

## DIRECTION FOR ADDITIONAL INFORMATION TO BE INCLUDED IN THE SUPPLEMENT TO THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

Direction given under section 136 (1) of the Environment Protection Regulations 2020

<b>Proposal</b>	Rustlers Roost and Quest 29 Open-Cut Mine Redevelopment
<b>Proponent</b>	Primary Gold Pty Ltd
<b>NT EPA reference</b>	EP2021/005
<b>Proposed action</b>	<p>Recommence open-cut gold mining across two mine sites (Rustlers Roost and Quest 29) located in the Mount Bundey region, approximately 100 km south east of Darwin, via the Arnhem Highway. The proposed action includes:</p> <ul style="list-style-type: none"> <li>• open-cut mining of all existing open-cut pits, and two additional new pits at Rustlers Roost at a rate of up to five million tonnes per year over an approximate 10 year life of mine</li> <li>• supporting infrastructure including an 11 km upgraded access track connecting the two sites, a processing plant and a tailings storage facility at Rustlers Roost, as well as waste rock dumps at both Rustlers Roost and Quest 29.</li> </ul>
<b>Direction</b>	<p>The proponent is directed to:</p> <ul style="list-style-type: none"> <li>• consider and address issues raised in the submissions received on the Draft Environmental Impact Statement (Draft EIS) during the consultation period;</li> <li>• prepare a Supplement to the Draft EIS to address comments and issues raised in the public submissions, and the comments from government authorities that relate to the assessment of potentially significant environmental impacts;</li> <li>• provide the additional information required by the NT EPA (<b>Attachment A</b>) in the Supplement to the Draft EIS to ensure the NT EPA has sufficient information to complete the environmental impact assessment process.</li> </ul>
<b>Submission period</b>	The Supplement to the draft EIS, incorporating responses to submissions and this additional information request must be submitted to the NT EPA within 12 months of the date of this Direction.
<b>Person authorised to give direction</b>	
<b>Name and position</b>	<p>Dr Paul Vogel AM – Chairperson, Northern Territory Environment Protection Authority</p> <p>Delegate of the NT EPA under section 36 of the <i>Northern Territory Environment Protection Authority Act 2012</i></p>
<b>Signature</b>	
<b>Date of direction</b>	17 February 2022

Attachment A – Additional information to be included in the Supplement to the Draft Environmental Impact Statement

Primary Gold Pty Ltd - Rustlers Roost and Quest 29 Open-Cut Mine Redevelopment

Item#	Section of Draft EIS	Comment	Information required in the Supplement
<b>Terrestrial environmental quality</b>			
<p>#1</p>	<p>Waste Rock Characterisation, and classification – Non Acid Forming (NAF), Potentially Acid Forming (PAF) and Uncertain (UC)</p> <p>Section 7.1, Appendix D, and Appendix L</p>	<p><u>Waste rock characterisation</u></p> <p>It is estimated that 56.4 Mt and 12.1 Mt (total 68.5 Mt) of waste material will be produced from Rustlers Roost and Quest 29 pits respectively.</p> <p>A proportion will be used to backfill select pits, and the remainder will be managed as constructed waste rock dumps.</p> <p>For Rustlers Roost, waste was characterised based on sulfur data, and where sulfur data were not available, the visible presence of pyrite logged was used as an indicator.</p> <p>For Quest 29, <math>\leq 0.3</math> % gold concentration in ore is considered waste rock.</p> <p>Static test results suggest a high proportion of samples from the transition and oxide zone plot as UC.</p> <p>The waste rock characterisation studies and the kinetic test work to determine the physical and chemical characteristics of waste rock and contaminated materials related to the proposal are not complete.</p>	<p>The information is required to clarify and demonstrate further waste characterisation work is robust, and supports the development of a geochemical block model as a management tool for mine waste (Non Acid Forming (NAF), Potentially Acid Forming (PAF) and Uncertain (UC) material), the control of Acid and Metalliferous Drainage (AMD).</p> <ol style="list-style-type: none"> <li>1. Complete the waste rock characterisation studies, including the kinetic testing program, to determine the physical and chemical characteristics of waste rock and contaminated materials to provide a robust dataset that gives a high degree of confidence in mine waste predictions.</li> <li>2. Provide the results and interpretation of the kinetic test work apply these findings to mine waste management.</li> <li>3. Clarify the criteria used for classification of oxide, transition and fresh material.</li> <li>4. As part of the waste characterisation studies, clarify the number of samples where sulfur data were not available, and where the visible presence of pyrite logged was used as an indicator.</li> <li>5. Review the dataset for the waste rock characterisation work, and ensure the sample size is representative, can statistically support the results, and can inform the block model described in item # 2 with a high degree of confidence.</li> </ol>

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#2	Appendix D - Materials Characterisation Study	<p><u>Block model for waste management</u></p> <p>The terms of reference (TOR) required details of the design for each of the key proposal components, including geochemical characterisation (to specified minimum standards) and outcomes of the geochemical characterisation, which will inform the geological waste block model included as part of the draft environmental impact statement (EIS).</p> <p>The Commonwealth government guidelines “<i>Preventing acid and metalliferous drainage - leading practice sustainable development programme for the mining industry</i>” (DFAT, 2016) states that the waste block model should be integrated with the ore block model and the mine plan to optimise materials handling on site and to define final pit wall rock types.</p> <p>The materials characterisation study does not demonstrate a reasonable level of certainty regarding the geochemical characteristics of waste and the potential for the proposal to generate Acid and Metalliferous Drainage (AMD).</p> <p>The data available for the draft EIS was not sufficient to develop a waste block model, which is a significant part of mine planning and closure and should be included in the EIS.</p>	<ol style="list-style-type: none"> <li>Using the data from the waste characterisation work referred to in item #1 above, develop a waste block model to inform the management of potential AMD from mine waste and exposed pit walls.</li> <li>Estimate volumes of NAF and PAF waste rock and waste rock with saline and/or metalliferous drainage characteristics under near neutral conditions with a reasonable level of certainty.</li> </ol>
#3	Section 4.7 - Waste Rock Dump	<p>There are potential issues and uncertainty with the waste rock dump (WRD) design and construction that demonstrates avoidance and/or mitigation of risks to the environment including:</p> <ul style="list-style-type: none"> <li>no apparent low permeability base to prevent AMD migrating to groundwater.</li> <li>no apparent low permeability material encapsulating PAF waste to limit gas and water infiltration.</li> </ul>	<ol style="list-style-type: none"> <li>Provide an improved classification system that considers more than just PAF/NAF in waste rock properties as required in items #1 and #2 above.</li> <li>Provide methods for in-pit identification, and differentiation of waste rock with different geochemical properties to ensure appropriate segregation, handling and disposal.</li> <li>Incorporate consideration of different waste rock drainage characteristics such as saline and/or</li> </ol>

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		<ul style="list-style-type: none"> <li>4 x 10 m high lifts with a face angle of 37° that are proposed for the construction of the WRDs are unlikely to provide adequate compaction to limit gas and water infiltration.</li> <li>the bulk of the acid neutralising capacity present in the oxide waste rock may be unavailable to neutralise AMD due to the particle size and coating that will occur on the oxide rock.</li> <li>no methodology has been outlined for separating PAF and NAF waste in the transitional zone. This is a key component of waste rock management.</li> </ul>	<p>metalliferous and/or acidic in terms of management of AMD generation.</p> <p>4. Provide details of the materials, design, and methods of construction that ensures adequate compaction of the WRD and subsequent (4) lifts is achieved to limit gas and water infiltration.</p>
#4	Section 4 and Appendix T – AMD Management Plan	<p>The TOR required information on construction materials required for each mine site component including major types, quantities and specifications of materials for different purposes such as lining and capping, and sources (both on and off lease), storage requirements and potential hazards.</p> <p>The Draft EIS does not provide adequate information to demonstrate that sufficient material with appropriate characteristics is available for construction of the mine site components such as dams, the WRD and tailings storage facility (TSF), and where it would otherwise be sourced.</p> <p>For example, the TSF is proposed to be lined with low permeability clay. The detail to support the adequacy of volumes and characteristics of the in-situ material as an effective liner for the TSF, has not been provided in the Draft EIS.</p>	<ol style="list-style-type: none"> <li>Determine (identify and quantify) the availability of suitable material (to meet target specifications) on the site for construction of base and embankments of waste storage facilities.</li> <li>Develop strategies and a contingency plan for obtaining suitable material or alternatives to liners and covers on waste storage facilities if suitable material is not available.</li> </ol>
<b>Terrestrial ecosystems</b>			
#5	Section 7.5.7	The Draft EIS does not consider the impacts of increased flows on riparian vegetation, despite modelling indicating that discharges could double or potentially triple surface flow volumes in receiving waterways.	<ol style="list-style-type: none"> <li>Demonstrate that riparian vegetation will not be significantly impacted by modelled discharge and flows from the mine site.</li> </ol>

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#6	Appendix N	<p>Appendix N of the Draft EIS indicates that the predicted reduction in flow of Annie's Dam catchment exceeds a maximum 20%, which is required for river health. This is because nearly 50% of Annie's dam catchment is consumed by the proposed tailings storage facility (TSF).</p> <p>The potential for significant impacts from flow reduction to a groundwater dependent ecosystem (GDE) that appears to occur below Annie's Dam has not been considered.</p>	<ol style="list-style-type: none"> <li>1. Assess the impacts to GDEs downstream from Annie's Dam due to reductions in groundwater flows from the TSF post-closure.</li> <li>2. Assess the impacts to GDEs downstream from Annie's Dam due to contaminated seepage flows from the TSF post-closure.</li> </ol>
<b>Hydrological processes</b>			
#7	Numerical groundwater model - Section 7.2, Appendix H and Appendix I	<p><u>Groundwater model classification</u></p> <p>It is noted that the results of the groundwater model are considered preliminary due to the lack of detailed input data (e.g. transient groundwater levels, aquifer hydraulic property data) that could be used for model refinement and model calibration.</p> <p>The constructed groundwater model has characteristics of a Class 1 model based on the criteria in the Australian Groundwater Modelling Guidelines (<i>Barnett et al. 2012</i>).</p> <p>The current model is a regional scale (Class 1) model. Guidelines recommend at least a Class 2 model for adequate impact assessment and water balance modelling for dewatering projects.</p> <p>The revised model must be capable of accurately predicting drawdown effects, inform dewatering requirements, and provide for adequate water balance calculations.</p>	<ol style="list-style-type: none"> <li>1. Refine the constructed numerical model to at least a Class 2 model based on the criteria in the Australian Groundwater Modelling Guidelines (<i>Barnett et al. 2012</i>) noting the existing groundwater monitoring is inadequate for the calibration of the numerical model to a Class 2 standard.</li> <li>2. Improve the groundwater model's performance and capability for predicting potential impacts to the surrounding environment including GDEs with a high degree of confidence. The model must be capable of accurately predicting drawdown effects, inform dewatering requirements, and provide for adequate water balance calculations.</li> <li>3. Model and describe how the proposal has been designed to consider, or allow for, impacts of a changing climate e.g. capacity and efficiency of water facilities to allow for potential increase in evaporation and/or large rainfall events, and changes in the frequency or intensity of extreme weather events.</li> </ol>
#8	Water balance including seepage to pits, rainfall and	<u>Groundwater inflow to pits and throughflow</u>	<ol style="list-style-type: none"> <li>1. Develop the groundwater model referenced in item #7 to accurately predict groundwater inflows,</li> </ol>

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	runoff – Section 7.4 and Appendix H	<p>It is acknowledged by the proponent that there is a notable amount of uncertainty regarding the degree of groundwater inflow to pits.</p> <p>The current estimates of inflow range between 100 L/s to 600 L/s, or approximately 9 and 52 ML/day respectively.</p> <p>Groundwater seepage is currently considered the biggest contributor to the water balance amounting to approximately 83% of all inflows.</p> <p>This volume of water needs to be appropriately accounted for and managed.</p>	<p>throughflow, and to quantify seepage to pits with a high degree of certainty.</p> <ol style="list-style-type: none"> <li>2. Develop the site water balance where all inputs and outputs to the site water balance are appropriately evaluated to ensure the site water inventory can be managed, potential impacts to hydrological processes and inland water quality are assessed, and mining is not at risk of stopping.</li> <li>3. Identify and verify that adequate capacity for water storage is available if treatment and release cannot be implemented.</li> <li>4. Specify the contingences in the event that treatment and release is required, or is necessary.</li> <li>5. Clarify the strategies to be adopted and implemented for effective management of this volume water.</li> </ol>
#9	Water balance – Groundwater and TSF representation – Section 7.4 and Appendix H	<p><u>Omission in the water balance</u></p> <p>In addition to pit inflows in item #8 above, a key input to the site water balance will be derived from operation of the TSF.</p> <p>These two inputs are a material omission in the water balance and will need to be carefully assessed and included in the water balance for the proposal.</p>	<ol style="list-style-type: none"> <li>1. Review available data and develop a water balance for the TSF (as a component of the overall site water balance) accounting for all inputs and outputs.</li> <li>2. Review and revise the management of the TSF to determine accurate estimates of water that will need to be managed i.e. captured, re-used, stored, and/or disposed.</li> </ol>
#10	Section 7.3	<p><u>Hydrogeology and hydrology</u></p> <p>The management of contaminated groundwater on the Rustlers Roost site during operation and post-closure relies largely on the pit being a groundwater sink.</p> <p>The Draft EIS indicates that the pit lake acts as a hydraulic sink for a large portion of the disturbed catchment, meaning that the pit lake water evaporates faster than the influx of water (rainfall, runoff and groundwater ingress).</p>	<ol style="list-style-type: none"> <li>1. Provide an assessment of the Rustlers Roost pit post closure, with further evidence to support the scenario that the Rustlers Roost pit will continue to act as a groundwater sink.</li> <li>2. Develop contingency measures for the alternate scenario where the pit void is determined to be a flow-through system to ensure contamination of</li> </ol>

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		<p>Based on this assumption, the Draft EIS states that influence on surrounding groundwater quality [from the pit] is likely to be spatially limited.</p> <p>Several of the key assumptions made in predicting the outcomes and conclusions for hydrological processes do not appear to be well supported by the available data.</p> <p>There is insufficient assurance that the Rustlers Roost mine site will not become a source of contamination to waterways in the longer term.</p>	<p>groundwater and surface water down gradient into the long term is avoided or minimised.</p>
#11	Section 7.3, Appendix N, Appendix I	<p>There are potentially significant issues with the water management strategy.</p> <p>A key concern is an inadequate water storage volume on site with the only option for water management being discharge of mine influenced water to the receiving environment.</p> <p>Pit dewatering is estimated to be between 100 L/s and 600 L/s and with only a 50 ML water storage dam, this provides between 6 days and 1 day of storage respectively.</p> <p>While peak flows for Mount Bundey Creek and Marrakai Creek are estimated at 2,400 L/s and 700 L/s respectively, which have been observed for ~3-4 weeks, for the majority of the wet season, the catchment area is only capable of receiving discharges of ~50 L/s.</p> <p>Given that any opportunity for controlled discharge of mine affected water is only possible during the wet season (December to March), and probably to a discharge point where a minimum flow rate is available for mixing and dilution, the site must have the available storage capacity to enable the retention of excess volumes of mine affected water.</p> <p>The proposed site water storage of ~50 ML provides very limited storage or buffering capacity for the site.</p>	<p>The information is required to clarify and demonstrate adequacy of the site water storage capacity and effectiveness of the water management strategy during pit dewatering.</p> <ol style="list-style-type: none"> <li>1. Ensure that the site has adequate, available water storage capacity available to store captured mine affected water, and describe the management strategies for managing excess mine affected water requiring storage, treatment or release.</li> <li>2. In particular, describe the management of excess mine affected water when there is no opportunity for discharge.</li> <li>3. Describe alternative options for water management including the appropriate treatment options should water quality deteriorate, and requires treatment for a controlled release.</li> <li>4. Provide a separate water balance model considering these scenarios should be produced to evaluate the post closure management options.</li> </ol> <p>Note: The above information should be provided in consideration of the- the NT EPA's Principles of environment protection and management incorporating the principles of ecologically sustainable development,</p>

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			<p>and management hierarchies (refer to Part 2 of the EP Act).</p>
#12	<p>Groundwater drawdown - Section 7.3, and Appendix H</p>	<p><u>Drawdown from pit dewatering</u></p> <p>The current (regional scale) groundwater modelling has shown that the calculated 1 m drawdown from the pit dewatering extends 5 km to the north and 3 km to the south of the Rustlers Roost pits, and 2 km to the south-west of the Quest 29 pits.</p> <p>The baseflow contribution to creeks and streams would normally sustain hyporheic zones, any permanent and semi-permanent pools/waterholes, and support associated flora and fauna (e.g. riparian vegetation including potential GDEs) following the wet season.</p> <p>These processes are likely to be interrupted as a result of drawdown and alteration of the natural flow characteristics.</p>	<p>The information is required to clarify and demonstrate riparian vegetation and GDEs will not be significantly impacted by groundwater drawdown, seepage, and discharges from the mine site.</p> <ol style="list-style-type: none"> <li>1. Assess (quantify) the pre-mining groundwater contribution (baseflow) to creeks and stream flows where drawdown effects are expected to occur, and</li> <li>2. Identify and assess the likely impacts to environmental flows (quality and quantity), and riparian vegetation including potential GDEs.</li> <li>3. Assess the interaction of groundwater behaviour in the primary aquifer with groundwater in alluvial aquifers as well as surface water.</li> <li>4. Review the water management strategy and update the Water Management Plan to ensure impacts to environmental flows (quality and quantity), and riparian vegetation including potential GDEs are avoided or minimised to be as low as practicable.</li> </ol> <p>Note: The above information should be provided in consideration of the NT EPA's hierarchies for environmental decision-making and waste management (avoid, mitigate, re-use, recycle etc.) Refer to Part 2 of the EP Act.</p>
#13	<p>Pit Lake Water Quality – Section 7.4, Appendix O and Appendix P</p>	<p><u>Pit lake water quality and seepage</u></p> <p>Pit lake water quality as an aquatic ecosystem habitat for the Rustlers Roost pit lake was assessed to be moderately poor, with high nutrient concentrations and low oxygen concentrations.</p>	<ol style="list-style-type: none"> <li>1. Conduct the appropriate, groundwater and water balance modelling (referenced in item #8 and 9), and update the geochemical modelling to accurately predict the pit lake water quality where pit lakes are proposed post-mining.</li> </ol>

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		<p>However, pit lake water quality in terms of concentrations of contaminants of particular concern was good, with only slight exceedances of ecosystem values for total iron and ammonium and drinking water for ammonium.</p> <p>The study was conducted to support the waste discharge licence for dewatering pits prior to mining.</p> <p>The water quality of the pit lake and surrounding groundwater post mining would likely be of much poorer quality due to contact/interaction with exposed oxide, transition and fresh wall rock lithologies that would have undergone some degree of weathering during, and post-mining.</p> <p>Therefore, the EIS should not rely on current pit lake water quality as a predictor of post-closure quality.</p>	<ol style="list-style-type: none"> <li>2. Develop the appropriate strategies and control measures for post closure management of water quality in pit lakes where potential seepage or mine affected water from pit lakes into groundwater to potentially impact the receiving environment</li> <li>3. Identify water storages, the capacity, and appropriate contingencies to manage the expected, and unexpected volumes of contaminated water that will potentially be captured on site post closure.</li> </ol>
<b>Inland water environmental quality</b>			
#14	Water quality impacts – Section 7.4 and Section 7.5, and Appendix H	<p>Due to the nature of the proposal, and current understanding of significant risks to the environment and water quality, it is acknowledged that impacts are likely, and development of site specific criteria is warranted, as opposed to the conservative approach of applying the default Australia and New Zealand Government (ANZG) Guidelines for Fresh and Marine Water Quality (2018).</p> <p>Current monitoring data provided in the Draft EIS indicates exceedances of aquatic ecosystem guideline values for metals, nutrients, and physico-chemical parameters in groundwater.</p> <p>If the modelling predicts a Waste Discharge Licence (WDL) is required to manage excess mine affected water, various criteria will need to be developed to address water treatment options, address criteria for discharge water quality to ensure the environment is protected, and to facilitate the application for a WDL.</p>	<p>If required, to manage excess mine affected water, and to protect groundwater and surface water quality, site-specific criteria and trigger values for constituents of concern and water quality will need to be developed in preference to ANZG (2018) default 95% species protection values.</p> <ol style="list-style-type: none"> <li>1. In addition to collecting baseline data, develop and apply methods for carrying out the environmental risk assessment of the aquatic systems as relevant to the proposed action and the receiving environment.</li> <li>2. Clarify the approach that will be taken to establish the site specific trigger values in addition to collecting baseline data, including using multiple lines of evidence such as direct toxicity assessment.</li> <li>3. Demonstrate that methods adopted for developing site-specific criteria conform with recommendations</li> </ol>

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			provided by ANZG (2018) e.g. Water Quality Guidelines - Accounting for local conditions.
#15	Section 4.5.2 – Tailings storage Appendix H – 6.2.1 Appendix T – Acid Mine Drainage Management Plan	<p>The TOR explicitly required that the draft EIS demonstrates the acceptability of the TSF’s location over the existing heap leach pad and drainage lines in the Mount Bundey Creek catchment.</p> <p>Information on the TSF design, including minimum standards that would be incorporated, is not included in the Draft EIS.</p> <p>The Draft EIS lacks information and adequate design detail for the TSF to address concerns including:</p> <ul style="list-style-type: none"> <li>• The TSF is situated on the mine lease boundary. This means that any seepage from the TSF will immediately flow off the mine lease boundary. Any groundwater monitoring bores will be situated off the mine lease boundary. Potential future repair works may exceed the mine lease boundary. Final capping might exceed the mine lease boundary.</li> <li>• The TSF covers multiple drainage lines. These have an increased risk of transporting tailings liquid beneath the TSF walls and into both Mount Bundey Creek and Marrakai Creek.</li> <li>• There does not appear to be a low permeability liner for the TSF. This would allow tailings seepage to migrate below the TSF and into groundwater or follow drainage lines into surrounding water bodies.</li> <li>• Details have not been provided on the shaping of the TSF floor to understand tailings placement and water movement to decant. Poor shaping will allow TSF water to pool and potentially infiltrate instead of returning to the decant location. If tailings placement and water management is not adequate then tailings will not settle</li> </ul>	<p>Provide further information to adequately address the TOR including but not limited to:</p> <ol style="list-style-type: none"> <li>1. Details on design and construction of TSF base (foundation) and embankments including drainage zones and low-permeability cores.</li> <li>2. Drainage line preparation details to ensure it is not a preferred flow path for TSF seepage.</li> <li>3. Target design specifications such as permeabilities to demonstrate avoidance of impacts to groundwater via seepage, and to provide certainty about the effectiveness of mitigating/ protection measures.</li> <li>4. Discharge point and receiving waterway for the TSF emergency spillway.</li> <li>5. Tailings placement strategy and plan to provide context on the design and to demonstrate the TSF filling sequence.</li> <li>6. Map showing location of decant dam.</li> <li>7. Likely residual concentration of cyanide and other contaminants in tailings.</li> <li>8. Volumes of water removed from the TSF to maintain safe freeboard and phreatic surface.</li> </ol>

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		<p>adequately. This in turn reduces stability of the tailings and increases infiltration.</p> <ul style="list-style-type: none"> <li>Inadequate detail is provided on how the tailings water inventory would be managed to avoid the potential for failure of the TSF embankments and minimise seepage.</li> </ul> <p>The information is required to clarify and demonstrate the proposed tailings storage facility is fit for purpose, planned, designed, constructed and operated to best practice standards, and Australian National Committee on Large Dams (ANCOLD) Guidelines on Tailings Dams.</p>	
#16	Section 6.2.1 of Appendix H	<p>The TOR requires a detailed description of all construction and operational aspects including WRDs.</p> <p>The Draft EIS states:</p> <p><i>'given the small catchment area associated with each WRD, potential runoff from the WRDs will be captured into dedicated decant dams, with the runoff water treated before release to the surrounding creeks'.</i></p>	<p>Clarify the design, construction, and operation of WRDs and provide additional information on:</p> <ol style="list-style-type: none"> <li>Risk of contamination of runoff from WRDs with metals and other contaminants.</li> <li>The details of decant dams for WRDs</li> <li>The details of water treatment for runoff water prior to release.</li> </ol>
#17	Appendix I – Water Management Plan Appendix J – Mine Closure Plan	<p>The TOR requires a draft Mine Closure Plan (MCP) that includes assessment of predicted post-closure pit lakes including predicted water quality and water balance, accounting for potential density driven exchange between pit lakes and the surrounding groundwater resources.</p> <p>Rustlers Roost pit lake water level is predicted to recover to equilibrium water levels between 10 and 60 years. The risk assessment indicates that the residual risks of pit wall acidity and evapo-concentration leading to poor water quality in the pit after closure is low.</p> <p>Without adequate materials characterisation data and a block model for the pit in the Draft EIS, the post-closure water quality trajectory cannot be assessed.</p>	<ol style="list-style-type: none"> <li>Using the block model developed as required in item #2 above, indicate the potential for and likely extent of PAF wall rock that might be exposed at end of mining in the Rustlers Roost pit.</li> <li>Update the water management plan and post-closure water balance to account for changes in volumes and quality of mine-affected water as a result of AMD calculations.</li> </ol>

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<b>Aquatic ecosystems</b>			
#18	Section 7.5.7	<p>The TOR refers to hydrological processes, and requires an assessment of potential impacts and risks as a result of alteration of surface water flow volumes associated with mine site discharges and surface water extraction.</p> <p>The Draft EIS does not consider the impacts of increased flows on aquatic ecosystems, despite modelling indicating that discharges could double or potentially triple surface flow volumes in receiving waterways.</p>	<ol style="list-style-type: none"> <li>1. Provide an analysis that demonstrates aquatic ecosystems downstream of the proposal will not be significantly impacted by increased surface water flow volumes from mine discharges.</li> </ol>
<b>Community and economy</b>			
#19		<p>The TOR requires an assessment of potential impacts and risks to community and economy including net positive benefits.</p> <p>The Draft EIS states: <i>'the outcome is for the Project to realise economic and social benefits associated with recommencement of mining, combined with an opportunity to rectify and reduce the hazards associated with the historic activities by application of contemporary industry practice in environmental management'</i>.</p> <p>The proponent must demonstrate that the proposal is designed in accordance with industry best practice so that the community benefits in the longer term and is not left with a legacy of post-closure residual adverse impacts.</p> <p>The Draft EIS does not provide the assurance and commitment that there will be net positive benefits to the community as a result of the proposal.</p>	<ol style="list-style-type: none"> <li>1. For all components of the proposal that are likely to remain at the end of mine life, detail the design features that align with contemporary leading practice in the context of minimising impacts from the mine site to the receiving environment, and include these as commitments in relevant sections of the Supplement.</li> </ol>
<b>Other environmental factors (Air Quality)</b>			
#20	Section 4.5.1.2, 7.2, and section 8	<p>The TOR included a requirement to provide outputs from processing, including types and volumes of gaseous emissions from the smelter.</p>	<ol style="list-style-type: none"> <li>1. Provide detailed specifications for the proposed smelter.</li> </ol>

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		<p>While there is consideration of greenhouse and dust emissions from the proposal, the draft EIS does not specifically reference emissions from the smelter in terms of greenhouse gases or contaminants that could impact the surrounding land and water.</p> <p>The smelter has the potential to produce acid gas (H<sub>2</sub>SO<sub>4</sub>) and toxicants such as metals and metalloids in its emissions.</p>	<ol style="list-style-type: none"> <li>2. Provide predicted emissions including likely volumes and characteristics of airborne particulates and gaseous contaminants/toxicants.</li> <li>3. Identify and assess the potential impacts from the smelter on the receiving environment.</li> <li>4. Provide an assessment of the potential impacts of fallout from the smelter on the surrounding environment (including flora and fauna) using the <a href="#">Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (2016)</a>.</li> </ol> <p>Note: The impact assessment criteria for some air pollutants in this NSW document are based on National Environment Protection (Ambient Air Quality) Measure standards, some of which have recently been strengthened.</p>
<b>Whole of environment considerations</b>			
#21	Cumulative impact assessment	<p>The EIS and the modelling work presented in Appendix H suggests around 5,800 ML/annum (or 78%) of the water produced on site will accumulate and require storage, or treatment and disposal.</p> <p>With the location of Toms Gully and other mining activity downstream of Rustlers Roost and Quest 29, there is a potential for successive, incremental, and combined impacts to sensitive receptors in the Mary River catchment.</p>	<ol style="list-style-type: none"> <li>1. Conduct a cumulative impact assessment of potential significant environmental impact to environmental values and beneficial uses of the Mary River system as a result of both controlled and uncontrolled discharges from mine sites (Rustlers Roost, Quest 29 and Toms Gully).</li> <li>2. The assessment should focus on maintaining or improving catchment sediment and water quality consistent with the <a href="#">National Water Quality Management Strategy</a>.</li> </ol>
#22	Section 4.5.1.3	<p>The proposed 31 Megawatt power station requires a gas supply. The Draft EIS states that an independent power provider designs, builds and operates a gas pipeline to transfer gas from an existing supply. In the interim, gas would be trucked in.</p>	<ol style="list-style-type: none"> <li>1. Provide the feasibility and high level scoping studies for construction and commissioning the power station gas supply.</li> </ol>

Item#	Section of Draft EIS	Comment	Information required in the Supplement
		<p>As the pipeline assessment is not included, there is no information provided to determine the risk of the pipeline traversing sensitive/significant habitats and any potential significant impacts.</p>	<ol style="list-style-type: none"> <li>2. Provide indicative design and route options, and for each option, a detailed risk assessment of potential environmental impacts.</li> <li>3. Address outcomes of the risk assessment with the appropriate mitigating actions and controls.</li> </ol> <p>Note: The above information should be provided in consideration of the NT EPA's hierarchies for environmental decision-making and waste management (avoid, mitigate, re-use, recycle etc.), and refer to Part 2 of the EP Act.</p>
#23	General	<p>There are instances where Government authorities (in their submissions) have noted that comments made in their previous submissions on the referral and significant variation still apply.</p> <p>Refer to the submission from the Department of Industry, Tourism and Trade -Mining Operations Division for the comments. The comments should be addressed in the relevant sections of the Supplement.</p>	