



NORTHERN STAR
R E S O U R C E S L T D

HEMI GOLD PROJECT PRELIMINARY DOCUMENTATION

Response to comments

Document	Reviewed	Approved
Site Name: Hemi Gold Project	D Ginger	K Tedesco

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1 Hemi Gold Project

Northern Star (Pilbara) Pty Ltd (Northern Star) (a wholly owned subsidiary of Northern Star Resources Ltd) is proposing to develop the Hemi Gold Project (Hemi, or the Proposed Action), located approximately 85 km south of Port Hedland in the Pilbara Region of Western Australia (WA). Hemi is a greenfield gold mining project involving the excavation of open pits, mine dewatering, surplus water management, and associated infrastructure. Northern Star Resources Ltd acquired Hemi through the purchase of De Grey Mining Ltd on 5 May 2025.

The Proposed Action was referred to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 15 May 2023. On 15 November 2023, De Grey received formal notification from a delegate of the Minister for the Environment and Water that the proposed action is a Controlled Action, to be assessed by Preliminary Documentation for the following controlling provisions:

- Listed Threatened species and communities (sections 18 and 18A of the EPBC Act); and
- Listed migratory species (sections 20 and 20A of the EPBC Act).

1.1 The project

The Project involves the excavation of open pits, mine dewatering, surplus water management including reinjection and controlled discharge. Associated supporting infrastructure includes onsite processing facilities, run of mine pad and ore stockpiles, an integrated waste landform (IWL) tailings storage facility (TSF), waste rock landforms (WRLs), low-grade stockpiles, explosive magazines and compounds, offices, workshops, laydowns, airstrip, workforce accommodation, surface water infrastructure, sealed and unsealed access and haulage roads, power and pipeline corridors, borrow pits, wastewater treatment plants (WWTP), landfills and other ancillary infrastructure.

The Project will commence with approximately a two-year period of dewatering, earthworks (including pre stripping), and construction activities, followed by operational pre-strip mining and processing. Dewatering activities will be ongoing for the life of mine to allow for safe operations.

The total indicative disturbance footprint for the Proposed Action is anticipated to be up to 5,830 ha within a Development Envelope of 22,194 ha.

1.2 Public comment

The Preliminary Documentation was prepared in accordance with the requirements of the 'Request for Further Information for Preliminary Documentation' provided to De Grey on 18 January 2024. This document was published for public comment on 11 March 2026 until 1 April 2026 at the following locations:

- Online at <https://www.nsrld.com/about-us/corporate-governance/>
- Available in hard copy from:
 - The Western Australian State Library, 25 Francis Street, Perth, 6000 and
 - South Hedland Library, Leake St, South Hedland WA 6722.

1.3 Public comment received

One comment was received from DCCEEW. The topics were:

- Methodology of the Western Wildlife Fauna Survey
- Consultation regarding the Yule River Water Reserve
- Possible treatments to reduce naturally occurring concentrations of Uranium, Vanadium and Arsenic in groundwater discharged to the Turner River

Table 1: Summary of comments and Responses

Date	Topic	Summary of comment	Response	Update to PD
31/03/2026	Fauna Survey - Northern Quoll	<p>The Detailed vertebrate fauna survey 2021-2024 (Western wildlife, 2024) Appendix 23 outlines survey methods and provides records of protected matters, could you provide further detail on:</p> <p>The Northern Quoll was recorded on the Turner River. The species requires rocky outcrops for breeding, and there is a ridge of rocky outcrop located just outside the development envelope (Stony hills / Rocky outcrop in which MG Site 01 was located). Can you provide further detail on results of trapping and camera trapping at MG Site 01? Did all cameras record successfully, and were the pitfall traps able to be successfully located in the rocky substrate?</p>	<p>Trapping location MG Site 01 should not be considered as a ridge or rocky outcrop, but as a Stony Hill, so not likely to provide quoll shelter habitat. Western Wildlife (2024) (p. 14) describes this location as:</p> <p>Stony hills. Occasional tall Acacia shrubs over open spinifex hummock grassland on stony slopes. Dense Acacia shrubland in minor drainage. Plate 2</p> <p>Accordingly, this habitat and the location at MG Site 01 is not likely to constitute suitable Northern Quoll shelter or foraging/dispersal habitat (Western Wildlife, 2024, Figure 12).</p> <p>Camera trap locations and start/stop dates are given in Western Wildlife (2024), Appendix 2. No indications of missing or faulty recordings were noted in the report. Camera traps were not used at MG Site 01 but were used at nearby locations primarily deployed to target rocky or riverine habitats that may support the Northern Quoll (<i>Dasyurus hallucatus</i>) and sandplains that may support the spectacled Hare wallaby (<i>Lagorchestes conspicillatus</i>), Bilby (<i>Macrotis lagotis</i>) or Brush-tailed Mulgara (<i>Dasycercus blythi</i>). Camera traps were also set at two locations in Stony hills habitat types approximately 1km south and 1km southwest of MG Site 01 (Western Wildlife, 2024, Figure 9.5). There were multiple records of Northern Quoll at both the Yule and Turner Rivers, but they were not recorded at any other locations in this survey (Figure 11 of the Western Wildlife Fauna Survey (2024).</p> <p>Pitfall traps were successfully located in the area. Western Wildlife (2024) page 13 indicates that 420 pitfall trap nights were completed overall, with 10 pitfall traps in each of 6 locations (including MG Site 1), for 7 nights.</p>	Not required

Date	Topic	Summary of comment	Response	Update to PD
	Fauna Survey - Bilby	The diurnal survey included 32 x 2 ha quadrats which were searched for signs of the Bilby in April 2024, which returned secondary signs (old burrows). Were any nocturnal searches carried out to target the Greater Bilby?	Nocturnal searches were carried out to capture all activity identified (including Bilby). It should be noted that the majority of the nocturnal transects (Western Wildlife, 2024, Figure 7) were located within identified Bilby habitat, and traversed near a number of noted Bilby location records (Western Wildlife, 2024, Figure 14).	Not required
	Fauna survey - Night Parrot	The survey outlines Night Parrots were not detected and attributes this to absence of long unburnt <i>Triodia</i> , however examination of aerial photography, fire age mapping (Figure 3) shows a portion of <i>Spinifex</i> sandplain within the development envelope that has not been burned since 2014 (>10 yrs unburnt) (a mark-up can be provided, if requested).	<p>The survey points out that very little potential night parrot habitat was identified within the survey area. Additionally, this potential habitat was unlikely to support Night Parrots as the <i>Triodia</i> spinifex patches showed evidence of more frequent or recent burn history than is required for the presence of Night Parrots.</p> <p>Despite this lack of potential habitat, an acoustic survey was completed within potentially suitable and surrounding locations. The lack of detection of Night Parrots is a result of the analysis of acoustic surveys and other field surveys, supported by habitat evaluation including consideration of length of time since previous burn.</p>	Not required
	Fauna survey - Night Parrot	The report refers to the Conservation Advice for Night Parrot, dated 2016. New conservation advice was published in 2025. Does the assessment of impacts change, including in light of the new definitions of Critical Habitat presented in the 2025 Conservation Advice?	<p>The fauna survey (Western Wildlife, 2024) was published in July 2024 before the 2025 Conservation Advice came into effect. The 2025 guidance:</p> <ul style="list-style-type: none"> • Adopts a landscape-scale, systems-based definition of habitat critical to survival. • Explicitly recognises that multiple, spatially separated habitat components must function together. • Defines critical habitat by ecological function, not just presence records. • Reflects advances in knowledge since rediscovery (movement ecology, foraging distances, nomadism). • Does not formally list Critical Habitat under s207A of the EPBC Act. <p>The Western Wildlife survey did not confine searches to roosting habitat and was undertaken over a large area over multiple years. Even 10 years unburnt is likely to be too young for spinifex. In addition, the 2025 guidance states "at sites where night parrots</p>	Not required

Date	Topic	Summary of comment	Response	Update to PD
			<p>have persisted, suitable patches of <i>Triodia</i> are widespread at the landscape scale” so just one patch is unlikely to be enough. From the conservation advice: “In both situations, large, ring-forming bull spinifex over 20 years old is the primary habitat for roost sites”. While Night Parrot was not detected it is acknowledged that the area is possible habitat. Mitigation measures to minimise impacts during clearing have been set for Night Parrot as a precautionary measure.</p> <p>The assessment of impact does not change.</p>	
	Yule Water Reserve	The Conceptual and numerical groundwater modelling (Geowater, 2023b) Appendix 10 notes that the Watercorp Yule River Water Reserve public drinking water borefield is downstream, have you included Watercorp in your community engagement (the agency is not included in Stakeholder Engagement Appendix 4), and what have their comments been to date?	<p>Yes, Water Corporation was engaged twice regarding the Yule Water Reserve as outlined in Attachment A:</p> <ol style="list-style-type: none"> 1. Row 464 - 12/08/2024 2. Row 474 - 30/09/2024 <p>The Description of Engagement specifically notes “Project overview and discussion on impacts to the Yule Water Reserve” on both occasions. No stakeholder issues were raised. No submissions or appeals from Water Corporation were received during the EPA or DCCEEW processes.</p> <p>Additionally, no comments were received from Water Corporation during the public comment period.</p>	Not required
	Yule Water Reserve	Are DWER and Kariyarra Aboriginal Corporation (KAC) aware of the (low but non-zero) potential impact from reinjection to Yule River Water Reserve public drinking water borefield (refer Reinjection Borefield North particle tracking in the Conceptual and numerical groundwater modelling, Geowater 2023b, Appendix 10 and Particle tracking final, De Grey Mining Ltd 2025, Appendix 13) and have you sought comment from the State and the First Nation in relation to this matter? This is an element of the decision criteria under	<p>Yes, both DWER and KAC have been extensively consulted with regard to water abstraction, reinjection and discharge from the Hemi Gold Project, which includes consideration of the Yule River Water Reserve.</p> <p>Northern Star notes that the groundwater model predicts that reinjected water will not extend into the Yule or Yule River Water Reserve. Specifically, the project has been designed to meet this objective. Clean water with low levels of naturally occurring As will be reinjected in the Northern Injection Area. Once the mill is commissioned the need for discharge is reduced by 80% of the volume as the water will be used in the processing plant.</p> <p>DWER consultation in this matter is noted in the Stakeholder Register and includes:</p>	Not required

Date	Topic	Summary of comment	Response	Update to PD
		<p>s 136(1)(b) of the EPBC Act as social and economic impacts.</p>	<ul style="list-style-type: none"> • Assessment of the project and ongoing consultation with the DWER EPA Services. The WA EPA report includes the response from the State/DWER EPA Services and the draft conditions will be further updated in response to the appeals process (not yet completed). • Assessment by DWER water branch for permission to drill water bores and to carry out the current Managed Aquifer ReInjection Trial. • Discussion with DWER industrial branch regarding permits for the processing plant, Tailings Storage and dewatering and discharge. <p>KAC consultation in this matter is noted in the Stakeholder Register and includes:</p> <ul style="list-style-type: none"> • September 2021 Traditional Owners (TOs) met during the Hemi heritage survey. The TOs asked us to avoid the sand dune to the west of the project, to identify it in the heritage report and to avoid allowing staff to swim or visit the Yule River. • June 2022 an independent facilitator captured key points from KAC <ul style="list-style-type: none"> ○ Environmental: Water (pit dewatering/Processing water, Yule/Turner, tailings, chemicals) ○ Social: Access to land e.g., hunting, fishing. • Northern Star’s records of consultation do record that the KAC has raised concerns about the proposed discharge of water into the Turner and Yule Rivers and aquifer reinjection, and outlines responses to those concerns. • March/April 2025 the KAC provided submissions during the EPA public consultation regarding the potential impacts to groundwater, and Northern star have responded to their queries in documentation located here: Hemi Gold Project EPA Western Australia. • Since the purchase of De Grey by Northern Star in May 2026, consultation with KAC has included discussions on: <ul style="list-style-type: none"> ▪ the acceptability of the activity (creek/Turner River discharge); 	

Date	Topic	Summary of comment	Response	Update to PD
			<ul style="list-style-type: none"> ▪ any discussions on the designs, including design changes for the discharge point/s (noting the design was changed as a result of our engagement); and ▪ any other relevant information regarding the management of surplus water. • In March 2026 a copy of the Preliminary Documentation was hand-delivered to the KAC at the start of the consultation period, but no comments were received. <p>During the WA EPA appeals process in 2025, Northern Star responded to the KAC concerns about water discharge and continues to consult with the KAC about those concerns. Northern Star notes that it is not proposing to discharge water into the Yule River in response to KAC concerns.</p> <p>Northern Star remains committed to appropriate consultation and communication with stakeholders throughout the development of the Hemi Gold Project and into operations.</p>	
	Groundwater Treatment Options	The Tier 3 ERA Ecotox addendum, MBS 2024, Appendix 16 outlines concentrations in the Turner River (post-discharge) would exceed both interim site-specific and regional trigger values for U, V and As. Are there alternative mitigation (treatment) methods available to remove each or any of these elements from surplus water?	<p>Mitigation methods to remove U, V and As from Water to be discharged or reinjected include these alternatives:</p> <ul style="list-style-type: none"> • Soil-based holding ponds and/or iron oxide treatments which effectively reduce vanadium and arsenic concentrations to below trigger levels (uranium remains largely unaffected but is not bioavailable). • Utilising ion exchange as a backup option to remove uranium from a portion of the discharge water. Based on successful ecotoxicity results, this option is not needed as the soil pond-treated water will be suitable for discharge. <p>The current proposal is to utilise soil-based holding ponds as these have been shown during trials to be most effective at removing V and As with most removed within the first two hours of pond residence (Figure 1, taken from MBS 2024a). No other additional and commercially viable options have been identified at this time.</p>	Not required

Date	Topic	Summary of comment	Response	Update to PD
			<p>Post discharge concentrations of arsenic, uranium and vanadium are likely to be heavily influenced by rainfall within the catchment as outlined in Appendix 25 Table 4 (Table 2).</p> <p>Results show dilution and final concentrations are below radiation risk levels. The data also indicates that under the worst case scenario of no dilution that there is no risk of radiation toxicity. Concentrations post-discharge are well below relevant default environmental criteria (i.e. ANZECC Livestock Drinking Water Guidelines) and no impact to MNES from consumption of river water is expected App 15 Table 36 (Table 3).</p>	

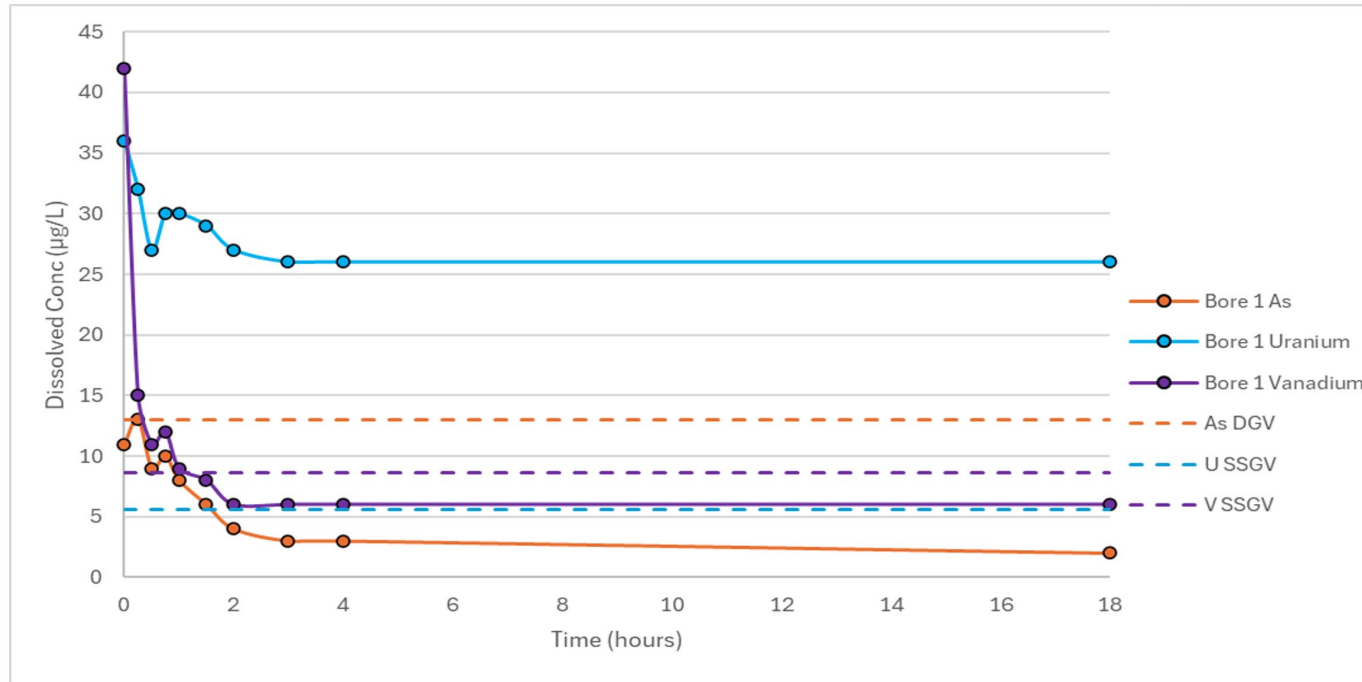


Figure 1: Lab bench tests using site water and soil to demonstrate change in V, As and U concentrations

Table 2: Predicted Turner River Composition Post-discharge

Analyte		Turner River Flow Scenarios (per annum)					ANZECC (2000) Livestock Drinking Water
		0 GL	6.2 GL	28 GL	137 GL	No Discharge	
		Dry (Minimum Recorded, no Dilution)	Median	Average	Maximum Recorded		
As	µg/L	11.2	8.7	6.4	5.2	3.5	25
U		29.6	20.2	11.7	7.0	3.9	200
V		29.0	19.4	10.7	5.8	3.5	100

Table 3: Uranium Toxicity terrestrial, aquatic and marine species

Organism	Occupancy Factor			Scenario	Scenario 1: No Flow	Background: Turner River
	Water: Surface	Water	Sediment: Surface	Screening Value (µGy/h)	Total Dose (µGy/h)	Total Dose (µGy/h)
Amphibian		0.5	0.5	40	13.3	2.18
Bird	0.5			40	31.5	5.28
Crustacean (1)			1	400	6.96	1.1
Crustacean (2)		1		400	3.45	0.53
Reptile		0.5		40	14.2	2.38
Pelagic Fish		1		400	6.49	1.08
Vascular Plant			1	400	11.7	1.83
Zooplankton		1		400	271	45.4

- Small marsupials are similar to reptiles

2 References

ANZECC. 2000 National Water Quality Management Strategy, Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand.

DCCEEW. 2025, Conservation Advice for *Pezoporus occidentalis* (night parrot), September 2025

DCCEEW. 2016, Conservation Advice *Pezoporus occidentalis* (night parrot), 2016

MBS. 2024 Ecological Risk Assessment - EPBC MNES Memorandum, Document prepared for De Grey Mining, July 2024.

MBS. 2024a Hemi Gold Project Turner River Dewater Discharge Tier 2 Environmental Risk Assessment, prepared for De Grey Mining, August 2024.

Western Wildlife. 2021-2024, Detailed Vertebrate Fauna Survey, Document prepared for De Grey Mining, 2024.

CONFIDENTIAL ATTACHMENT A - UPDATED STAKEHOLDER REGISTERS