

# Statement of Reasons

## PRIMARY GOLD LIMITED – TOMS GULLY UNDERGROUND PROJECT NOTICE OF AN ALTERATION – CLAUSE 14(A)

### PROPOSAL

The Northern Territory Environment Protection Authority (NT EPA) decided on 23 April 2014 that the Toms Gully Underground Project (the Proposal) required assessment under the *Environmental Assessment Act* (EA Act) at the level of an Environmental Impact Statement (EIS). Primary Gold Limited (the Proponent) made the Draft EIS available for public comment between 26 September and 6 November 2015.

The Proposal is to recommission the Toms Gully Underground gold mine, located within Old Mount Bundy Station, approximately 100 km south-east of Darwin on the Arnhem Highway.

On 14 December 2018, the Proponent submitted a notification detailing alterations to the Proposal (in accordance with clause 14A of the EAAP) to the NT EPA. The proposed alterations are summarised below in comparison to the previous proposal:

Previous Proposal	Altered Proposal
Open pit to be repurposed - pit to be dewatered to re-access old underground workings.	Pit will no longer be dewatered and the old underground access will not be reinstated. A new box-cut and underground decline are to be created to access the ore body separate to the pit.
Full dewatering of the pit to be undertaken (4.7 GL) prior to the start of mining, over approximately 6 – 8 months.	Full dewatering of the pit is no longer required. 1.7 GL (total) of the pit water will be displaced from deposited tailings and waste. This will be treated and discharged over 5 years. The remaining 3 GL (total) pit water will remain in the pit and be treated in situ.
One or two Tailings Storage Facilities (TSFs) (see below) to be utilised to store new tailings. Historical and new tailings to permanently remain in those surface TSFs.  Waste rock to be stored permanently in the base of the pit (to be flooded at closure).	All historical and new tailings and waste rock will be deposited in the existing water-filled pit. No tailings will remain in surface storage facilities.
TSF1: Either a) upgraded to Australian National Committee on Large Dams (ANCOLD) Guidelines and reused b) empty structure rehabilitated OR c) encapsulated in situ if material not reprocessed.  TSF2: Either upgraded to (ANCOLD) and reused, or capped in situ.  Contingency TSF (if needed): constructed to ANCOLD Guidelines.	TSF1 and TSF2 will be emptied and repurposed or rehabilitated. Contingency TSF will not be required. If TSF2 can meet ANCOLD guidelines it may be repurposed to a water storage dam during operations.

### CONSULTATION

The notification of the altered Proposal was reviewed in consultation with Northern Territory Government advisory bodies and the responsible Minister as required by clause 14A(3) of the EAAP.

## JUSTIFICATION

The NT EPA considers that the Proposal has been altered from the previous Proposal.

The altered Proposal was assessed against the NT EPA's environmental factors and objectives to re-consider the environmental significance of the altered Proposal.

### 1. Terrestrial environmental quality

Objective: Maintain the quality of land and soils so that the environmental values are protected.

The Proposal site is currently in care and maintenance and existing mine features are contributing to poor environmental conditions - including un-rehabilitated tailings dams, waste rock dumps (WRDs), pit, and acid and metalliferous drainage (AMD).

The altered Proposal will see the placement of all newly generated and historical tailings into the existing pit lake, eliminating the requirement to repurpose or source suitable capping material from the site. This will reduce the immediate and long term potential impacts and risks associated with existing tailings storage structures.

However, there are additional uncertainties regarding the potential for long term generation and release of contaminants from the pit lake. The notification of the altered Proposal states that potentially acid-generating waste rock and tailings in the pit lake will perpetually remain under the water surface, and that this will limit acid generation. The NT EPA notes that further information is required to predict the geochemical and hydrological performance into the long term future and make an assessment of the potential future environmental risks from the pit lake.

Given the existing legacy AMD issues from historic mining and the intention to store waste rock and tailings permanently in the pit lake, the NT EPA considers that the land management and closure principles to support the Proposal are still important. The NT EPA considers that the potential impacts to Terrestrial environmental quality are consistent to those previously identified by the NT EPA, and the environmental significance has not changed as a result of the alteration.

### 2. Inland water environmental quality

Objective: Maintain the quality of groundwater and surface water so that environmental values including ecological health, land uses, and the welfare and amenity of people are protected.

The Mary River, and the values it supports, is the critical aspect of the receiving environment that links all the key environmental factors that may be significantly impacted by the Proposal. Surface waters in the vicinity have relatively good water quality, with the exception of waters immediately downstream of the site that has (at times) poorer water quality due to seepage of historical and ongoing AMD at the Proposal site.

The NT EPA acknowledges that the altered Proposal has the potential for fewer impacts and risks to water quality compared to the previous Proposal due to the following:

- A reduced volume of water is to be treated and discharged over a longer period. This reduces the potential for impact on downstream water quality (due to increased capacity for dilution) in the short term, and reduces uncertainties associated with the scaling up of the proposed water treatment methodology
- Historical tailings will be permanently stored sub-aqueously rather than in surface structures. This reduces the sources of potential AMD contamination on site and therefore lowers the risk of contamination of surface water and groundwater.

- Potential AMD materials (waste rock, tailings, and pit walls) will all be below water, reducing oxidation and AMD generation and subsequent potential contamination of surface water and groundwater.

The NT EPA identified that risks associated with the proposed permanent subaqueous storage of waste in the pit have not yet been quantified. Risks include the long-term potential for generation of contaminants resulting in decreased water quality over time and the potential release of contaminants to the environment if pit water overflows into the surrounding surface water.

As discussed above, the Proponent intends to reduce the AMD profile across the Proposal site by improvements to water treatment and tailings management. However, given the Proposal will still require dewatering and treatment of 1.7 GL of poor quality water and ongoing treatment of water from existing mine features with AMD, the potential impacts to Inland water environmental quality from the altered Proposal are consistent with the previous Proposal. The NT EPA considers that the environmental significance has not changed in relation to this factor.

### 3. Aquatic ecosystems

Objective: Protect aquatic ecosystems to maintain the biological diversity of flora and fauna and the ecological functions they perform.

The Proposal is located approximately 3 km from the Mary River National Park and less than 100 m from the Mary River coastal floodplain site of conservation significance (measured from the closest distance between the MLN1058 and park/site boundaries). The extensive wetland and floodplain systems associated with these areas are rich in biodiversity and are significant nationally and internationally.<sup>1,2</sup> The Mary River is the most significant and reliable breeding habitat for magpie geese in the Northern Territory, and is an important breeding and feeding grounds for other important water, shore and sea-birds.<sup>2</sup>

If contaminated water is released to surface waters it could impact on downstream aquatic ecosystems in Mount Bundy Creek and Mary River National Park. The altered Proposal will treat water using the BioAqua treatment, as previously proposed. Trials are yet to be undertaken with this process to refine it to meet the scale and water quality targets of the Proposal. There remains uncertainty regarding this process and the potential for the release of contaminants from the pit lake in the long term (as discussed in Inland water environmental quality, above).

Therefore, there is still potential for the Proposal to significantly impact the downstream Aquatic ecosystems and the NT EPA considers that the environmental significance of the Proposal has not changed in relation to this factor.

### 4. Hydrological processes

Objective: Maintain the hydrological regimes of groundwater and surface water so that environmental values are protected.

The NT EPA acknowledges that the altered Proposal has the potential to reduce some of the impacts and risks to hydrological processes. As discussed in Inland water environmental quality (section 2 above), the altered Proposal requires that a reduced quantity of water be treated and discharged compared to the previous Proposal. Additionally, under the altered Proposal, a

<sup>1</sup> Department of Natural Resources, Environment, the Arts and Sport, 2011. *Sites of Conservation Significance - Mary River coastal floodplain*. Northern Territory Government. Available at:

[http://www.territorystories.nt.gov.au/bitstream/handle/10070/254276/13\\_mary.pdf](http://www.territorystories.nt.gov.au/bitstream/handle/10070/254276/13_mary.pdf)

<sup>2</sup> Parks and Wildlife Commission of the Northern Territory, 2015. *Mary River National Park Joint Management Plan – March 2015*. Available at: [https://dnc.nt.gov.au/\\_data/assets/pdf\\_file/0006/260493/Mary-River-final-JMP\\_March2015\\_sml.pdf](https://dnc.nt.gov.au/_data/assets/pdf_file/0006/260493/Mary-River-final-JMP_March2015_sml.pdf)

reduction in the number of above ground TSFs, which reduces the hydraulic water head, will lower potential seepage that could create groundwater mounding at various locations.

While the potential for some impacts and risks to Hydrological processes may be reduced, the NT EPA recognises that the altered Proposal still requires the removal of groundwater and the discharge of surface water, and that proposed infrastructure will alter surface water and groundwater flows and/or availability for other users including the environment. The NT EPA considers that the environmental significance has not changed with respect to Hydrological processes.

## 5. Social, economic and cultural surroundings

Objective: Protect the rich social, economic, cultural and heritage values of the Northern Territory.

The Mary River National Park is visited by local, interstate and international visitors for recreational fishing and wildlife watching. Local fishing tour operators also utilise the wetland areas in and adjacent to the Park. There is potential for the Proposal to impact the biological, recreational and tourism values of Mary River National Park.

As discussed in Aquatic ecosystems (section 3 above), the NT EPA considers there is potential for significant impacts and risks to downstream aquatic ecosystems from the altered Proposal. The health of the aquatic ecosystems of the Mary River National Park is intrinsically linked to production of fish species and fish stock that support the social and economic values of the Park. The NT EPA considers that the environmental significance of the Proposal has not changed in relation to this factor.

## CONCLUSION

The NT EPA considers that the altered Proposal has the potential to significantly impact the environment and some of those impacts cannot be adequately characterised without further information. The altered Proposal should continue to be assessed at the level of an EIS to allow the NT EPA to decide whether its environmental objectives for Terrestrial Environmental quality, Inland water environmental quality, Aquatic ecosystems, Hydrological processes, and Social, economic and cultural surroundings are likely to be met.

## DECISION

The Proposal has been altered in such a manner that its environmental significance has not changed and continuing assessment at the level of an EIS is still necessary with respect to the proposed action.



MS JANICE VAN REYK  
DELEGATE MEMBER

NORTHERN TERRITORY ENVIRONMENT PROTECTION AUTHORITY

8 FEBRUARY 2019

**Attachment A: Northern Territory Government Agencies consulted on the Clause 14(A) Alteration**

<b>Department</b>	<b>Division</b>
Department of Environment and Natural Resources	Flora and Fauna Water Resources Weeds Environment Bushfires NT Rangelands
Department of Infrastructure, Planning and Logistics	Lands Planning Infrastructure Transport
Department of Primary Industry and Resources	Fisheries Mining Compliance Petroleum Primary Industry
Department of Tourism and Culture	Heritage Tourism NT Arts and Museums Parks and Wildlife
NT Police, Fire and Emergency Services	Business Improvement and Planning
Department of Health	Environmental Health Medical Entomology
Department of Trade, Business and Innovation	Economics and Policy Strategic Policy and Research
Department of Housing and Community Development	Maintenance Planning Housing supply
Power and Water Corporation	
Aboriginal Areas Protection Authority	Technical
Department of the Attorney-General and Justice	Commercial Division NT Worksafe
Land Development Corporation	
Department of the Chief Minister	Economic and Environmental Policy