MAKING COMPLEX EASY
A TETRA TECH COMPANY

Level 8, 31 Duncan Street
Fortitude Valley QLD 4006
T +61 7 3539 9500

Our ref: 424102

Date: 16 September 2026

Giles Bezzina

Manager, Minerals Business Centre

Minerals and Northern Compliance, Environmental Services and Regulation

Department of the Environment, Tourism, Science and Innovation (DETSI)

Dear Giles,

RE: Response for Information Requested by DETSI

Capricorn Copper Pty Ltd (**CCPL**) received an information request for an EA amendment application on 21 October 2025 (your reference101/0008746; A-EA-AMD-100915844). A response to the items raised on behalf of CCPL is provided below and summarised in **Appendix 01**.

Item 1 – Proposed Amendments

Your letter states that:

The application material (RPS 2025)1 lacks a clear understanding of the proposed amendments to environmental authority EPML00911413 (the EA), including the intention and specifics, locations and proposed disturbance footprints.

Information Requested

Provide revised application material which:

a. Itemises and includes a description of each proposed amendment.

b. Provides a description of the location, including maps, GPS co-ordinates and total disturbance area in hectares (ha). Information should be provided in the same format as Schedule A-Table 1 (Authorised disturbance) of the EA.

Response

The proposed amendment is for Tailings Storage Facility (TSF) 3 which will store fine metalliferous tailings, lime sludge (from proposed water treatment plant) and decant pond (water) on top of a tailings beach. TSF3 is proposed to be located in the Upper Esperanza Valley between Esperanza Waste Rock Dump (EWRD) and the Upper Esperanza Diversion Dam (UEDD) and is properly described as Lot 5 on Plan CP865892, which has Leasehold tenure (Calton Hills), refer to Figure 1 below.

There is a proposed disturbance footprint of 100.5 hectares which includes embankments, impoundment, topsoil stockpile and other disturbances within the ring road, the southern borrow pit, and restart infrastructure (powerlines, pipelines, pumps etc). The total tailings storage capacity of the current design is

[1] RPS, Environmental Assessment Report Capricorn Copper, 31 July 2025

6.3Mm^3. The proposed tracked changes to the EA EPML00911413 conditions are included in **Appendix 02** which includes the revised footprint of disturbance including GPS Coordinates as per Schedule A – Table 1.

TSF3 will be formed by raising and reprofiling the existing EWRD and UEDD, refer to **Appendix 04**, TSF3 Preliminary Design Report, Part 1, Section 8 for the design overview and design drawings in **Appendix 04D**.

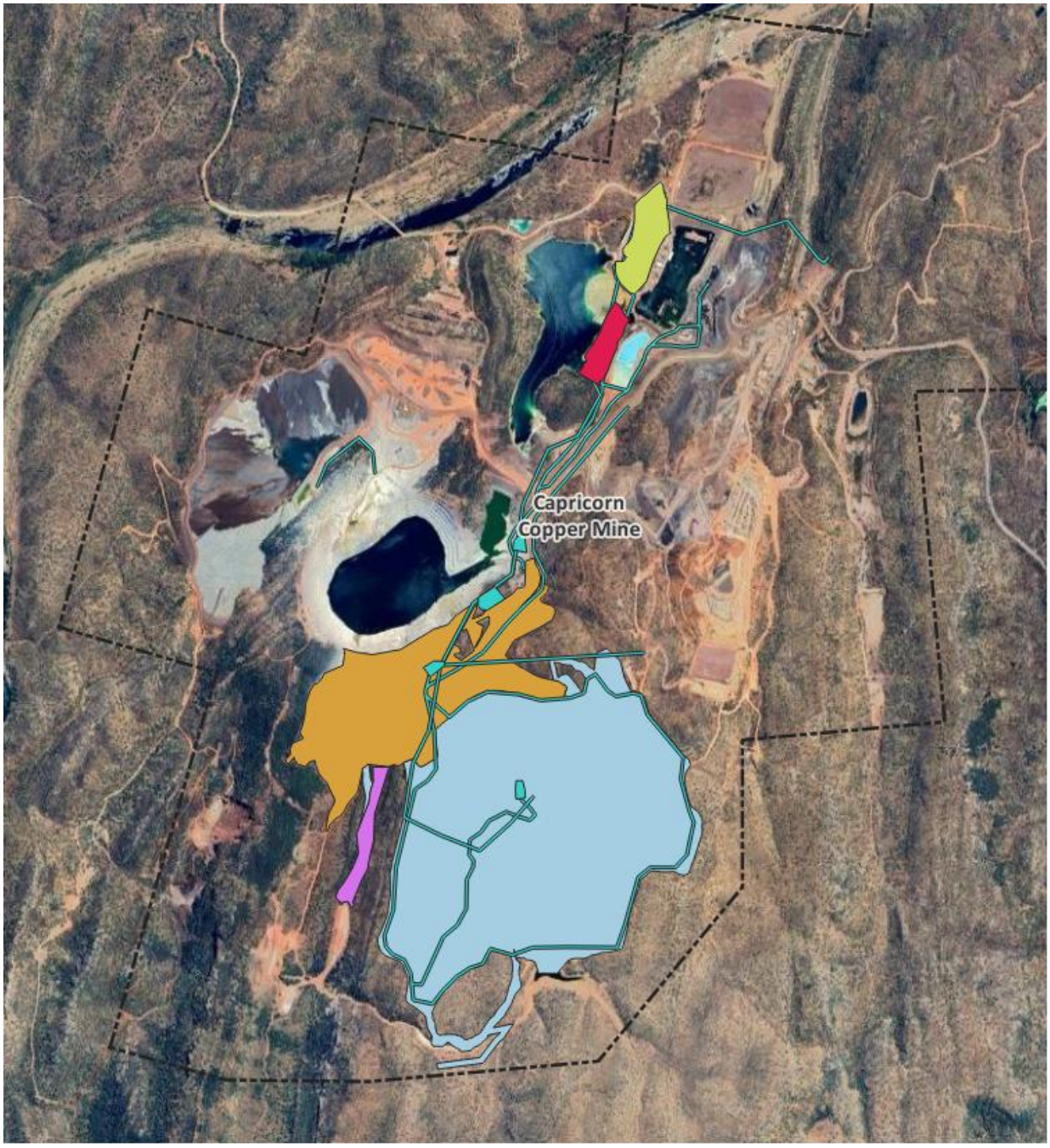

Figure 1 TSF3 Project Area (black outline) with Disturbance Footprint (blue)

The proposed TSF will require the following activities (**Appendix 04** - Part 1, Section 8):

- **Pre-construction:** Clearing of construction areas and construction material extraction areas (borrow pit). Stockpiling of topsoil resources.
- **Construction:** extraction of construction material (borrow pit), construction of TSF embankments, spillway, construction of pipelines, installation of decant return infrastructure, installation of instrumentation, etc.
- **Operation:** pipe transfer of tailings to TSF, staged deposition, decant water management, monitoring and maintenance of operational structure, etc.

- **Closure:** decommissioning, potential extraction of rehabilitation material, landform reshaping and stabilisation, cover system installation, revegetation, seepage interception, monitoring and maintenance of rehabilitated structure, etc (**Appendix 04** - Part 1, Section 18).

The TSF will support the operation of the existing CCM.

Mining activities commenced at the site in 1927. The mine already has two existing TSFs that have reached storage capacity: the recently exhausted ETSF and the historic Mammoth TSF. There are no additional developments that are happening specific to the development of the proposed TSF.

The design life of TSF3 is expected to be 6.5 - 7.5 years, although the actual duration is dependent on operational specifics such as ore throughput, tailings settled densities, beaching slopes, etc (**Appendix 04** - Part 1, Section 8.5).

Item 2 – Groundwater Dependent Ecosystems (GDE's)

Your letter states:

The groundwater impact assessment (Engeny 2025)[2] confirms the entire footprint and surrounds of the proposed tailings storage facility (TSF3) is mapped as moderate potential for terrestrial GDEs with Gunpowder Creek adjacent and downstream of the mine mapped as high potential for terrestrial GDE and low to moderate aquatic GDE. Although field surveys to confirm the presence of GDEs are recommended (Engeny 2025), this has not been undertaken and the potential risks and impacts via changes in groundwater levels and quality has not been detailed.

Based on Queensland Government Mapping, groundwater dependent vegetation exists to the south and east of the proposed activity, specifically regulated vegetation intersecting a watercourse which is defined as a matter of state environmental significance (MSES) under the Environmental Offsets Act 2014. The potential risks and impacts to these sensitive features due to the proposed activity has not been discussed.

Information Requested

Provide a revised application material which:

- Determines the spatial extent of impact from the proposed activity on mapped GDEs.
- Confirms that mapped GDEs within and surrounding the proposed activity (extent of impact zone), have been ground truthed. In the absence of ground truthed information, the application assessment in relation to consideration of the significance of impacts to the receiving environment will assume that mapped GDEs are present (based on the current mapping available).
- Based on the information developed in relation to item (b), provide:
  - The baseline conditions of all GDEs that have the potential to be impacted by the proposed amendments, or otherwise indirectly impacted.
  - A description of any potential risks and impacts to all GDEs to be impacted or likely to be impacted by the proposed activity. This must include potential changes to groundwater level and quality, including the expected locality and extent of the groundwater level and quality changes.
  - Proposed management and monitoring strategies and/ or program to detect potential impact on GDEs and any corrective action(s) if impacts are detected.
  - Update numerical groundwater modelling accordingly to reflect field data of GDEs.
- Revise the consequence category assessment with consideration of the information requested above.

Response

The GDE assessment considered the Queensland Government Mapping and confirmed that the entire footprint and surrounds of the proposed TSF has a low (not medium) potential for terrestrial GDEs. The only likely GDE within the broader assessment area is associated with Gunpowder Creek in Mill Creek drainage corridor and GW modelling has predicted no groundwater impacts during operations or closure. Therefore, the assessment has determined there is no 'spatial extent of impact from the proposed activity on mapped GDEs' in regard to the revised GDE mapping.

Capricorn Copper engaged an independent expert on Groundwater Dependent Ecosystems to undertake a desktop risk assessment, refer to **Appendix 03**. Watermark Eco (2026) concluded:

- The potential for GDEs within the TSF3 disturbance footprint is low;

[2] Engeny, Capricorn Copper Pty Ltd, Groundwater Impact Assessment, 29 July 2025

- The potential for GDEs within Gunpowder Creek is high, however impacts are not expected;
- The residual risks that the TSF3 project pose to GDE function are assessed as 'Insignificant' to 'Low'.

The preliminary design report (**Appendix 04**) provides details on the proposed management and monitoring strategies, refer to **Appendix 04J** – GWIA, **Appendix 04J III** Operational GW Model Report.

Item 3 – Matters of National Environmental Significance (MNES)

Your letter states:

In accordance with Section 68 of the Environmental Protection and Biodiversity Conservation act 1999 (EPBC Act), it is the proponent's responsibility to determine whether their proposed activity is likely to have a significant impact on MNES. This obligation requires any person proposing an action that may significantly impact MNES to refer the proposal to the Federal Minister for assessment. The self-assessment within the flora and fauna report (KG Environmental 2025)3 confirms the Carpentaria Grasswren and Northern Blue tongue Skink are expected to meet the significant impact criterion. At the time of this assessment, it is unclear if a referral has been made.

Information Requested

In the absence of an EPBC Act Referral or requirements for offsets under Commonwealth legislation, an assessment must be undertaken to address the potential impact to these species as they are considered prescribed environmental matters under the *Environmental Offsets Regulation 2014.*

Provide a significant residual impact assessment in accordance with the SRI Guideline[4] for the Carpentaria Grasswren and Northern Blue tongue skink.

Response

An EPBC Referral submission for TSF3 was accepted by the Federal Department of Climate Change, Energy, the Environment and Water (DCCEEW) on 4 December 2025. The project was determined to be a "controlled action" on 8 January 2026, with assessment via Public Environmental Report (PER). DCCEEW provided PER guidelines on 9 February 2026. CCPL prepared and submitted the draft PER on 22 July 2026 and have been heavily engaged with DCCEEW and Southern Gulf NRM in regard to an environmental offset.

The Guidelines for the content of the Public Environment Report for the Capricorn Copper mine new tailings storage facility, Gunpowder, Queensland EPBC 2025/10365, draft PER and Appendices are included in **Appendix 05.**

Item 4 & 5 – Matters of State Environmental Significance (MSES)

Your letter states that:

Calculations provided in the flora and fauna report (KG Environmental 2025) regarding mapped regulated vegetation intersecting a watercourse cannot be validated to confirm the proposed disturbance is below the significant residual impact (SRI) thresholds described in the SRI Guideline.

An SRI assessment was undertaken for the PNRW, however, the size and extent of the local Purple-necked Rock-wallaby (PNRW) population was not documented or known. The potential impacts to PNRW at the local level have not been addressed and it cannot be confirmed if impacts are expected to exceed SRI thresholds. It is understood a species management plan is proposed for the PNRW, however, there is no understanding on the intention.

Information Requested

Provide revised application material that includes:

a. Clear and demonstrable evidence regarding the field validated extent of the MSES, including a detailed map.

[3] KG Environmental, TSF3 Flora and Fauna Assessment, 21 May 2025

[4] Queensland Government, Queensland Environmental Offsets Policy, Significant Residual Impact Guideline, December 2014

b. Clarify the field surveys undertaken including what was being verified to confirm the presence, type and extent of MSES. c. Clarify the calculations provided to confirm the impact is below the SRI thresholds.
Provide revised application material (and SRI assessment undertaken in accordance with the SRI Guideline) on the PNRW which confirms the local PNRW size and extent and confirms SRI thresholds are not exceeded at the local level as per the *Queensland Environmental Offsets Policy Significant Residual Impact Guideline.* Clarify the intention of the species management plan.

Response

The drainage line within the TSF3 footprint is a “drainage feature” as defined in the *Water Act 2000.* Regulated vegetation is associated with “watercourses” but not “drainage features”. Therefore, no MSES regulated vegetation is present. Additionally, the area of ground-truthed riparian vegetation mapping within the TSF3 footprint (0.9 ha) is below the significant residual impact criteria of 2 ha. A detailed response and mapping are provided in **Appendix 06**.

In a pre-lodgement technical meeting for the TSF3 IR response on 4 December 2025, KG Environmental presented the difficulties with quantifying the size and extent of the local PNRW population. KG Environmental’s proposed alternative approach to satisfy IR item 5 by mapping the extent of surrounding habitat was agreed by DETSI. Detailed response and mapping are provided in **Appendix 06**. The intention of the species management plan will be to avoid impacts on individuals in the study area and the management plan will be submitted prior to construction.

Item 6 - Rehabilitation

Your letter states:

The application lacks detailed rehabilitation information on features proposed to be utilised, or indirectly utilised, as part of the proposed activity. This includes but is not limited to the Esperanza waste rock dump (EWRD), Upper Esperanza Diversion Dam (UEDD) and Esperanza Pit (EPit).

Information Requested

Provide revised application material which includes: a. Comprehensive rehabilitation strategy for site features (proposed or existing) to be utilised as part of the proposed TSF. b. Outcomes of closure scenarios in the numerical groundwater model to assess the long-term risks to groundwater.

Response

Engeny were engaged to prepare a Closure and Rehabilitation Report (dated 15 June 2026) which includes a comprehensive rehabilitation strategy to support the EA amendment application for the construction and operation of TSF3, refer to **Appendix 04** – Preliminary Design Report, **Appendix 04M** that includes the Rehabilitation and Closure Plan.

Item 7 – Numerical Groundwater Model

Your letter states:

Impacts to groundwater are not yet reasonably understood and are subject to the completion of the numerical groundwater model.

Information Requested

Along with the recommendations stated in the groundwater impact assessment (Engeny 2025), provide a numerical groundwater model which incorporates the proposed TSF3 and must include: a. Steady-state and transient calibration (with sufficient monitoring points surrounding the proposed TSF3). It must be demonstrated the model area extent is sufficient, particularly to the south of the facility which is currently depicted as a no flow boundary which must also be justified. b. An operational scenario which reflects the proposed design of the TSF (including expected foundation conditions and any other design elements that could influence impact to groundwater).

c. Closure modelling up to a point at which groundwater levels have reached equilibrium and represent the current closure plan.
d. Particle tracking around the perimeter for the proposed TSF3 to assess potential pathways.
e. Sensitivity and uncertainty modelling to provide an indication of the potential risk to groundwater receptors.
f. Cumulative assessment of risk to groundwater from all infrastructure including the current and proposed TSFs.
g. Containment transport modelling to determine potential plume pathways and concentrations.
h. A comprehensive report of the model, including information on the statistics from the transient calibration.

The consequence category assessment for seepage must be reviewed once these assessments are complete, and the design developed accordingly and provided to the department.

Response

Engeny were engaged to develop a transient, site wide groundwater flow model to support the assessment of the TSF3, refer to **Appendix 04** – Preliminary Design Report, **Appendix 04J** GWIA – **Appendix III** Operational GW Model Report, **Appendix IV** – Closure GW Model Report, **Appendix V** GW Monitoring and Management Plan (GWMMP). The GW models were independently reviewed, **Appendix 07** – Independent Groundwater Model Reviews.

The groundwater model, and the conceptual model on which it is based, was developed using geological and hydrogeological data collected over numerous studies and investigations and scientific/engineering judgement and refined through an iterative modelling process. This approach enabled appropriate representation of the site groundwater system and supported reasonable steady-state and transient calibration, as demonstrated by model performance statistics. The groundwater model meets the criteria for a Class 2 model in general accordance with the Australian Groundwater Modelling Guidelines (Barnett, et al., 2012). As such, the groundwater model is appropriate for testing design options and regulatory risk-based assessment including evaluation of potential risks associated with seepage from the proposed TSF3.

Following calibration, eight transient predictive model scenarios (natural conditions with no TSF3 and + 7 scenarios with TSF3) were simulated for the 7-year period in which tailings will be deposited into TSF3 (termed the operational phase).

The report states that model results indicate that groundwater flow across the southern portion of the site is dominated by Esperanza Pit (EPit), which acts as a regional groundwater sink under both existing conditions and during TSF3 operation. Groundwater seepage from TSF3 is predicted to migrate downward to the water table before flowing laterally toward EPit and the Esperanza South underground workings. Under all simulated scenarios, TSF3 seepage was not predicted to daylight to surface water drainages, with the exception of EPit, or extend beyond the lease boundary during the operational period.

Comparison of predictive scenarios indicates that locating the decant pond centrally within TSF3 provides the most effective reduction in seepage.

Additional engineered controls were modelled, providing diminishing, marginal reductions in seepage flux relative to the changes in operational/closure stability and construction complexity.

Based on model performance, Scenario CD3 (central decant pond with reshaped, clay-lined Northern Embankment and HDPE plastic liner) represents the preferred TSF3 design option. This configuration provides a substantial reduction in seepage relative to northern-pond scenarios while enabling operational drainage controls and constructability.

The models have been reviewed by an Independent Reviewer (refer to **Appendix 07** – Independent Groundwater Model Reviews), and the model area extent determined sufficient for the predicted GW seepage pathways to the North and West. Additional bores within the existing ML's have been proposed for the southern boundary and planned to be installed during the 2026 dry season in accordance with an EA amendment by agreement. Additional GW bores outside the ML's would require approval prior to installation.

Item 8 Drainage to EPit

Your letter states:

A key design assumption (RPS 2025) is that all potential seepage from TSF3 will be captured in EPit. This assumption must be supported with predictive scenarios. The groundwater model must provide confidence that all potential seepage from the proposed TSF3 is captured by EPit, or other mitigation solutions through operations and closure.

Information Requested

Undertake and provide the results of further revised groundwater modelling, as requested in Item 8, to confirm the assumption that all seepage will be captured in EPit. If this assumption cannot be confirmed, the key design assumption is incorrect, and the application material, including the TSF3 design, must be revised accordingly.

Response

Engeny was engaged to prepare a site-wide transient groundwater flow model with the objective to evaluate multiple engineering controls and design configurations (embankment, liner, grout curtain and location of decant pond) for the proposed TSF3 to estimate the range of potential seepage volume, changes to groundwater flow direction and future groundwater conditions.

Engeny's report (**Appendix 04** – Preliminary Design Report (**Appendix 04J** Groundwater Impact Assessment)) states that within the TSF3 area, groundwater gradients are oriented northward toward EPit, indicating that shallow groundwater flow paths in the TSF3 footprint are directed to EPit under current conditions. This flow path forms a critical boundary condition for assessing TSF3 seepage behaviour and is accounted for in the numerical groundwater flow model.

Groundwater flow within the deeper fractured bedrock aquifer is strongly influenced by mine dewatering from the underground workings. Pumping from Mammoth and Esperanza South extracts groundwater from the deeper HSUs and contributes to vertical hydraulic gradients between the shallow and deep systems, further discussed in **Appendix 04J III** - Section 4.6 of the Operational GW Model Report.

The closure particle tracking modelling during the rehabilitation and closure phases (**Appendix 04J IV** Closure GW Model Report), predicts that after 75 years, the pre-mining GW pathways recover, and the seepage pathways follow the Mill Creek/Gunpowder Creek drainage corridor. The flux from TSF3 during closure is predicted to reduce due to installation of a cover over the tailings.

Item 9 Independent review of numerical groundwater model

Your letter states:

It is understood that an independent review of the numerical groundwater model has been conducted, however, a detailed report outlining the findings of this review, along with evidence of communication and advice from the independent reviewer has not yet been provided.

Information Requested

Provide:

a. A comprehensive report summarising the independent reviewer findings.
b. Evidence of correspondence with the independent reviewer, including their assessment of the responses to the review comments.
c. A clear and detailed explanation of how the identified issues have been addressed and incorporated into the numerical groundwater model.

Response

An independent review of the Capricorn Copper numerical groundwater model and associated reporting has been undertaken by HydroGeoLogic and the report of the findings is included in **Appendix 07** – Independent Groundwater Reviews. A summary of the findings is provided below,

- The Capricorn Copper Mine groundwater modelling was conducted generally consistent with best practice. The modelling has demonstrated that a functional site-wide groundwater model has been developed consistent with guidelines and applied successfully to an initial assessment of seepage from the proposed TSF3.
- The model calibration performance is consistent with guideline criteria in terms of groundwater levels and fluxes, and the aquifer parameters are reasonably consistent with site testing values, with divergences reasonably well justified.

- Ongoing monitoring and further investigations recommended to provide additional data for future model refinements and performance improvement. These updates should also be used to inform monitoring and management programs.
- Further developments recommended to reduce model bias and to conduct predictive uncertainty scenario analysis.

Item 10 – Consequence Category Assessment

Your letter states:

The following is identified in the CCA/s (Engeny 2025b)[5]:

a. Inconsistent information:
- *The CCA appointed the seepage risk as "significant", however, several appendices appoint the seepage risk as "low".*
- *Dam break scenarios refer to the temporary diversion embankment, however, the dam break scenarios in the ANCOLD assessment (appendix A of Engeny 2025b) refer to a "future" gravity diversion.*

b. A future gravity diversion is proposed for the Snakeskin Valley (the Clean Water Diversion Channel (CWDD)), and it is assumed to be in place to future protect the design of TSF3 should the CWDD be constructed. No further information is provided.

The surface water assessment (Engeny 2025c)[6] states any overflows from TSF3 will be directed towards EPit with all water to be contained within the existing water management systems. This conflicts with the above information which is based on future clean water diversion/s resulting in potential overflows directed away from EPit and into the receiving environment. Although it is acknowledged future site changes such as this are not yet confirmed, their design/alignment must be provided if they form part of the assessment.

As per the "significant" rating for seepage in the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1993) (Manual), a TSF must be designed to minimise (or reduce) seepage from the floor of the facility. Several data gaps still exist to allow for a detailed design of TSF3, with limited justification demonstrating the existing approach meets the requirements of the Manual.

Information Requested

Provide revised application material which:

a. Clarifies the CCA outcomes via uploaded documentation and ensure consistency in all revised material.
b. Clarifies if the TSF3 design is consistent on the future gravity CWDD. If future site changes might influence overflow flow paths and potential containment conditions, provide the design/ alignment and evidence the design has been assessed to accommodate the potential impacts to the receiving environment.
c. Provide justification and demonstration how the existing approach to seepage management from the TSF3 floor meets the requirements of the Manual, and justification why no further control measures for the TSF3 floor will be required.

Response

Engeny were engaged to undertake the Consequence Category Assessment (CCA) which is detailed in Table 4.3, Table 4.4 and Table 4.5 in **Appendix 04** Preliminary Design Report (**Appendix 04E** - CCA). The overall consequence category of TSF3 is 'high' and therefore, it is considered a 'regulated' structure. Based on this assessment, TSF3 is required to comply with seepage controls, spillway hydraulic capacity criteria and containment hydraulic criteria (DSA/MRL) stipulated in *Queensland Government, Department of Environment and Science (DES), 2016. Manual for assessing consequence categories and hydraulic performance of structures. ESR/2026/1933, Version 5.05*.

Particle tracking modelling indicates that during operations, the seepage pathways are towards the EPit and ESS underground mine. Particle tracking during rehabilitation and closure, indicates that after 75 years, the

[5] Engeny, Capricorn Copper Pty Ltd, TSF3 Preliminary Consequence Category Assessment, 18 July 2025

[6] Engeny, Capricorn Copper Pty Ltd, Surface Water Impact Assessment, 14 April 2025

pre-mining GW pathways recover, and the seepage pathway follows the Mill Creek/Gunpowder Creek drainage corridor, but no significant impacts have been predicted through the modelling.

Note a comprehensive Dam Break Assessment and Failure Impact Assessment (FIA) are being completed as components of the TSF3 Detailed Design to inform any updates to the CCA. This will be completed and submitted prior to construction.

A future proposed ESS (Snakeskin Valley) gravity diversion channel or retention of the existing pumped clean water diversion channel/levee is being assessed through the Progressive Rehabilitation and Closure Plan (PRCP) process and will take any interaction with TSF3 into account following approval of this facility.

Surface flows into the Upper Esperanza catchment flow to the North. Surface flows north of the existing Upper Esperanza Diversion Dam (UEDD) will be captured within TSF3 and removed to EPit or the Water Treatment Plant by the decant pumping system. Clean water surface flows south of the UEDD will continue to be captured and pumped to Gunpowder Creek in accordance with current practice.

Numerous seepage controls were tested as part of the groundwater model development. The selected seepage controls (centralised decant pond, clay and HDPE liner embankment) provide the most effective reduction of seepage flux whilst allowing the tailings to drain with seepage collected in the site MAW system.

Item 11 – Cumulative Risk Assessment

Your letter states:

The CCA (Engeny 2025b) states TSF3 will not be contributing new containments to the groundwater system but will add to the containment load. An assessment of the cumulative impacts to groundwater has not been provided.

Information Requested

Provide a quantitative assessment to assess the new containment load on groundwater and the impacts. For example, this includes but is not limited to:

a. Anticipated changes in EPit water quality.
b. Impacts to groundwater quality if all flows do not report to EPit.
c. Assessment on the pathways from EPit and impacts to the receiving environment.
d. Demonstration that the existing controls to prevent impacts to Gunpowder Creek are sufficient for the additional containment load and are fully operational and working to design.

Response

Anticipated changes in EPit water quality are provided in **Appendix 04** – Preliminary Design Report, **Appendix 04J** – GWIA, and **Appendix 08** – EPit Water Quality Model Results for operational and closure scenarios. No significant impacts to GW are predicted in the preliminary operational or closure model outputs, assuming integrity of the cover post closure which results in a reduction in the GW flux from TSF3. Additional modelling is required if the relative contribution of all legacy infrastructure on GW contaminant load is to be assessed. Further testing of TSF3 tailings during operations will be required to confirm the contaminant load as the preliminary models are limited by incorporation of the results of a single kinetic column leach test comprised of ETSF tailings which may not be representative.

Appendix 09 – REMP 2026 determined that no significant impacts on the downstream aquatic ecosystem in the Gunpowder Creek have been recorded compared with upstream sampling locations. Additional monitoring and upstream locations have been proposed in a redesign of the REMP.

Significant upgrades to seepage infrastructure at Old Mammoth TSF and North Rock Waste Rock Dump were completed prior to the 2024/2025 wet season and the benefits of these improvements are still being realised.

Additional seepage infrastructure in the Mill Creek/Gunpowder Creek drainage corridor could be installed if ongoing monitoring of surface and groundwater indicated any increases in contaminant loads associated with TSF3.

Item 12 –Acid-metalliferous drainage (AMD) and Neutral Mine Drainage (NMD)

Your letter states:

Seepage through the EWRD has the potential to transport AMD or elevated containments of concern under neutral conditions to the receiving environment and/or EPit. This represents an increased risk of AMD and NMD and deterioration of existing water quality that has not been assessed.

Information Requested

Provide revised application material which includes:

a. Geochemical assessment to assess the risk of AMD and NMD that has the potential to be generated by the proposed activity. The assessment must include but is not limited to the potential to change water quality in EPit or other receptors.
b. An assessment on the sufficiency of current mitigation and control systems to contain the additional risk.

Response

Environmental Geochemistry (EGi) were engaged to prepare water quality modelling for the EPit during the mines operational and closure phases (refer to **Appendix 08** – EPit Water Quality Model Reports). In response to a query about the potential for seepage from TSF3 flowing through EWRD to transport contaminants of concern to the receiving environment and/or EPit, with the risk of deterioration of EPit water quality, geochemical modelling was undertaken to evaluate the influence of seepage from TSF3 on the water quality of the EPit lake during the operational mining phase (2028 to 2034). Modelling assumed the northern TSF3 embankment was lined, together with a central decant pond to minimize contact of seepage with the EWRD. In addition to the site operational water balance, the model included a PHREEQC component, which incorporated precipitation of saturated phases and metal adsorption.

Comparison of predicted water quality in EPit for the baseline case (no TSF3) with the case where TSF3 seepage reported to EPit, has shown that even under the most extreme climatic conditions (7 consecutive years of 5^{th} and 95^{th} percentile annual rainfall) no significant increases in acidity and concentrations of TDS, SO_4, Cu, Co and Ni are likely to eventuate during the operational phase. Highly conservative assumptions were employed where knowledge of chemistry and processes was limited, providing confidence that the predicted impacts of TSF3 seepage on the EPit lake water quality are ‘worst case scenarios’.

The modelling predicts changes in pit lake water quality from closure in 2035, through to approximately 2170 when the surrounding groundwater system has been predicted to recover and reach quasi-equilibrium conditions. Following closure, it is expected that the catchment reporting to EPit will be reduced, a cover system will be installed on TSF3, and that the site will experience progressive reduction and change in water transfers and dewatering as rehabilitation occurs. Although the cover reduces infiltration, oxidation of tailings continues, resulting in ongoing release of dissolved constituents to groundwater and ultimately EPit. The model predicts the EPit lake remains highly acidic and saline, with pH declining from 2.7 to 2.3, and total dissolved solids increasing from 15,000 mg/L to 33,000 mg/L by the end of the simulation period.

The interim results conclude that cover installation on TSF3 reduces infiltration, but does not eliminate oxidation-driven contaminant generation, resulting in worsening of EPit water quality over time. There remains considerable uncertainty in the model, particularly regarding groundwater behaviour, water balance assumptions, and source term estimates. Further refinement of the model is recommended, especially confirmation of model inputs from TSF3 tailings characterisation and cover designs.

Item 13 – Basal Seepage

Your letter states:

The application material (RPS 2025) states groundwater quality is not expected to be impacted by the proposed TSF3, provided the liner is installed and the base of the structure is demonstrated to have low permeability. Evidence to verify the permeability of the base of the structure has not been confirmed.

Information Requested

Provide revised application material which:

a. Provides evidence to confirm the hydraulic permeability of the base of TSF3 to support the adjacent statement identified in the application material.
b. Confirms the permeability of the base of TSF3 is accurately represented in the numerical model.

Response

Geotechnical and geological reports were provided in the TSF3 Application - RPS (2025), additional testing of hydraulic permeability can be undertaking during the detailed design or pre-construction phases if required, refer to **Appendix 04** – Preliminary Design Report (**Appendix 04A** – Geotechnical Investigation Factual Report).

The numerical model has included permeability of the base of TSF3, refer to Appendix 04 – Preliminary Design Report (**Appendix 04J** – GWIA, **Appendix III** – Operational GW Model Report, **Appendix IV** – Closure GW Model Report).

Item 14 – Groundwater Flow Mapping

Your letter states:

The current groundwater monitoring network is insufficient around the perimeter of the proposed TSF3 and there are data gaps to the east/south and south/east of the proposed facility. In the absence of this data the groundwater baseline cannot be reasonably understood and predictions from the model in this area are likely to be poorly calibrated and unreliable.

The application material indicates there may be new flow directions due to the increased head of TSF3; however, this has not yet been assessed. Further, the groundwater impact assessment (Engeny 2025) indicates TSF3 is expected to change groundwater flow to the west, with this being investigated via the numerical groundwater modelling.

Information Requested

To address existing data gaps, revise the application material and include:

a. Additional groundwater level data must be collected in the east/south and south/east of the proposed TSF3 facility. The water level data obtained from this area must be evaluated against the current model calibration and the model recalibrated if they do not align, followed by predictive modelling to refine the projections.
b. Investigation into the geology of the natural abutment and the potential for seepage to push through to the west and down towards Gunpowder Creek. This must include an assessment on all potential seepage pathways from TSF3 and the risks to the receptors and management measures.

Response

There is no evidence of seepage pathways to the South and East, refer to **Appendix 04** – Preliminary Design Report (**Appendix 04J** – GWIA, **Appendix III** – Operational GW Model Report, **Appendix IV** – Closure GW Model Report). Additional GW bores within the ML have been proposed to the East and South and are planned to be installed during the 2026 dry season in accordance with an EA amendment by agreement.

Areas further South and East are not contained within the existing MLs and would require the appropriate approvals for additional GW bores.

Item 15 – Southern Embankment

Your letter states:

The following is identified for the southern embankment/ UEDD:

a. *The southern embankment crest is nominated as 317 m AHD and the smaller southwest embankment nominated as 321 m AHD (Engeny 2025d)[7] . No justification is given for the 4 metre (m) differential, and it is not clear if this is due to potential overtopping risks.*
a. *The landform stability assessment (Engeny 2025e)[8] states the batter of TSF3 (southern embankment) is 26 m high, however, the preliminary design report (Engeny 2025d) states southern embankment height is 32m.*
b. *The application material suggests both embankments of the proposed TSF will be lined; however, it is not clear in figures provided where the High-Density Polyethylene (HDPE) liner is proposed to be installed on the southern embankment. The Seep/ W model indicates there is a potential for seepage to flow south, further demonstrating the need for design mitigation measures, however, no assessment on the potential receptors and impacts have been conducted.*

Information Requested

Provide revised application material which:

c. Clarifies the 4 m differential between the south and southwest embankments. If this is a result of operational risk design (i.e., surface waters overtopping), provide documentation that assesses and demonstrates how spills and ingress risks are managed.
d. Clarify the proposed height of the southern embankment.
e. Provide advice on where the liner is installed on the southern embankment and an assessment on the potential for seepage to the south of the facility and discussion on the receptors and impacts.

Response

The 4m height differential is due to the tie in with the natural landform to the west and provision of vehicular access around the perimeter of the facility. The southern embankment provides tailings containment with a maximum tailings storage level of RL313.8. The southwest embankment does not provide a surface water management function.

The final embankment height will be RL317 which, due to the natural fall of the topography, translates to an embankment height of 26m on the northern side and 32m on the southern side.

The existing liner system on the southern embankment (GCL and HDPE liner) is to be retained. No new liner system is proposed to be installed and this has been modelled as part of the seepage and engineering controls assessment within the site wide groundwater modelling.

Detailed design will confirm the heights of embankment, and design of southern embankment, refer to **Appendix 04** – Preliminary Design Model (**Appendix 04l** – Surface Water Impact Assessment) for further detail.

Item 16 – Surface Hydrology

Your letter states:

The application lacks an integrated assessment on the potential impacts and risks on hydraulically connected site features directly and /or indirectly impacted by the amendment. Flood modelling (Engeny 2025f)[9] was applied exclusively to the UEDD and is not consistent with previous flood model results. Despite being hydraulically connected, the diversion drain, temporary diversion, ESS zone and Gunpowder Creek are excluded from the results.

The southern embankment flood results indicate significant off lease ponding under certain events, however, no discussion on the implications or management of environmental values is provided.

The southern embankment preliminary design drawings state "external flood level (PMF) RL 315.0 m AHD to be confirmed". It is unclear is probable maximum flood (PMF) risks have been assessed sufficiently to confirm and inform embankment design heights.

[7] Engeny, 29 Metals Capricorn Copper Mine, Tailings Storage Facility, Preliminary Design Report, 30 July 2025

[8] Engeny, 29 Metals Capricorn Copper PRCP, Landform Stability Assessment, 30 July 2025

[9] Engeny, Memorandum, Tailings Storage Facility 3 Hydraulic Modelling Assessment, 13 May 2025

Information Requested

Provide revised application material which:

a. Comprehensive assessment on the surface hydrology including UEDD, diversion drain, temporary diversion, ESS zone and Gunpowder Creek. This includes the expected interaction, potential impacts and risks and proposes management measures.
b. For the off-lease ponding, discussion on if the area is authorised to be impacted by the inundation, and the risks and impacts to the environmental values (i.e., MSES, GDEs), and the management required.
c. Clarify that PMF modelling is confirmed and supports the embankments design heights.

Response

Engeny were engaged to undertake a comprehensive assessment on the surface hydrology, refer to **Appendix 04** – Preliminary Design Report (**Appendix 04I** – Surface Water Impact Assessment).

It is noted that off-site ponding is only temporary in nature following heavy rain events, and this has been further explained in the application documents (**Appendix 04** – Preliminary Design Report, **Appendix 04I** Surface Water Impact Assessment, Section 3.8.2).

Item 17 – Design Storage Allowance (DSA)

Your letter states:

An assumption relied upon for the design storage allowance (DSA) assessment (Engeny 2025g)[10] assumes six (6) evaporators operating at 69% availability, with a total feed rate of 100 litres per second (L/s) (16.7 L/s per unit). Previous applications utilising evaporators were assessed with a total feed rate of 118 L/s (8.4 L/s per unit). This suggests the current evaporators are approximately twice as effective at evaporating water compared to earlier assessments. However, no evidence has been provided to justify this improved performance.

Information Requested

Provide updated modelling which:

a. Provide the updated data and model calibration to support the changes to mechanical evaporator performance.
b. Provide advice if the model calibration has been extended to include the previous year (or so) of time that the evaporators have been functioning and demonstrate they have performed as modelled.
c. Provide a case where the evaporators are switched off once the water management system is returned to the normal operating range to assess the DSA and water management system performance.
d. Provide the updated comprehensive water balance model report detailing the model set up, calibration, and assumptions and model output and Goldsim model which forms that basis of the DSA assessment.

Response

Engeny were engaged to complete a preliminary DSA and MRL assessment for the proposed TSF3. This has been completed as part of the TSF3 preliminary design (refer to Appendix 04 – Preliminary Design Report (Appendix G – DSA Assessment, Appendix I – SWIA, and Appendix N – Water Balance Model).

Key conclusions are that:

- A preliminary CCA for TSF3 indicates that TSF3 will require:
  - A MRL corresponding to an ESS volume resulting from the 1:20 AEP 72-hour storm volume assuming 100% runoff; and
  - A DSA equivalent to the 1:20 AEP wet season increase.
- TSF3 will form part of the existing integrated containment system (ICS) that comprises ETSF, EPit and MCD.
- The preliminary TSF3 ESS volume of 174 ML will be allocated to TSF3.
- Using the method of operational simulation, DSA for the integrated containment system has preliminarily been estimated as 779 ML.

This volume has increased since the previous assessment due to:

[10] Engeny, Memorandum, TSF Preliminary DSA and MRL Assessment, 9 May 2025

  - A significant change in the assumed operation of the evaporators and controlled releases. The evaporators are now only operational when the combined ICS inventory exceeds the combined ICS DSA volume
  - An increase to the assumed rate of production has resulted in an increase to the rate of tailings production which is included in the estimation of the DSA
- A Design Simulation Margin (DSM) of 25% has been applied to the DSA volume which provides contingency for extreme weather conditions and results in a total system DSA volume of 973 ML.
- The preliminary DSA volume is shared across MCD and EPit with the MCD DSA adopting the existing DSA RL and the remaining volume being accommodated in EPit.
- In the unlikely event of an exceedance of an inflow volume exceeding the proposed DSA volume, significant contingency storage is available within the ICS. This volume of approximately 2.6 GL is available within EPit and, while not used for normal operations, may act as a temporary storage to contain additional inflows in excess of the DSA volume.
- The sensitivity analysis shows that the ability to control site inventory is:
  - Most dependent on the ability to treat and release water and deposit tailings; and
  - Least dependent on the evaporator system.

The Water Balance Model is provided in **Appendix 04** – Preliminary Design Report, **Appendix 04N** – Water Balance Model and include updated assumptions for the evaporators and also provides the scenario without evaporators.

Item 18 – Evaporators

Your letter states:

Impacts via evaporator spray drift are identified via spatial imagery. This drift may cause accumulation of contaminants in catchments, potentially where runoffs is not captured.

Information Requested

With the proposed use of evaporators provide information on:

e. The location of all evaporators and the associated fallout from spray drift.
f. How spray drift will be managed to prevent contamination of the environment.
g. Rehabilitation proposed for areas affected by spray drift.

Response

CCM has prepared a Spray Drift Management Plan (SDMP) (**Appendix 10**) which outlines the operating strategy for evaporators deployed at Capricorn Copper Mine (CCM). This purpose of the SDMP is to detail:

- The location of all evaporators and areas that may be impacted from spray drift/fallout from spray drift, refer to Figure 1 in the plan.
- How spray drift is managed to prevent contamination of the environment – it is operated during dry season only with the maximum extent of the fallout zone which is within existing ML's and adjacent to existing mining infrastructure EPit and ETSF.
- Rehabilitation proposed for existing areas affected by spray drift – following cessation of evaporator use, the impact area will be assessed for vegetation and soil health. Soil amendment and revegetation are proposed for rehabilitation.

Item 19 – Groundwater Amendments

Your letter states:

The following is identified in the groundwater impact assessment (Engeny 2025) and groundwater monitoring and management plan (Engeny 2025h)[11]:

a. *Amendment to the groundwater quality has been derived utilising one (1) reference bore as per the current EA framework. The use of GWMB38 to assess compliance for all bores in the monitoring network is not supported.*

[11] Engeny, 29 Metals, Groundwater Monitoring and Management Plan, 29 July 2025

b. *The description of the groundwater monitoring bores and their positioning relative to TSF3 requires revision. The directions of east and west have been incorrectly referenced in the material with information presented not accurate.*
c. *There is limited evidence to suggest the proposed background groundwater monitoring bores (GWMB80, GWMB81, GWMB82) are suitable background/ baseline bores. It is stated GWMB82 quality concentrations identifies the presence of mine affected groundwater.*
d. *No justification is provided for the amendment to the frequency of groundwater levels to quarterly.*
e. *Discrepancies regarding the geology corresponding to GWMB78.*

Information Requested

DES (2021)[12] supports reference bores that are specific to geological units, and for which baseline data is available to demonstrate their relevance to each compliance bore that they correspond to. As the geology at the Capricorn Copper Mine is complex with identified presence of mine impacted groundwater, groundwater monitoring bores and quality amendments are required to be revised as follows:

a. Define bore-specific triggers and limits (or geology-specific triggers and limits that may apply to a group of bores contained in a similar geological unit) based on existing unimpacted data collected to date. This may require additional groundwater monitoring bores to be implemented.

Further, provide revised application material which includes:

a. Clear description and justification of all proposed amendments to groundwater.
b. Revised material to ensure positioning relative to TSF3 and geology of groundwater monitoring bores is accurate.
c. Clear and demonstrable evidence regarding the proposed background groundwater monitoring bores are suitable baseline bores.
d. Information that demonstrates that all geological units the proposed TSF3 overlaps are monitored to detect any potential influence from TSF3 (i.e., interpretation bore and compliance bore).

Response

The Groundwater Impact Assessment provides bore-specific triggers and limits, refer *to* **Appendix 04** - Preliminary Design Report, **Appendix 04J** – GWIA, **Appendix V** - Groundwater Monitoring and Management Plan (GWMMP). The draft EA has included the additional groundwater monitoring bores, refer to **Appendix 02**.

Item 20 – Integrated Water Management

Your letter states:

Given the significant proposed changes to the integrated water management system and the identified groundwater quality concerns a comprehensive understanding is required on the sites water management systems.

Information Requested

Provide further details on the whole of site integrated water management, including:

a. Current onsite contaminated water inventory, including the contemporary volumes for EPit, Esperanza Underground and Mill Creek Dam, as well as water storages across the site.
b. Volume of contaminated water from underground workings, seepages, and contaminated surface runoff under normal site operating conditions.
c. Location and capacity for any potential additional contaminated water storages that could support contaminated water capture and/ or water treatment on site to limit the reliance on EPit.
d. Water management options for current and future contaminated water inventory on site, including details and implementation timeframes for options including but not limited to water treatment plants.
e. A long-term water management plan for maintaining compliance with the integrated containment system DSA/s across the site and in accordance with the environmental authority.

Response

[12] DES (2021). Using monitoring data to assess groundwater quality and potential environmental impacts. Version 2. Department of Environment and Science (DES), Queensland Government, Brisbane

Engeny were engaged to update the CCM site Surface Water Impact Assessment (**Appendix 04** – Preliminary Design Report, **Appendix 04I** – SWIA) and DSA (Appendix 04 – Preliminary Design Report (**Appendix 04G**). The Water Balance Model (WBM) is provided in Appendix 04 – Preliminary Design Report, **Appendix 04N** – Water Balance Model.

The WBM has been developed to improve understanding of the CCM water management system performance, and to provide a decision-making and inventory forecasting tool for site. The model is maintained through regular updates to ensure its ongoing representativeness of the Water Management System (WMS) and that changes and upgrades to the WMS are captured. In addition, as the collection of site water monitoring data continues, the model calibration period is periodically extended.

Key objectives of the WBM include:

- Assessing the containment performance of the CCM WMS and the hydraulic performance of existing and proposed regulated structures.
- Provide a tool for the assessment (through the method of operation simulation) of the integrated containment system (ICS) currently comprised of Esperanza TSF (ETSF), Esperanza Pit (EPit) and Mill Creek Dam (MCD) as well as potential future regulated structures such as the proposed Tailings Storage Facility 3 (TSF3).
- Provide support for decision making and mine water management with respect to assessment of current and any future proposed WMS performance, i.e. maintaining Design Storage Allowance (DSA) / Extreme Storm Storage (ESS) and Mandatory Reporting Level (MRL) compliance, improving water use efficiency across site and minimising the requirement to release treated water.
- Improve understanding of water flows around site (e.g. catchment runoff, evaporation losses etc.)

The current RL (14 September 2026) for EPit is 216.90 RL and MCD is 213.05 RL. There are no other water storages on site.

Appendix 11 provides the Water Treatment Plant Designs (30mL/day).

CCPL looks forward to meeting with you to discuss the responses to the information requested to ensure that the approval is able to be progressed in a timely manner.

Yours sincerely,
for RPS AAP Consulting Pty Ltd

Megan Davis

Practice Lead- Environmental Management and Remediation (Qld)

megan.davis@rpsconsulting.com

+61 7 4276 1023

APPENDIX 01 IR RESPONSE SUMMARY (ROADMAP)

APPENDIX 02 DRAFT EA CONDITIONS

APPENDIX 03 GROUNDWATER DEPENDENT ECOSYSTEM REPORT (WATERMARK ECO)

APPENDIX 04 TSF3 PRELIMINARY DESIGN REPORT (ENGENY)

APPENDIX 05 MNES (KG ENVIRONMENTAL)

APPENDIX 06 MSES (KG ENVIRONMENTAL)

APPENDIX 07 INDEPENDENT GW REVIEWS (HYDROGEOLOGIC)

APPENDIX 08 EPIT WQ MODEL REPORTS (EGI)

APPENDIX 09 REMP 2026

APPENDIX 10 EVAPORATOR SPRAY DRIFT MANAGEMENT PLAN (ENGENY)

APPENDIX 11 WATER TREATMENT PLANT DESIGNS