenic levels were elevated for bores KPB16. The rest of the parameters were within the ANZECC 2000 Limit.

As shown in Figure 3, the standing water level (SWL) around the TSF ranged from 7 to 30 m below ground level (mbgl), with the shallowest water level on bore KPB16.



**Figure 3: SWL monitoring bores**

#### TSF supernatant water quality

The decant water quality for the period 2023-2024 shows consistently elevated copper level ranging from 2.8 – 22 mg/L, where the licence limit is <1 mg/L.

The Licence Holder had advised that they have implemented a mitigation process with Ferrous Sulphate and Hydrogen Peroxide, plus 2x Carbon absorption tanks to reduce the concentration of copper in supernatant (CMW 2024).

## 2.4 Other Amendments

### 2.4.1 Inclusion of Category 6: Mine dewatering

The Licence Holder advised the department that pit dewatering (to allow the mining of ore) water is used for dust suppression within the Premises. As the volume of the mine dewatering water is over 50,000 tonnes per annum, this triggers Category 6 under Schedule 1 of the *Environmental Protection Regulations 1987*.

The Licence Holder advised that during the last reporting period 186,338 m<sup>3</sup> of water was abstracted from the pit (as shown in Table 7). However, the amount of water abstracted from the pit was not enough for dust suppression requirements onsite so additional water from the bore field was abstracted and used as needed.

**Table 7: Monthly water abstraction and dust suppression volumes**

| Month        | Water abstracted from Pit [m3] | Water used for Dust Suppression by Water Carts [m3] |
|--------------|--------------------------------|---|
| Sep-23       | 15,170.0                       | 38,120.0  |
| Oct-23       | 12,338.3                       | 44,930.0  |
| Nov-23       | 9,443.3                        | 44,660.0  |
| Dec-23       | 7,652.7                        | 42,500.0  |
| Jan-24       | 9,745.8                        | 35,300.0  |
| Feb-24       | 35,808.3                       | 38,500.0  |
| Mar-24       | 6,842.9                        | 25,250.0  |
| Apr-24       | 9,958.7                        | 33,800.0  |
| May-24       | 10,780.0                       | 35,850.0  |
| Jun-24       | 30,305.6                       | 15,300.0  |
| Jul-24       | 12,586.6                       | 24,450.0  |
| Aug-24       | 25,705.7                       | 26,850.0  |
| <b>TOTAL</b> | <b>186,338.0</b>               | <b>405,510.0</b>                                    |

Under this amendment, the department has included Category 6 at a design capacity of 186,338 tonnes per year to the licence. This capacity incorporates the amount of water abstracted from the pit (to allow mining of ore) and used for dust suppression purposes onsite.

Water abstracted from the pit is first stored in the Mining Turkey Nest (Figure 4) before being used for dust suppression. The Mining Turkey Nest has a capacity to store 1,044 m<sup>3</sup> and is high density polyethylene (HDPE) lined.





**Figure 4: Mining Turkey Nest**

The Licence Holder provided the water quality results for the Mining Turkey Nest and the pit water. The monitoring results are provided below in Table 8.

**Table 8: Water quality Mining Turkey Nest and mine pit (Capricorn Metals 2024d and e)**

| Parameter                           | Units | Mining Turkey Nest<br>17/11/2024 | Pit<br>30/08/2023 | ANZECC Livestock Trigger Values |
|-------------------------------------|-------|----------------------------------|-------------------|---------------------------------|
| <b>Volatile TRH and BTEX</b>        |       |                                  |                   |                                 |
| TRH C6-C9                           | µg/L  | <10                              | -                 | -                               |
| TRH C6-C10                          | µg/L  | <10                              | -                 | -                               |
| TRH C6-C10 less BTEX (F1)           | µg/L  | <10                              | -                 | -                               |
| Methyl tert butyl ether (MTBE)      | µg/L  | <1.0                             | -                 | -                               |
| Benzene                             | µg/L  | <1.0                             | -                 | -                               |
| Toluene                             | µg/L  | <1.0                             | -                 | -                               |
| Ethylbenzene                        | µg/L  | <1.0                             | -                 | -                               |
| meta+para Xylene                    | µg/L  | <2.0                             | -                 | -                               |
| ortho-Xylene                        | µg/L  | <1.0                             | -                 | -                               |
| Total Xylene                        | µg/L  | <3.0                             | -                 | -                               |
| Naphthalene (value used in F2 calc) | µg/L  | <1.0                             | -                 | -                               |
| TRH C10-C14                         | µg/L  | <50                              | -                 | -                               |
| TRH C15-C28                         | µg/L  | <100                             | -                 | -                               |
| TRH C29-C36                         | µg/L  | <100                             | -                 | -                               |
| Total +ve TRH C10-C36               | µg/L  | <50                              | -                 | -                               |
| TRH >C10-C16                        | µg/L  | <50                              | -                 | -                               |
| TRH >C10-C16 less Naphthalene       | µg/L  | <50                              | -                 | -                               |
| TRH >C16-C34 (F3)                   | µg/L  | <100                             | -                 | -                               |
| TRH >C34-C40 (F4)                   | µg/L  | <100                             | -                 | -                               |
| Total +ve TRH >C10-C40              | µg/L  | <50                              | -                 | -                               |
| <b>Dissolved metals</b>             |       |                                  |                   |                                 |
| Silica                              | mg/L  | 48                               | 28                | -                               |
| Aluminium                           | µg/L  | <10                              | 11                | 5,000                           |

| Parameter                                      | Units | Mining<br>Turkey Nest<br>17/11/2024 | Pit<br>30/08/2023 | ANZECC<br>Livestock<br>Trigger Values |
|--|-------|-------------------------------------|-------------------|---------------------------------------|
| Arsenic  | µg/L  | 79                                  | 110               | 500                                   |
| Boron  | µg/L  | 400                                 | 570               | 5,000                                 |
| Cadmium  | µg/L  | <0.10                               | <0.10             | 10                                    |
| Cobalt   | µg/L  | <0.1                                | <0.10             | -                                     |
| Chromium                                       | µg/L  | 7.9                                 | <0.10             | -                                     |
| Copper   | µg/L  | <0.1                                | <0.10             | -                                     |
| Iron   | µg/L  | <10                                 | <10               | -                                     |
| Mercury  | µg/L  | <0.050                              | <0.050            | 2                                     |
| Manganese                                      | µg/L  | 4.5                                 | 11                | -                                     |
| Molybdenum                                     | µg/L  | 6.3                                 | 9.7               | 150                                   |
| Nickel   | µg/L  | <1.0                                | 8.9               | -                                     |
| Lead   | µg/L  | <1.0                                | <0.1              | 100                                   |
| Antimony                                       | µg/L  | 1.9                                 | 4.6               | -                                     |
| Selenium                                       | µg/L  | 2.7                                 | 2.7               | 20                                    |
| Thallium                                       | µg/L  | <1.0                                | <0.1              | -                                     |
| Uranium  | µg/L  | 2.2                                 | 4.5               | -                                     |
| Vanadium                                       | µg/L  | 24                                  | 16                | ND                                    |
| Zinc   | µg/L  | <1.0                                | 1.3               | 20,000                                |
| <b>Physical Parameters</b>                     |       |                                     |                   |                                       |
| Electrical Conductivity                        | µS/cm | 930                                 | 1100              | -                                     |
| Total Dissolved Solids                         | mg/L  | 600                                 | 600               | 2,500                                 |
| <b>Ionic Balance</b>                           |       |                                     |                   |                                       |
| Bicarbonate Alkalinity as CaCO <sub>3</sub>    | mg/L  | 110                                 | 130               | -                                     |
| Carbonate Alkalinity as CaCO <sub>3</sub>      | mg/L  | <5.0                                | <5.0              | -                                     |
| Hydroxide OH <sup>-</sup> as CaCO <sub>3</sub> | mg/L  | <5.0                                | <5.0              | -                                     |
| Total Alkalinity as CaCO <sub>3</sub>          | mg/L  | 110                                 | 130               | -                                     |
| Chloride                                       | mg/L  | 95                                  | 130               | -                                     |
| Sulfate  | mg/L  | 110                                 | 150               | 1,000                                 |
| Calcium  | mg/L  | 37                                  | 33                | 1,000                                 |
| Magnesium                                      | mg/L  | 21                                  | 16                | -                                     |
| Potassium                                      | mg/L  | 10                                  | 14                | -                                     |
| Sodium   | mg/L  | 99                                  | 150               | -                                     |
| Hardness (calc) equivalent CaCO <sub>3</sub>   | mg/L  | 180                                 | 150               | -                                     |
| Ionic Balance                                  | %     | 6.5                                 | 1.4               | -                                     |
| <b>Others</b>                                  |       |                                     |                   |                                       |
| Fluoride                                       | mg/L  | 0.28                                | 0.33              | -                                     |
| Nitrate as N                                   | mg/L  | 17                                  | 21                | 400                                   |
| Nitrate as NO <sub>3</sub> by calculation      | mg/L  | 76                                  | 93                | -                                     |
| Free Cyanide                                   | mg/L  | <0.0040                             | 0.013             | -                                     |
| Weak Acid Dissociable Cyanide                  | mg/L  | 0.0046                              | 0.013             | -                                     |
| Total Cyanide                                  | mg/L  | 0.0052                              | 0.024             | -                                     |

Dust suppression is applied at the Premises within the Mine Active Area which includes the South Waste Dump, North Waste Dump, Mining void (Bibra Pit), Run of Mine (ROM), Hauls and roads.

#### 2.4.2 Additional TSF changes

The design construction for the TSF Stages 4 to 5 was changed by the Licence Holder since the last licence amendment from a centreline to downstream construction as documented in *CMW 2024*. These changes have been updated in the Licence through Condition 1, Table 1.

### 2.4.3 Infrastructure constructed

The following changes have been made to Condition 1, Table 1 under this amendment:

- Removal of construction requirements for the TSF - Stage 2

On 21 December 2023 the Licence Holder submitted an Environmental Compliance Report for TSF Stage 2 (Capricorn Metals 2023).

- Removal of construction requirements for the Wastewater Treatment Plant.

On 12 December and 19 December 2024 the Licence Holder submitted an Environmental Compliance Report for the WWTP

- Removal of construction requirements for the Irrigation field

On 12 December 2024 Licence Holder submitted an Environmental Compliance Report for the irrigation field.

Licence Holder provided evidence of partial compliance with the Stormwater management infrastructure on 12 December 2024. In the report, it is stated that most areas have not been constructed to their final design due to the mine being in its early years of operation. Therefore, the construction requirements are maintained in the licence.

## 2.5 Department of Energy, Mines, Industry Regulation and Safety (DEMIRS)

The amendment application was referred to DEMIRS on 12 September 2024. DEMIRS responded on 19 September 2024 stating that a Mining Proposal (MP) (Reg ID 127389) had been submitted by the Licence Holder, proposing two additional raises of the TSF from the Stage 5 to Stage 7 embankment, resulting in an increase to the footprint from 110 ha to 132 ha. The Stage 6 and Stage 7 embankment raises will increase the crest level to RL620.5 m (AHD) and RL623 m (AHD) respectively, to a maximum embankment height of approximately 39m from ground level.

On 25 November 2024, DEMIRS advised that the geotechnical review had been completed and there were no major concerns with this proposal. DEMIRS also advised that the following comments were provided to the Licence Holder for their consideration:

1. *Compaction of foundation of the current Stage 2 crest (600.5m) need to be achieved and certified by a competent person for the assured stability of the ongoing 7 lifts (from stage 3 to 7).*
2. *Operations manual has to be updated with the appointment of responsible persons for TARP.*
3. *Monitoring using prisms and VWP need to continue as presented in the reports as well as visual monitoring including erosion and any seepage.*
4. *Surface water management, hydrology and relevant flood management and peak flow diversion structures acceptable. However, long term erosion management of flood protection structures need to be considered for the perpetuity of these structures for mine closure planning.*

The department (DWER) advises that approval of the Mining Proposal is required prior to works assessed under this amendment application commencing.

### 3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk assessments* (DWER 2020).

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.



### 3.1 Source-pathways and receptors

#### 3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this Amendment Report are detailed in Table 9 below. Table 9 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

**Table 9: Licence Holder controls (Capricorn 2024)**

| Emission   | Sources  | Potential pathways                             | Proposed controls   |
|--|--|--|---|
| <b>Category 5: Processing or beneficiation of metallic or non-metallic ore</b> |  |  |   |
| <b>Construction</b>  |  |  |   |
| Dust   | Construction work for the TSF Stage 6 and Stage 7 embankment lifts<br><br>Vehicle and mobile equipment movements | Air/windborne pathway                          | Dust fogging system used to prevent dust from spreading around offices and working areas.<br><br>Water cart used for the watering of road surfaces and for high traffic areas.  |
| <b>Operation</b>   |  |  |   |
| Dust   | Tailings surface   | Air/windborne pathway                          | All landforms covered by rock to minimise dust generation and rehabilitated in accordance with the Mine Closure Plan.<br><br>Regular watering of unsealed surfaces to prevent dust release.   |
| Tailings overflows from the TSF1   | Operation of Stage 6 and Stage 7 embankment rise of the TSF  | Direct discharges to land and seepage          | Minimum operational freeboard of 0.3 m and total embankment freeboard 0.5 m to maintain capacity following a 1 in 100 year 72 hour rainfall event.  |
| Tailings elevated in metals  |  | Seepage to groundwater / infiltration to soils | <u>Existing controls:</u><br><br>Low permeability foundation prepared by moisture conditioning and compacting the TSF basin subgrade to $k \min 10^{-8}$ metres per second (m/s).<br><br>Additional compaction of clayey/silty mine waste sourced from early stages of pit development to $k \min, 10^{-8}$ m/s.<br><br>Low permeability deposited tailings (ranging between $3.7 \times 10^{-8}$ m/s and $1.8 \times 10^{-8}$ m/s).<br><br>Existing cut-off trench (compacted clayey low permeability materials) to restrict potential seepage under the perimeter |

|  |  |   |  |
|--|--|---|--|
|  |  |   | <p>embankment.</p> <p>Groundwater levels and quality in the vicinity of the TSF is monitored in accordance with the licence conditions.</p> <p>Tailings will have between 40% to 55% solids.</p> |
| Spillage of tailings through leaks, pipeline ruptures or failure |  | Direct discharges to land and infiltration  | <p>Pipeline bunded.</p> <p>Flow sensors fitted to tailings and water return pipeline.</p>  |
| <b>Category 6: Mine dewatering</b>                               |  |   |  |
| Fresh to brackish dewater  | <p>Dust suppression</p> <p>Failure of the dewatering pipelines</p> | <p>Leaks and bursts causing overland runoff</p> <p>Leaks migrating via land to groundwater</p> <p>Overtopping turkey nest</p> | <p>The turkey nest has a flowmeter installed.</p> <p>HDPE lined turkey nest.</p> <p>HDPE pipeline.</p>   |

### 3.1.2 Receptors

In accordance with the *Guideline: Risk assessments* (DWER 2020), the Delegated Officer has excluded employees, visitors and contractors of the Licence Holder's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 10 below provides a summary of potential environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (*Guideline: Environmental siting* (DWER 2020)).

**Table 10: Environmental receptors and distance from prescribed activity**

| Environmental receptors   | Distance from prescribed activity  |
|---|--|
| Nationally Important Wetland<br><br>Lake Disappointment (Savory Creek) System | Tributaries occur within the prescribed premises with two separate drainage lines flowing through on the eastern and western sides of the prescribed premises.<br><br>This system has seasonal and intermittent rivers and associated drainage lines and saline lakes.   |
| Threatened and Priority (P) Flora   | 1. <i>Eremophila pilosa</i> <b>P1</b> , <i>Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)</i> , approximately 700 m south-west outside from the prescribed premises boundary.<br><br>2. <i>Eremophila rigida</i> <b>P3 (EPBC Act)</b> , recorded within the prescribed premises<br><br>3. <i>Rhagodia sp.</i> Hamersley (M. Trudgen 17794) <b>P3 (EPBC Act)</b> , recorded within the prescribed premises<br><br>(Source: Flora undertaken by 360 Environmental 2016).   |
| Threatened and Priority (P) fauna   | 1. <i>Macroderma gigas</i> (Ghost Bat) – <b>P4 (Biodiversity Conservation Act (2016), EPBC Act)</b><br>2. <i>Falco hypoleucos</i> (Grey Falcon) – <b>P4 (EPBC Act)</b><br>3. <i>Haliastur sphenurus</i> (Whistling Kite) – <b>Marine (EPBC Act)</b><br>4. <i>Anthus novaeseelandiae</i> (Australasian Pipit) – <b>Marine (EPBC Act)</b><br>5. <i>Cuculus pallidus</i> (Pallid Cuckoo) – <b>Marine (EPBC Act)</b><br>6. <i>Coracina novae-hollandiae</i> (Black-faced Cuckoo-shrike) – <b>Marine (EPBC Act)</b><br>7. <i>Merops ornatus</i> (Rainbow Bee-eater) – <b>Migratory: Marine (EPBC Act)</b><br><br>(Source: Fauna Survey undertaken by 360 Environmental 2016). |
| <i>Rights in Water and Irrigation Act 1914</i> (RIWI Act)                     | The Premises is located within the Proclaimed East Murchinson Groundwater Area and the Pilbara Surface Water Area.   |
| Groundwater   | <ul style="list-style-type: none"> <li>• Groundwater in the region is typically fresh to brackish, with electrical conductivities (EC) generally less than 4,000 microsiemens per centimetre (<math>\mu\text{S}/\text{cm}</math>) with neutral to slightly alkaline waters.</li> <li>• Potable water quality is less than 1,000 mg/L Total Dissolved Solids.</li> <li>• Groundwater depth ranges from 7 to 10 m.</li> <li>• Groundwater flow is southwards toward the Savory Creek system.</li> <li>• Nearest operating groundwater bore about 5 km from prescribed premises – Guildford bore (ref no. 120511289) used for livestock drinking water supply.</li> </ul>   |
| Surface Water   | <ul style="list-style-type: none"> <li>• Surface water flows in rivers and floodplains recharge the alluvium through the riverbed during the wet season.</li> <li>• Rivers maintain by groundwater discharge, then start to decline where levels drop below the riverbed during the dry season.</li> </ul>   |
| Hydrographic catchment  | <ul style="list-style-type: none"> <li>• Lake Disappointment catchment an internally draining system.</li> <li>• Part of the Sandy Desert basin within the Western Plateau division.</li> </ul>  |

## 3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for those emission sources which are proposed to change and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are incomplete they have not been considered further in the risk assessment.

Where the Licence Holder has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the Delegated Officer considers the Licence Holder's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the licence as regulatory controls.

Additional regulatory controls may be imposed where the Licence Holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 11.

The Revised Licence L9324/2022/1 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises.

The conditions in the Revised Licence have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

**Table 11. Risk assessment of potential emissions and discharges from the Premises during construction and operation**

| Risk Event   |                                 |  |   |                           | Risk rating <sup>1</sup><br>C = consequence<br>L = likelihood | Licence Holder's controls sufficient? | Conditions <sup>2</sup> of licence   | Justification for additional regulatory controls |
|--|---------------------------------|--|---|---------------------------|---|---------------------------------------|--|--|
| Source/Activities  | Potential emission              | Potential pathways and impact  | Receptors   | Licence Holder's controls |   |                                       |  |  |
| <b>Construction</b>  |                                 |  |   |                           |   |                                       |  |  |
| Vehicle and mobile equipment movements<br>Construction of the TSF Stage 6 and Stage 7 embankment lifts | Dust                            | Air/windborne pathway causing impacts to vegetation health   | Surrounding vegetation  | Refer to Section 3.1      | C = Slight<br>L = Possible<br><b>Low Risk</b>                 | Y                                     | No conditions imposed.<br>The general provisions of the EP Act apply.  | N/A  |
| <b>Operation</b>   |                                 |  |   |                           |   |                                       |  |  |
| Operation of Stage 6 and Stage 7 embankment rise of the TSF  | Dust                            | Air/windborne pathway causing impacts to vegetation health due to dust deposition leading to reduced ability for photosynthesis and smothering                   | Surrounding vegetation  | Refer to Section 3.1      | C = Slight<br>L = Possible<br><b>Low Risk</b>                 | Y                                     | No conditions imposed.<br>The general provisions of the EP Act apply.  | N/A  |
|  | Tailings overflows from the TSF | Direct discharges to land and seepage to soil and groundwater<br>Soil contamination inhibiting vegetation growth and survival<br>Direct impacts to the ecosystem | Surrounding vegetation<br>Drainage lines and associated riparian vegetation<br>Soil<br>Groundwater, which is used for livestock drinking water<br>Surface water | Refer to Section 3.1      | C = Moderate<br>L = Unlikely<br><b>Medium Risk</b>            | Y                                     | Conditions on existing Licence relating to:<br>Condition 5 – Operational requirements for the decant system and pond<br>Condition 6 – Authorised discharge point for the TSF | N/A  |
|  | Tailings elevated in            | Seepage to groundwater   | Surrounding   | Refer to                  | C = Moderate  | Y                                     | Conditions on existing   | N/A  |

| Risk Event                      |  |   |   |                           | Risk rating <sup>1</sup>                                | Licence Holder's controls sufficient? | Conditions <sup>2</sup> of licence  | Justification for additional regulatory controls |
|---------------------------------|--|---|---|---------------------------|---|---------------------------------------|---|--|
| Source/Activities               | Potential emission   | Potential pathways and impact   | Receptors   | Licence Holder's controls | C = consequence<br>L = likelihood                       |                                       |   |  |
|                                 | metals   | adjacent to the TSF<br><br>Seepage from the TSF base and through sides with infiltration soils<br><br>Groundwater mounding<br><br>Inundation of vegetation root zones, resulting in poor vegetation health or death<br><br>Groundwater contamination<br><br>Soil contamination inhibiting vegetation growth | vegetation<br><br>Drainage lines and associated riparian vegetation<br><br>Soil<br><br>Groundwater, which is used for livestock drinking water<br><br>Surface water             | Section 3.1               | L = Possible<br><br><b>Medium Risk</b>                  |                                       | Licence relating to:<br><br>Condition 5 – Operational requirements for the TSF, TSF deposition and seepage recovery system<br><br>Condition 6 – Authorised discharge point for the TSF<br><br>Condition 7 – Emissions and discharge limits for the supernatant pond<br><br>Condition 8 – Emissions and discharges monitoring<br><br>Condition 10 – Ambient groundwater monitoring<br><br>Condition 12 – Water balance |  |
|                                 | Spillage of tailings through leaks, pipeline ruptures or failure | Direct discharges to land and infiltration to soil and groundwater<br><br>Soil contamination inhibiting vegetation growth and survival<br><br>Direct impacts to the ecosystem<br><br>Death or degradation of vegetation   | Surrounding vegetation<br><br>Drainage lines and associated riparian vegetation<br><br>Soil<br><br>Groundwater, which is used for livestock drinking water<br><br>Surface water | Refer to Section 3.1      | C = Minor<br><br>L = Possible<br><br><b>Medium Risk</b> | Y                                     | Conditions on existing Licence relating to:<br><br>Condition 5 – Operational requirements for tailings delivery and decant return water pipelines   | N/A  |
| Dewatering and dust suppression | Leaks and bursts causing overland                                | Direct discharges to land and infiltration to soil  | Surrounding vegetation  | Refer to Section 3.1      | C = Slight<br><br>L = Possible                          | Y                                     | During this amendment the department has updated the following conditions:  | N/A  |

| Risk Event        |   |   |           |                           | Risk rating <sup>1</sup><br>C = consequence<br>L = likelihood | Licence Holder's controls sufficient? | Conditions <sup>2</sup> of licence  | Justification for additional regulatory controls |
|-------------------|---|---|-----------|---------------------------|---|---------------------------------------|---|--|
| Source/Activities | Potential emission  | Potential pathways and impact                         | Receptors | Licence Holder's controls |   |                                       |   |  |
|                   | runoff<br>Leaks migrating via land to groundwater<br>Overtopping turkey nest<br>Overland runoff | and groundwater<br>Death or degradation of vegetation |           |                           | <b>Low Risk</b>   |                                       | Condition 5 Including operational requirements for the dewatering pipelines and Mining Turkey Nest<br><br>Condition 6 – Including the Mine Active Area as the authorised discharge point for mine dewatering water used for dust suppression purposes |  |

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk assessments* (DWER 2020).

Note 2: Proposed Licence Holder's controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

## 4. Consultation

Table 12 provides a summary of the consultation undertaken by the department.

**Table 12: Consultation**

| Consultation method   | Comments received  | Department response                   |
|---|--|---------------------------------------|
| DEMIRS advised of proposal on 12 September 2024                     | Refer to section 2.5   | Noted                                 |
| Licence Holder was provided with draft amendment on 6 December 2024 | Licence Holder provided the compliance report with the requested information on 19 December 2024 | Licence amendment updated accordingly |

## 5. Conclusion

Based on the assessment in this Amendment Report, the Delegated Officer has determined that a Revised Licence will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

### 5.1 Summary of amendments

Table 13 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

**Table 13: Summary of licence amendments**

| Condition no.                            | Proposed amendments   |
|--|---|
| Prescribed premises category description | Addition of Category 6 at 186,338 tonnes per annual period  |
| 1 – Table 1- item 2                      | Column for infrastructure location included<br>Figure references updated<br><u>Item 2:</u><br>Stage 2 construction requirements removed – refer to section 2.4<br>Stage 3 embankment level changed from 602.5 to 605.5 mRL<br>Changes in the construction method from centreline to downstream for Stages 4 and 5 – refer to section 2.4<br>Construction requirements for Stages 6 and 7 lifts added<br>Waste treatment plant and irrigation field construction requirements removed. |
| 2  | Administrative updates  |
| 5 – Table 2                              | Figure references updated<br>Inclusion of reference to the WWTP ponds<br>Irrigation field size added<br>Inclusion of operational requirements for the dewatering pipeline and Mining  |



| Condition no. | Proposed amendments   |
|---------------|---|
|               | Turkey Nest   |
| 6 – Table 3   | <p>Previous condition 6 removed and replaced with new condition 6 for authorised discharge points</p> <p>Reference to the WWTP ponds included</p> <p>Inclusion of authorised discharge point for mine dewatering water used for dust suppression purposes</p> |
| 8 – Table 5   | In-field analysis for pH and Free Chlorine permitted  |
| 10 – Table 6  | <p>Monitoring bore names updated in line with the updated Figure</p> <p>Inclusion of additional monitoring parameters – refer to section 2.3.3</p>  |
| 11            | Condition numbering corrected   |
| 16            | Condition updated in line with new licence format   |
| 17            | Condition updated in line with new licence format   |
| Definitions   | Updated as applicable   |
| Figure 1      | Updated map   |
| Figure 2      | Updated map   |
| Figure 3      | Updated map   |
| Figure 4      | TSF Stage 4 figure added  |
| Figure 5      | TSF Stage 5 figure added  |
| Figure 6      | Updated map to show Stage 7 (final stage)   |
| Figure 7      | WWTP discharge points added   |
| Figure 8      | Dust suppression areas added  |
| Figure 9      | Updated groundwater monitoring bore map   |

## References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
4. DWER 2024, *W6143 - Greenmount – Kalawinda – Compliance assessment* (REF: DWERDT900847)
5. Capricorn Metals LTD (Capricorn Metals) 2023, *TSF Construction Report Kalawinda Gold Project* (REF: A2245127)
6. Capricorn Metals LTD (Capricorn Metals) 2023b, *Karlawinda Gold Project L9324/2022/Condition 5, 6 and 8 WWTP Environmental Compliance Report* (REF: DWERDT803442)
7. Capricorn Metals 2024, *Licence Amendment Application Supporting Document*, West Perth, Western Australia (REF: A2295234)
8. Capricorn Metals 2024b, *Annual Environmental Report: Environmental Licence L9324/2022/1 August 29th 2023 – August 28th 2024* (REF: DWERDT1007303)
9. Capricorn Metals 2024c, *Answer to request for information, RFI letter* (REF: DWERDT1036538)
10. Capricorn Metals 2024d, *Answer to request for information, RFI letter category 6 p1* (REF: DWERDT1044440)
11. Capricorn Metals 2024e, *Answer to request for information, RFI letter category 6 p2* (REF: DWERDT1044443)
12. CMW Geosciences (CMW) 2024, *Tailings Storage Facility 1 (TSF1) additional raises; Karlawinda Gold Project* (REF: A2295235)
13. EMM Consulting (EMM) 2024, *Memorandum: Tailings Storage Facility Seepage Assessment*, Perth, Western Australia (REF: A2295236)
14. Graeme Campbell & Associates Pty Ltd (GCA) 2018, *Karlawinda Project: Geochemical Assessment of Oxide-Ore-Tailings-Slurry and Primary-Ore-Tailings-Slurry Samples Derived from the Bibra Deposit – Implications for Process-Tailings Management*, Bridgetown, WA 6255 (REF: DWERDT1036538)

## Appendix 2: Water quality results – TSF monitoring bores

| Location ID                   | KMB17          |            |           |            |
|-------------------------------|----------------|------------|-----------|------------|
|                               | Date of Sample | 20/10/2022 | 4/01/2023 | 26/04/2023 |
| Field pH                      | 7.52           | 7.63       | 7.78      | 7.58       |
| Electrical Conductivity (EC)  | 870.00         | 920.00     | 990.00    | 940.00     |
| Total Dissolved Solids (mg/L) | 590.00         | 560.00     | 640.00    | 690.00     |
| Total Cyanide (mg/L)          | <0.0040        | <0.0040    | <0.0040   | <0.0040    |
| WAD Cyanide (mg/L)            | <0.0040        | <0.0040    | <0.0040   | <0.0040    |
| Calcium (mg/L)                | 50.00          | 49.00      | 49.00     | 53.00      |
| Potassium (mg/L)              | 9.40           | 9.10       | 9.30      | 9.10       |
| Magnesium (mg/L)              | 31.00          | 31.00      | 32.00     | 31.00      |
| Sodium (mg/L)                 | 78.00          | 75.00      | 81.00     | 79.00      |
| Bicarbonate (mg/L)            | 88.00          | 81.00      | 89.00     | 90.00      |
| Sulphate (mg/L)               | 110.00         | 100.00     | 98.00     | 98.00      |
| Arsenic (mg/L)                | 0.01           | 0.01       | 0.01      | 0.01       |
| Cadmium (mg/L)                | <0.0001        | <0.0001    | <0.0001   | <0.0001    |
| Cobalt (mg/L)                 | <0.001         | <0.001     | <0.001    | <0.001     |
| Chromium (mg/L)               | 0.0017         | 0.0021     | 0.0021    | 0.0020     |
| Copper (mg/L)                 | <0.001         | <0.001     | <0.001    | <0.001     |
| Iron (mg/L)                   | <0.01          | <0.01      | <0.01     | <0.01      |
| Mercury (mg/L)                | <0.00005       | <0.00005   | <0.00005  | <0.00005   |
| Manganese (mg/L)              | 0.0013         | <0.001     | 0.0011    | <0.001     |
| Molybdenum (mg/L)             | 0.0029         | 0.0029     | 0.0024    | 0.0022     |
| Nickel (mg/L)                 | <0.001         | <0.001     | <0.001    | <0.001     |
| Antimony (mg/L)               | <0.001         | <0.001     | <0.001    | <0.001     |
| Selenium (mg/L)               | 0.0017         | 0.0019     | 0.0019    | 0.0018     |
| Thallium (mg/L)               | <0.001         | <0.001     | <0.001    | <0.001     |
| Uranium (mg/L)                | <0.001         | <0.001     | <0.001    | <0.001     |
| Vanadium (mg/L)               | 0.0330         | 0.0360     | 0.0350    | 0.0350     |
| Zinc (mg/L)                   | <0.001         | <0.001     | <0.001    | 0.0021     |
| Free Cyanide (mg/L)           | <0.0040        | <0.0040    | <0.0040   | <0.0040    |

OFFICIAL

| Location ID                   | KPB01          |            |           |            | KPB02      |            |           |            |
|-------------------------------|----------------|------------|-----------|------------|------------|------------|-----------|------------|
|                               | Date of Sample | 19/10/2022 | 5/01/2023 | 27/04/2023 | 20/07/2023 | 27/10/2022 | 5/01/2023 | 27/04/2023 |
| Field pH                      | 7.83           | 8.03       | 8.16      | 7.92       | 7.91       | 7.87       | 8.15      | 7.84       |
| Electrical Conductivity (EC)  | 530.00         | 530.00     | 560.00    | 520.00     | 630.00     | 650.00     | 680.00    | 680.00     |
| Total Dissolved Solids (mg/L) | 360.00         | 360.00     | 370.00    | 390.00     | 490.00     | 440.00     | 430.00    | 460.00     |
| Total Cyanide (mg/L)          | <0.0040        | <0.0040    | <0.0040   | <0.0040    | <0.0040    | <0.0040    | <0.0040   | <0.0040    |
| WAD Cyanide (mg/L)            | <0.0040        | <0.0040    | <0.0040   | <0.0040    | <0.0040    | <0.0040    | <0.0040   | <0.0040    |
| Calcium (mg/L)                | 33.00          | 32.00      | 32.00     | 32.00      | 36.00      | 35.00      | 35.00     | 37.00      |
| Potassium (mg/L)              | 6.20           | 6.10       | 6.10      | 5.90       | 7.30       | 7.10       | 7.20      | 7.70       |
| Magnesium (mg/L)              | 21.00          | 21.00      | 21.00     | 19.00      | 26.00      | 27.00      | 26.00     | 26.00      |
| Sodium (mg/L)                 | 37.00          | 38.00      | 38.00     | 40.00      | 48.00      | 49.00      | 49.00     | 50.00      |
| Bicarbonate (mg/L)            | 94.00          | 80.00      | 98.00     | 90.00      | <5.0       | 110.00     | 130.00    | 130.00     |
| Sulphate (mg/L)               | 45.00          | 45.00      | 44.00     | 44.00      | 51.00      | 49.00      | 49.00     | 48.00      |
| Arsenic (mg/L)                | <0.001         | <0.001     | <0.001    | <0.001     | 0.00       | 0.00       | 0.00      | 0.00       |
| Cadmium (mg/L)                | <0.0001        | <0.0001    | <0.0001   | <0.0001    | 0.00       | <0.0001    | <0.0001   | <0.0001    |
| Cobalt (mg/L)                 | <0.001         | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     |
| Chromium (mg/L)               | 0.0093         | 0.0100     | 0.0099    | 0.0087     | 0.0150     | 0.0150     | 0.0150    | 0.0150     |
| Copper (mg/L)                 | <0.001         | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     |
| Iron (mg/L)                   | 0.0690         | <0.01      | <0.01     | 0.0190     | 0.0100     | <0.01      | <0.01     | <0.01      |
| Mercury (mg/L)                | <0.00005       | <0.00005   | <0.00005  | <0.00005   | 0.0001     | <0.00005   | <0.00005  | <0.00005   |
| Manganese (mg/L)              | 0.0160         | <0.001     | <0.001    | 0.0046     | <0.001     | <0.001     | <0.001    | <0.001     |
| Molybdenum (mg/L)             | 0.0017         | 0.0022     | 0.0021    | 0.0018     | <0.001     | <0.001     | <0.001    | <0.001     |
| Nickel (mg/L)                 | <0.001         | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     |
| Antimony (mg/L)               | <0.001         | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     |
| Selenium (mg/L)               | 0.0016         | 0.0016     | 0.0016    | 0.0014     | 0.0015     | 0.0014     | 0.0014    | 0.0014     |
| Thallium (mg/L)               | <0.001         | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     |
| Uranium (mg/L)                | <0.001         | <0.001     | <0.001    | <0.001     | <0.0012    | 0.0013     | 0.0012    | 0.0010     |
| Vanadium (mg/L)               | 0.0079         | 0.0095     | 0.0091    | 0.0088     | 0.0120     | 0.0110     | 0.0100    | 0.0110     |
| Zinc (mg/L)                   | <0.001         | 0.0017     | <0.001    | <0.001     | 0.0062     | 0.0022     | 0.0017    | 0.0020     |
| Free Cyanide (mg/L)           | <0.0040        | <0.0040    | <0.0040   | <0.0040    | <0.0040    | <0.0040    | <0.0040   | <0.0040    |

| Location ID                   | KPB03          |            |           |            | KPB04      |            |           |            |
|-------------------------------|----------------|------------|-----------|------------|------------|------------|-----------|------------|
|                               | Date of Sample | 19/10/2022 | 5/01/2023 | 27/04/2023 | 20/07/2023 | 19/10/2022 | 5/01/2023 | 27/04/2023 |
| Field pH                      | 7.60           | 7.73       | 7.94      | 7.83       | 7.89       | 8.00       | 8.01      | 7.89       |
| Electrical Conductivity (EC)  | 870.00         | 870.00     | 930.00    | 860.00     | 620.00     | 630.00     | 670.00    | 620.00     |
| Total Dissolved Solids (mg/L) | 570.00         | 610.00     | 590.00    | 630.00     | 420.00     | 420.00     | 420.00    | 430.00     |
| Total Cyanide (mg/L)          | <0.0040        | <0.0040    | <0.0040   | <0.0040    | <0.0040    | <0.0040    | <0.0040   | <0.0040    |
| WAD Cyanide (mg/L)            | <0.0040        | <0.0040    | <0.0040   | <0.0040    | <0.0040    | <0.0040    | <0.0040   | <0.0040    |
| Calcium (mg/L)                | 52.00          | 51.00      | 50.00     | 53.00      | 35.00      | 34.00      | 35.00     | 35.00      |
| Potassium (mg/L)              | 9.20           | 9.00       | 9.10      | 8.80       | 7.00       | 6.90       | 7.00      | 6.80       |
| Magnesium (mg/L)              | 34.00          | 36.00      | 36.00     | 34.00      | 25.00      | 25.00      | 26.00     | 24.00      |
| Sodium (mg/L)                 | 64.00          | 63.00      | 66.00     | 64.00      | 49.00      | 49.00      | 49.00     | 50.00      |
| Bicarbonate (mg/L)            | 140.00         | 120.00     | 140.00    | 150.00     | 120.00     | 110.00     | 130.00    | 120.00     |
| Sulphate (mg/L)               | 60.00          | 61.00      | 62.00     | 60.00      | 51.00      | 52.00      | 51.00     | 51.00      |
| Arsenic (mg/L)                | <0.001         | <0.001     | <0.001    | <0.001     | 0.00       | 0.00       | 0.00      | 0.00       |
| Cadmium (mg/L)                | <0.0001        | <0.0001    | <0.0001   | <0.0001    | <0.0001    | <0.0001    | <0.0001   | <0.0001    |
| Cobalt (mg/L)                 | <0.001         | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     |
| Chromium (mg/L)               | 0.0030         | 0.0026     | 0.0042    | 0.0044     | 0.0100     | 0.0150     | 0.0160    | 0.0140     |

OFFICIAL

| Location ID         | KPB03      |           |            |            | KPB04      |           |            |            |
|---------------------|------------|-----------|------------|------------|------------|-----------|------------|------------|
|                     | 19/10/2022 | 5/01/2023 | 27/04/2023 | 20/07/2023 | 19/10/2022 | 5/01/2023 | 27/04/2023 | 20/07/2023 |
| Copper (mg/L)       | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     | <0.001     |
| Iron (mg/L)         | 0.0460     | 0.0510    | 0.0290     | 0.0210     | 0.0860     | 0.0290    | <0.01      | <0.01      |
| Mercury (mg/L)      | <0.00005   | <0.00005  | <0.00005   | <0.00005   | <0.00005   | <0.00005  | <0.00005   | <0.00005   |
| Manganese (mg/L)    | 0.0089     | 0.0078    | 0.0079     | 0.0130     | 0.0380     | 0.0068    | <0.001     | 0.0014     |
| Molybdenum (mg/L)   | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     | <0.001     |
| Nickel (mg/L)       | 0.0012     | <0.001    | 0.0016     | 0.0011     | <0.001     | <0.001    | <0.001     | <0.001     |
| Antimony (mg/L)     | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     | <0.001     |
| Selenium (mg/L)     | 0.0019     | 0.0018    | 0.0021     | 0.0017     | 0.0015     | 0.0014    | 0.0014     | 0.0014     |
| Thallium (mg/L)     | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     | <0.001     |
| Uranium (mg/L)      | 0.0011     | 0.0012    | <0.001     | 0.0011     | 0.0011     | 0.0012    | 0.0011     | 0.0010     |
| Vanadium (mg/L)     | 0.0085     | 0.0088    | 0.0100     | 0.0088     | 0.0085     | 0.0100    | 0.0097     | 0.0096     |
| Zinc (mg/L)         | 0.0029     | 0.0018    | 0.0012     | 0.0031     | <0.001     | <0.001    | <0.001     | 0.0013     |
| Free Cyanide (mg/L) | <0.0040    | <0.0040   | <0.0040    | <0.0040    | <0.0040    | <0.0040   | <0.0040    | <0.0040    |

| Location ID                   | KPB05      |           |            |            | KPB09      |           |            |            |
|-------------------------------|------------|-----------|------------|------------|------------|-----------|------------|------------|
|                               | 19/10/2022 | 5/01/2023 | 27/04/2023 | 20/07/2023 | 19/10/2022 | 4/01/2023 | 26/04/2023 | 20/07/2023 |
| Field pH                      | 7.99       | 7.89      | 7.48       | 7.88       | 7.58       | 7.88      | 8.06       | 7.92       |
| Electrical Conductivity (EC)  | 630.00     | 640.00    | 680.00     | 650.00     | 670.00     | 660.00    | 720.00     | 760.00     |
| Total Dissolved Solids (mg/L) | 420.00     | 420.00    | 420.00     | 440.00     | 440.00     | 430.00    | 460.00     | 460.00     |
| Total Cyanide (mg/L)          | <0.0040    | <0.0040   | <0.0040    | <0.0040    | <0.0040    | <0.0040   | <0.0040    | <0.0040    |
| WAD Cyanide (mg/L)            | <0.0040    | <0.0040   | <0.0040    | <0.0040    | <0.0040    | <0.0040   | <0.0040    | <0.0040    |
| Calcium (mg/L)                | 34.00      | 35.00     | 34.00      | 37.00      | 41.00      | 39.00     | 40.00      | 43.00      |
| Potassium (mg/L)              | 7.30       | 7.10      | 7.20       | 7.00       | 8.50       | 8.00      | 8.50       | 8.40       |
| Magnesium (mg/L)              | 25.00      | 25.00     | 25.00      | 24.00      | 27.00      | 25.00     | 26.00      | 26.00      |
| Sodium (mg/L)                 | 50.00      | 50.00     | 53.00      | 52.00      | 51.00      | 55.00     | 52.00      | 53.00      |
| Bicarbonate (mg/L)            | 120.00     | 110.00    | 120.00     | 120.00     | 150.00     | 130.00    | 150.00     | 140.00     |
| Sulphate (mg/L)               | 51.00      | 56.00     | 54.00      | 55.00      | 53.00      | 58.00     | 54.00      | 53.00      |
| Arsenic (mg/L)                | 0.00       | 0.00      | 0.00       | 0.00       | <0.001     | 0.00      | 0.00       | 0.00       |
| Cadmium (mg/L)                | <0.0001    | <0.0001   | <0.0001    | <0.0001    | <0.0001    | <0.0001   | <0.0001    | <0.0001    |
| Cobalt (mg/L)                 | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     | <0.001     |
| Chromium (mg/L)               | 0.0170     | 0.0057    | 0.0140     | 0.0110     | 0.0110     | 0.0110    | 0.0100     | 0.0097     |
| Copper (mg/L)                 | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     | <0.001     |
| Iron (mg/L)                   | 0.0220     | 0.0840    | <0.01      | 0.0170     | <0.01      | <0.01     | <0.01      | <0.01      |
| Mercury (mg/L)                | <0.00005   | <0.00005  | <0.00005   | <0.00005   | <0.00005   | <0.00005  | <0.00005   | <0.00005   |
| Manganese (mg/L)              | 0.0013     | 0.0140    | <0.001     | 0.0050     | <0.001     | <0.001    | <0.001     | <0.001     |
| Molybdenum (mg/L)             | <0.001     | <0.001    | 0.0012     | <0.001     | 0.0014     | 0.0013    | 0.0012     | 0.0011     |
| Nickel (mg/L)                 | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     | <0.001     |
| Antimony (mg/L)               | <0.001     | <0.001    | 0.0011     | <0.001     | <0.001     | <0.001    | <0.001     | <0.001     |
| Selenium (mg/L)               | 0.0018     | 0.0017    | 0.0018     | 0.0018     | 0.0017     | 0.0015    | 0.0016     | 0.0016     |
| Thallium (mg/L)               | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     | <0.001     |
| Uranium (mg/L)                | 0.0012     | 0.0012    | 0.0011     | 0.0011     | 0.0019     | 0.0017    | 0.0017     | 0.0018     |
| Vanadium (mg/L)               | 0.0110     | 0.0086    | 0.0096     | 0.0092     | 0.0120     | 0.0120    | 0.0120     | 0.0120     |
| Zinc (mg/L)                   | <0.001     | <0.001    | <0.001     | <0.001     | 0.3100     | 0.0019    | 0.0023     | 0.0015     |
| Free Cyanide (mg/L)           | <0.0040    | <0.0040   | <0.0040    | <0.0040    | <0.0040    | <0.0040   | <0.0040    | <0.0040    |

OFFICIAL

| Location ID                   | KPB10      |           |            |            | KPB11      |           |            |            |
|-------------------------------|------------|-----------|------------|------------|------------|-----------|------------|------------|
|                               | 19/10/2022 | 4/01/2023 | 26/04/2023 | 20/07/2023 | 19/10/2022 | 4/01/2023 | 26/04/2023 | 19/07/2023 |
| Date of Sample                | 19/10/2022 | 4/01/2023 | 26/04/2023 | 20/07/2023 | 19/10/2022 | 4/01/2023 | 26/04/2023 | 19/07/2023 |
| Field pH                      | 7.37       | 8.07      | 8.11       | 7.97       | 7.46       | 7.57      | 7.66       | 7.20       |
| Electrical Conductivity (EC)  | 680.00     | 700.00    | 750.00     | 840.00     | 730.00     | 750.00    | 790.00     | 740.00     |
| Total Dissolved Solids (mg/L) | 460.00     | 460.00    | 470.00     | 510.00     | 480.00     | 460.00    | 490.00     | 520.00     |
| Total Cyanide (mg/L)          | <0.0040    | <0.0040   | <0.0040    | <0.0040    | <0.0040    | <0.0040   | <0.0040    | <0.0040    |
| WAD Cyanide (mg/L)            | <0.0040    | <0.0040   | <0.0040    | <0.0040    | <0.0040    | <0.0040   | <0.0040    | <0.0040    |
| Calcium (mg/L)                | 41.00      | 38.00     | 41.00      | 46.00      | 42.00      | 41.00     | 41.00      | 45.00      |
| Potassium (mg/L)              | 8.30       | 8.10      | 8.40       | 8.60       | 7.90       | 7.80      | 7.80       | 8.00       |
| Magnesium (mg/L)              | 26.00      | 25.00     | 27.00      | 27.00      | 28.00      | 28.00     | 28.00      | 27.00      |
| Sodium (mg/L)                 | 52.00      | 64.00     | 54.00      | 52.00      | 63.00      | 62.00     | 63.00      | 64.00      |
| Bicarbonate (mg/L)            | 140.00     | 130.00    | 140.00     | 140.00     | 110.00     | 110.00    | 120.00     | 110.00     |
| Sulphate (mg/L)               | 55.00      | 77.00     | 55.00      | 53.00      | 88.00      | 92.00     | 89.00      | 89.00      |
| Arsenic (mg/L)                | <0.001     | 0.00      | 0.00       | 0.00       | 0.00       | 0.00      | 0.00       | 0.00       |
| Cadmium (mg/L)                | <0.0001    | <0.0001   | <0.0001    | <0.0001    | <0.0001    | <0.0001   | <0.0001    | <0.0001    |
| Cobalt (mg/L)                 | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     | <0.001     |
| Chromium (mg/L)               | 0.0038     | 0.0016    | 0.0094     | 0.0096     | 0.0017     | 0.0018    | 0.0015     | 0.0012     |
| Copper (mg/L)                 | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     | <0.001     |
| Iron (mg/L)                   | <0.01      | <0.01     | <0.01      | 0.0120     | <0.01      | <0.01     | <0.01      | 0.0150     |
| Mercury (mg/L)                | <0.00005   | <0.00005  | <0.00005   | <0.00005   | <0.00005   | <0.00005  | <0.00005   | <0.00005   |
| Manganese (mg/L)              | 0.0017     | <0.001    | <0.001     | <0.001     | 0.0012     | 0.0012    | <0.001     | <0.001     |
| Molybdenum (mg/L)             | 0.0018     | 0.0130    | 0.0018     | 0.0015     | 0.0025     | 0.0026    | 0.0024     | 0.0023     |
| Nickel (mg/L)                 | 0.0014     | 0.0032    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     | <0.001     |
| Antimony (mg/L)               | <0.001     | 0.0028    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     | <0.001     |
| Selenium (mg/L)               | 0.0016     | 0.0010    | 0.0016     | 0.0014     | 0.0018     | 0.0017    | 0.0017     | 0.0017     |
| Thallium (mg/L)               | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     | <0.001     |
| Uranium (mg/L)                | 0.0013     | 0.0014    | 0.0012     | 0.0013     | <0.001     | <0.001    | <0.001     | <0.001     |
| Vanadium (mg/L)               | 0.0100     | 0.0098    | 0.0100     | 0.0100     | 0.0170     | 0.0180    | 0.0160     | 0.0170     |
| Zinc (mg/L)                   | 0.9200     | 0.1200    | 0.0047     | 0.0042     | 0.0012     | 0.0012    | <0.001     | <0.001     |
| Free Cyanide (mg/L)           | <0.0040    | <0.0040   | <0.0040    | <0.0040    | <0.0040    | <0.0040   | <0.0040    | <0.0040    |

| Location ID                   | KPB12      |           |            |            | KPB13      |           |            |            |
|-------------------------------|------------|-----------|------------|------------|------------|-----------|------------|------------|
|                               | 19/10/2022 | 4/01/2023 | 26/04/2023 | 19/07/2023 | 20/10/2022 | 4/01/2023 | 26/04/2023 | 19/07/2023 |
| Date of Sample                | 19/10/2022 | 4/01/2023 | 26/04/2023 | 19/07/2023 | 20/10/2022 | 4/01/2023 | 26/04/2023 | 19/07/2023 |
| Field pH                      | 7.93       | 7.92      | 8.14       | 7.86       | 7.50       | 7.60      | 7.71       | 7.68       |
| Electrical Conductivity (EC)  | 720.00     | 750.00    | 800.00     | 740.00     | 570.00     | 600.00    | 630.00     | 590.00     |
| Total Dissolved Solids (mg/L) | 430.00     | 420.00    | 460.00     | 480.00     | 400.00     | 390.00    | 400.00     | 430.00     |
| Total Cyanide (mg/L)          | <0.0040    | <0.0040   | <0.0040    | <0.0040    | <0.0040    | <0.0040   | <0.0040    | <0.0040    |
| WAD Cyanide (mg/L)            | <0.0040    | <0.0040   | <0.0040    | <0.0040    | <0.0040    | <0.0040   | <0.0040    | <0.0040    |
| Calcium (mg/L)                | 31.00      | 31.00     | 32.00      | 31.00      | 34.00      | 33.00     | 33.00      | 34.00      |
| Potassium (mg/L)              | 9.00       | 8.70      | 8.90       | 8.40       | 7.00       | 6.70      | 7.00       | 6.70       |
| Magnesium (mg/L)              | 26.00      | 25.00     | 25.00      | 23.00      | 23.00      | 22.00     | 23.00      | 22.00      |
| Sodium (mg/L)                 | 79.00      | 75.00     | 81.00      | 78.00      | 47.00      | 47.00     | 46.00      | 55.00      |
| Bicarbonate (mg/L)            | 150.00     | 140.00    | 150.00     | 140.00     | 100.00     | 95.00     | 110.00     | 100.00     |
| Sulphate (mg/L)               | 60.00      | 63.00     | 64.00      | 65.00      | 51.00      | 51.00     | 50.00      | 50.00      |
| Arsenic (mg/L)                | <0.001     | <0.001    | <0.001     | <0.001     | 0.00       | 0.00      | 0.00       | 0.00       |
| Cadmium (mg/L)                | <0.0001    | <0.0001   | <0.0001    | <0.0001    | <0.0001    | <0.0001   | <0.0001    | <0.0001    |
| Cobalt (mg/L)                 | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     | <0.001     |
| Chromium (mg/L)               | <0.001     | <0.001    | <0.001     | <0.001     | 0.0110     | 0.0120    | 0.0110     | 0.0110     |
| Copper (mg/L)                 | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     | <0.001     |
| Iron (mg/L)                   | 0.0700     | 0.1000    | 0.0200     | 0.2000     | <0.01      | <0.01     | <0.01      | 0.0140     |
| Mercury (mg/L)                | <0.00005   | <0.00005  | <0.00005   | <0.00005   | <0.00005   | <0.00005  | <0.00005   | <0.00005   |
| Manganese (mg/L)              | 0.0780     | 0.1100    | 0.0680     | 0.1400     | <0.001     | <0.001    | <0.001     | <0.001     |



OFFICIAL

| Location ID         | KPB12          |            |           |            | KPB13      |            |           |            |
|---------------------|----------------|------------|-----------|------------|------------|------------|-----------|------------|
|                     | Date of Sample | 19/10/2022 | 4/01/2023 | 26/04/2023 | 19/07/2023 | 20/10/2022 | 4/01/2023 | 26/04/2023 |
| Molybdenum (mg/L)   | 0.0029         | 0.0031     | 0.0030    | 0.0031     | 0.0016     | 0.0017     | 0.0016    | 0.0014     |
| Nickel (mg/L)       | 0.0046         | 0.0046     | 0.0042    | 0.0041     | <0.001     | <0.001     | <0.001    | <0.001     |
| Antimony (mg/L)     | <0.001         | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     |
| Selenium (mg/L)     | <0.001         | <0.001     | <0.001    | <0.001     | 0.0017     | 0.0016     | 0.0017    | 0.0016     |
| Thallium (mg/L)     | <0.001         | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     |
| Uranium (mg/L)      | <0.001         | <0.001     | <0.001    | <0.001     | 0.0014     | 0.0013     | 0.0011    | 0.0011     |
| Vanadium (mg/L)     | <0.001         | <0.001     | <0.001    | <0.001     | 0.0110     | 0.0120     | 0.0110    | 0.0120     |
| Zinc (mg/L)         | <0.001         | <0.001     | <0.001    | <0.001     | 0.0011     | 0.0011     | <0.001    | <0.001     |
| Free Cyanide (mg/L) | <0.0040        | <0.0040    | <0.0040   | <0.0040    | <0.0040    | <0.0040    | <0.0040   | <0.0040    |

| Location ID                   | KPB14          |            |           |            | KPB15      |            |           |            |
|-------------------------------|----------------|------------|-----------|------------|------------|------------|-----------|------------|
|                               | Date of Sample | 20/10/2022 | 4/01/2023 | 26/04/2023 | 20/07/2023 | 20/10/2022 | 4/01/2023 | 26/04/2023 |
| Field pH                      | 7.74           | 7.74       | 7.76      | 7.85       | 7.97       | 8.23       | 8.39      | 8.22       |
| Electrical Conductivity (EC)  | 640.00         | 680.00     | 700.00    | 740.00     | 570.00     | 600.00     | 630.00    | 600.00     |
| Total Dissolved Solids (mg/L) | 420.00         | 420.00     | 430.00    | 450.00     | 380.00     | 340.00     | 370.00    | 380.00     |
| Total Cyanide (mg/L)          | <0.0040        | <0.0040    | <0.0040   | <0.0040    | <0.0040    | <0.0040    | <0.0040   | <0.0040    |
| WAD Cyanide (mg/L)            | <0.0040        | <0.0040    | <0.0040   | <0.0040    | <0.0040    | <0.0040    | <0.0040   | <0.0040    |
| Calcium (mg/L)                | 39.00          | 40.00      | 37.00     | 39.00      | 24.00      | 21.00      | 21.00     | 22.00      |
| Potassium (mg/L)              | 7.60           | 7.60       | 7.40      | 7.40       | 5.50       | 5.20       | 5.10      | 5.20       |
| Magnesium (mg/L)              | 26.00          | 26.00      | 25.00     | 24.00      | 10.00      | 8.70       | 8.20      | 7.80       |
| Sodium (mg/L)                 | 51.00          | 53.00      | 52.00     | 49.00      | 80.00      | 81.00      | 88.00     | 88.00      |
| Bicarbonate (mg/L)            | 140.00         | 130.00     | 130.00    | 120.00     | 89.00      | 75.00      | 91.00     | 87.00      |
| Sulphate (mg/L)               | 63.00          | 66.00      | 60.00     | 59.00      | 78.00      | 81.00      | 77.00     | 77.00      |
| Arsenic (mg/L)                | 0.00           | 0.00       | 0.00      | 0.00       | 0.00       | 0.00       | 0.00      | 0.00       |
| Cadmium (mg/L)                | <0.0001        | <0.0001    | <0.0001   | <0.0001    | <0.0001    | <0.0001    | <0.0001   | <0.0001    |
| Cobalt (mg/L)                 | <0.001         | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     |
| Chromium (mg/L)               | 0.0100         | 0.0049     | 0.0110    | 0.0110     | 0.0010     | <0.001     | <0.001    | <0.001     |
| Copper (mg/L)                 | <0.001         | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     |
| Iron (mg/L)                   | <0.01          | <0.01      | <0.01     | <0.01      | <0.01      | <0.01      | <0.01     | 0.0160     |
| Mercury (mg/L)                | <0.00005       | <0.00005   | <0.00005  | <0.00005   | <0.00005   | <0.00005   | <0.00005  | <0.00005   |
| Manganese (mg/L)              | 0.0150         | 0.0150     | 0.0049    | 0.0054     | 0.0017     | 0.0013     | 0.0012    | 0.0023     |
| Molybdenum (mg/L)             | 0.0016         | 0.0019     | 0.0014    | 0.0012     | 0.0059     | 0.0065     | 0.0060    | 0.0055     |
| Nickel (mg/L)                 | <0.001         | 0.0011     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     |
| Antimony (mg/L)               | <0.001         | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     |
| Selenium (mg/L)               | 0.0017         | 0.0017     | 0.0016    | 0.0016     | <0.001     | <0.001     | <0.001    | <0.001     |
| Thallium (mg/L)               | <0.001         | <0.001     | <0.001    | <0.001     | <0.001     | <0.001     | <0.001    | <0.001     |
| Uranium (mg/L)                | 0.0013         | 0.0015     | 0.0010    | 0.0010     | <0.001     | <0.001     | <0.001    | <0.001     |
| Vanadium (mg/L)               | 0.0150         | 0.0170     | 0.0130    | 0.0140     | 0.0078     | 0.0069     | 0.0059    | 0.0061     |
| Zinc (mg/L)                   | 0.0059         | 0.0110     | 0.0039    | 0.0120     | <0.001     | <0.001     | 0.0021    | <0.001     |
| Free Cyanide (mg/L)           | <0.0040        | <0.0040    | <0.0040   | <0.0040    | <0.0040    | <0.0040    | <0.0040   | <0.0040    |

OFFICIAL

| Location ID                   | KPB16          |            |           |            |
|-------------------------------|----------------|------------|-----------|------------|
|                               | Date of Sample | 19/10/2022 | 4/01/2023 | 26/04/2023 |
| Field pH                      | 9.06           | 9.15       | 9.41      | 9.10       |
| Electrical Conductivity (EC)  | 590.00         | 610.00     | 650.00    | 600.00     |
| Total Dissolved Solids (mg/L) | 330.00         | 330.00     | 360.00    | 380.00     |
| Total Cyanide (mg/L)          | <0.0040        | <0.0040    | <0.0040   | <0.0040    |
| WAD Cyanide (mg/L)            | <0.0040        | <0.0040    | <0.0040   | <0.0040    |
| Calcium (mg/L)                | 4.10           | 4.10       | 4.00      | 4.30       |
| Potassium (mg/L)              | 3.40           | 3.30       | 3.40      | 3.30       |
| Magnesium (mg/L)              | <0.50          | <0.50      | <0.50     | <0.50      |
| Sodium (mg/L)                 | 120.00         | 110.00     | 120.00    | 120.00     |
| Bicarbonate (mg/L)            | 43.00          | 46.00      | 47.00     | 44.00      |
| Sulphate (mg/L)               | 110.00         | 110.00     | 110.00    | 110.00     |
| Arsenic (mg/L)                | 0.02           | 0.02       | 0.02      | 0.02       |
| Cadmium (mg/L)                | <0.0001        | <0.0001    | <0.0001   | <0.0001    |
| Cobalt (mg/L)                 | <0.001         | <0.001     | <0.001    | <0.001     |
| Chromium (mg/L)               | <0.001         | <0.001     | <0.001    | <0.001     |
| Copper (mg/L)                 | <0.001         | <0.001     | <0.001    | <0.001     |
| Iron (mg/L)                   | <0.01          | <0.01      | <0.01     | 0.0200     |
| Mercury (mg/L)                | <0.00005       | <0.00005   | <0.00005  | <0.00005   |
| Manganese (mg/L)              | <0.001         | <0.001     | <0.001    | 0.0024     |
| Molybdenum (mg/L)             | 0.0110         | 0.0110     | 0.0110    | 0.0100     |
| Nickel (mg/L)                 | <0.001         | <0.001     | <0.001    | <0.001     |
| Antimony (mg/L)               | 0.0018         | 0.0024     | 0.0025    | 0.0027     |
| Selenium (mg/L)               | <0.001         | <0.001     | <0.001    | <0.001     |
| Thallium (mg/L)               | <0.001         | <0.001     | <0.001    | <0.001     |
| Uranium (mg/L)                | <0.001         | <0.001     | <0.001    | <0.001     |
| Vanadium (mg/L)               | 0.0016         | 0.0015     | 0.0017    | 0.0018     |
| Zinc (mg/L)                   | <0.001         | <0.001     | <0.001    | <0.001     |
| Free Cyanide (mg/L)           | <0.0040        | <0.0040    | <0.0040   | <0.0040    |