NORTHERN MINERALS

QUARTERLY ACTIVITIES REPORT FOR THE PERIOD ENDING 30 September 2023

Northern Minerals Limited (**ASX: NTU**) ("**Northern Minerals**" or the "**Company**"), a company advancing towards production at its 100% of the Browns Range Heavy Rare Earths (HRE) Project in northern Western Australia, is pleased to provide an overview of the Company's activities for the period ending 30 September 2023 ("**Quarter**", "**Reporting Period**") to accompany the Appendix 5B.

HIGHLIGHTS

- Continued progress on Definitive Feasibility Study **(DFS)**:
  - Ongoing cave flow modelling to inform underground mine design and schedule.
  - Submissions received from three experienced mining contractors for both the open pit request for tender and underground early contractor involvement processes.
  - Received initial tenders from existing market participants to provide an outsourced power solution based on hybrid diesel/solar, hybrid diesel/solar/wind options.
  - Progressed hydrogeological assessment to develop the water management requirements for the mining operation.
  - Finalised several Non-Process Infrastructure **(NPI)** packages for inclusion in the DFS
  - Development of Project Execution Plan
- Successfully raised $25M (before costs) via placement to institutional and sophisticated investors.
- Progressed Project Funding program including to undertake a Request for Tender Process to appoint an Independent Technical Expert and Independent Market Expert/s, to be used in the due diligence processes for potential lenders.
- Ethnographic surveys for the project development footprint were finalised and archaeological surveys of the expanded footprint commenced.
- Progressed planning, logistics, surveys and approvals for proposed Resource Definition drilling program (commencing November 2023)
- Completed an ~7,000-line kilometre airborne geophysical survey over part of the Browns Range Project
- Appointment of Angela Glover to the role of Chief Operations Officer - Over 20 years' experience in resources and including recently with BCI Minerals. Qualified Metallurgist experienced in heritage and native title management, social and external affairs management.
- Appointment of Dale Richards to Head of Geology - Over 25 years international experience in the mining industry managing exploration and growth, operational geology and near mine resource operational readiness including extensive experience in underground and open pit mining operations.
- Presented and attended various Critical Minerals conferences including Diggers & Dealers in Kalgoorlie and JMM Investor Briefings in Sydney

For personal use only

Definitive Feasibility Study

The Definitive Feasibility Study for the proposed mining of the Wolverine deposit and associated beneficiation process plant at Browns Range continued during the quarter with several key work packages nearing completion or being completed.

Mining

Advancing all mining aspects of the Project was a key focus during the September 2023 quarter. Specific activities included:

- completion of the structural geology model
- advancing the cave flow modelling, mine designs and schedules and costing for both the open pit and underground operations.
- mining contractor engagement (for Capex and Opex)
- water management requirements

The proposed mining operation at Wolverine as shown in Figure 1 will consist of open pit mining, planned as a two-stage cutback to the existing trial pit, followed by underground mining by longhole sub-level retreat (**SLR**). Separate contractor workforces will be engaged to undertake open pit and underground mining, with the transition to underground production upon completion of pit excavation.

During the quarter, NTU, Entech and Beck Engineering formulated a series of cave flow modelling scenarios for cave propagation and subsidence simulations to provide the data required to inform the final mine schedule for the DFS underground SLR mine. The scenarios include two "Production Target" simulations and an "Ore Reserve" simulation that would need to be run sequentially, with the first Production Target simulation completed during the quarter.

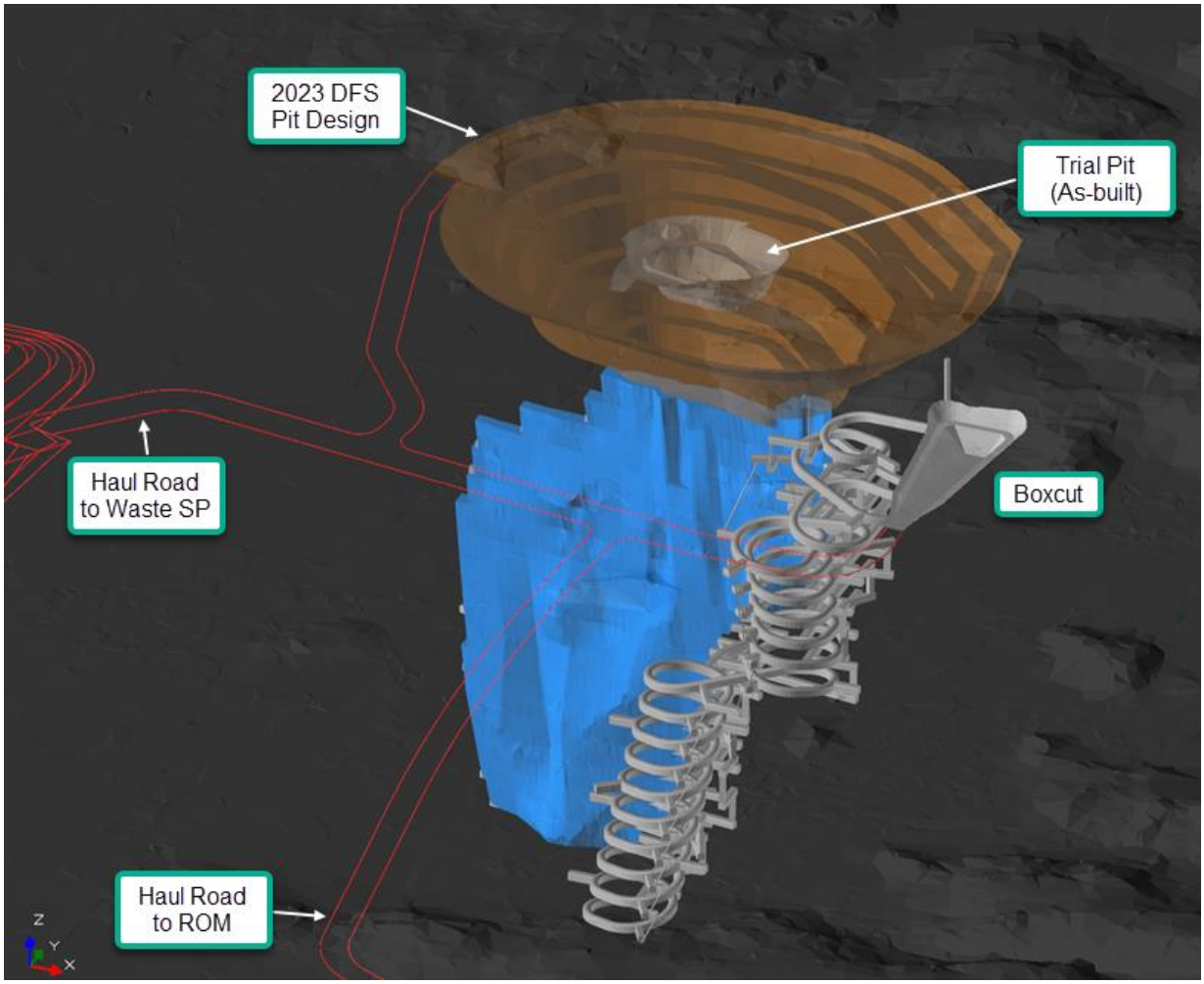
Progress continued on the hydrology and hydrogeological assessment to develop the water management requirements for the mining operation, and the development of a pumping strategy to accommodate expected groundwater inflows commenced. A review of mining contractor fleet estimates in conjunction with latest underground design was done to develop an updated ventilation model to inform final DFS primary ventilation requirements. Work also commenced on pricing for primary fan and pumping installations and related power estimates.

Other tasks progressed during the reporting period included the optimising of the boxcut design and location, refinement and detailing of the mining cost model and ongoing development of mine planning and geotechnical content for use in the DFS report.

The Request for Tender **(RFQ)** (open pit mining services) and Early Contractor Involvement **(ECI)** (underground mining services) processes were ongoing during the quarter. Submissions were received from three suitably qualified and experienced contractors for both these programs. Evaluations of the submissions were well advanced during the quarter with recommendations expected in the next quarter.

For personal use only

Figure 1: Schematic of Proposed Wolverine Mine Design



Processing

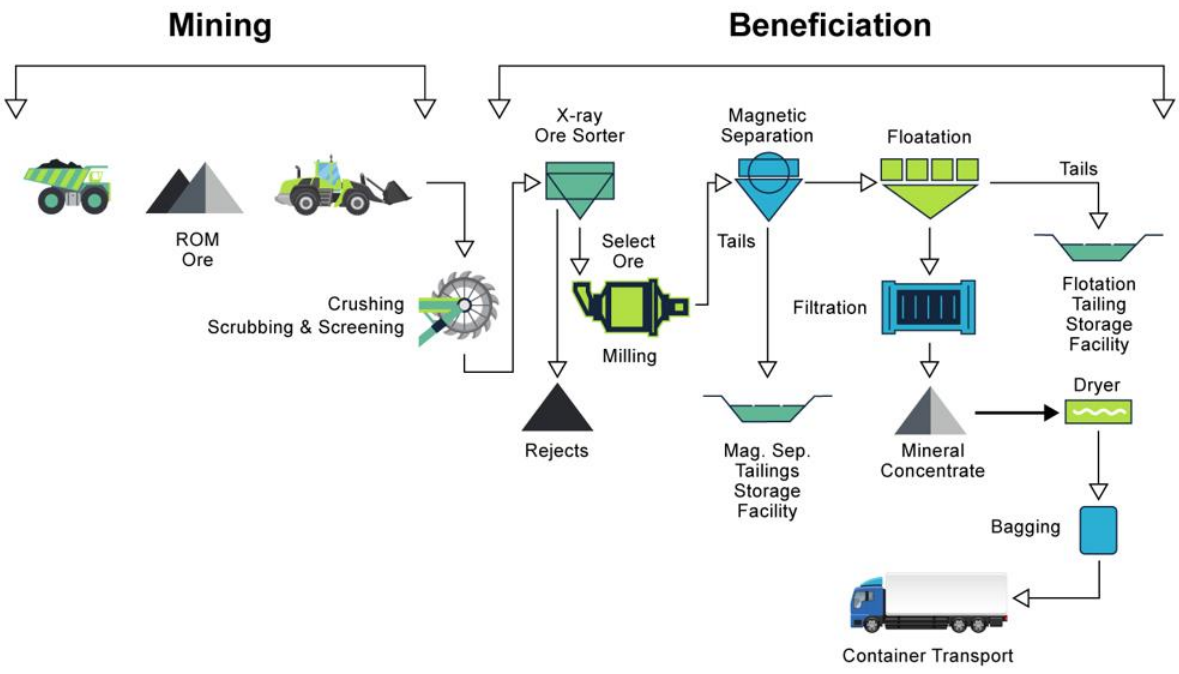
The ECI with GR Engineering Services Ltd (**GRES**) and MACA Interquip (**MIQ**) continued to progress during the quarter including clarifying technical, commercial, and legal aspects of the tenders received from both GRES and MIQ for the lumpsum Engineering Procurement and Construction (**EPC**) for the process plant (received Q2 2023). Completion of this process including announcement of preferred vendor expected in Q4 2023.

The ECI process has afforded NTU the opportunity to transfer technical and operating knowledge gained from operating the large scale 10 tph pilot plant at Browns Range from 2018 to 2022, and to work with both GRES and MIQ to ensure their designs and proposals meet NML's requirements.

Figure 2 below provides a summary of the process flowsheet includes crushing, screening and scrubbing, ore sorting, milling, magnetic separation, flotation, filtration, drying and bagging, and will produce a high-grade xenotime concentrate containing approximately 25% TREO which is contracted to be sold to Iluka Resources Limited for processing at their Eneabba rare earth refinery.

For personal use only

Figure 2: Process Flowsheet Schematic



Non-Process Infrastructure (NPI)

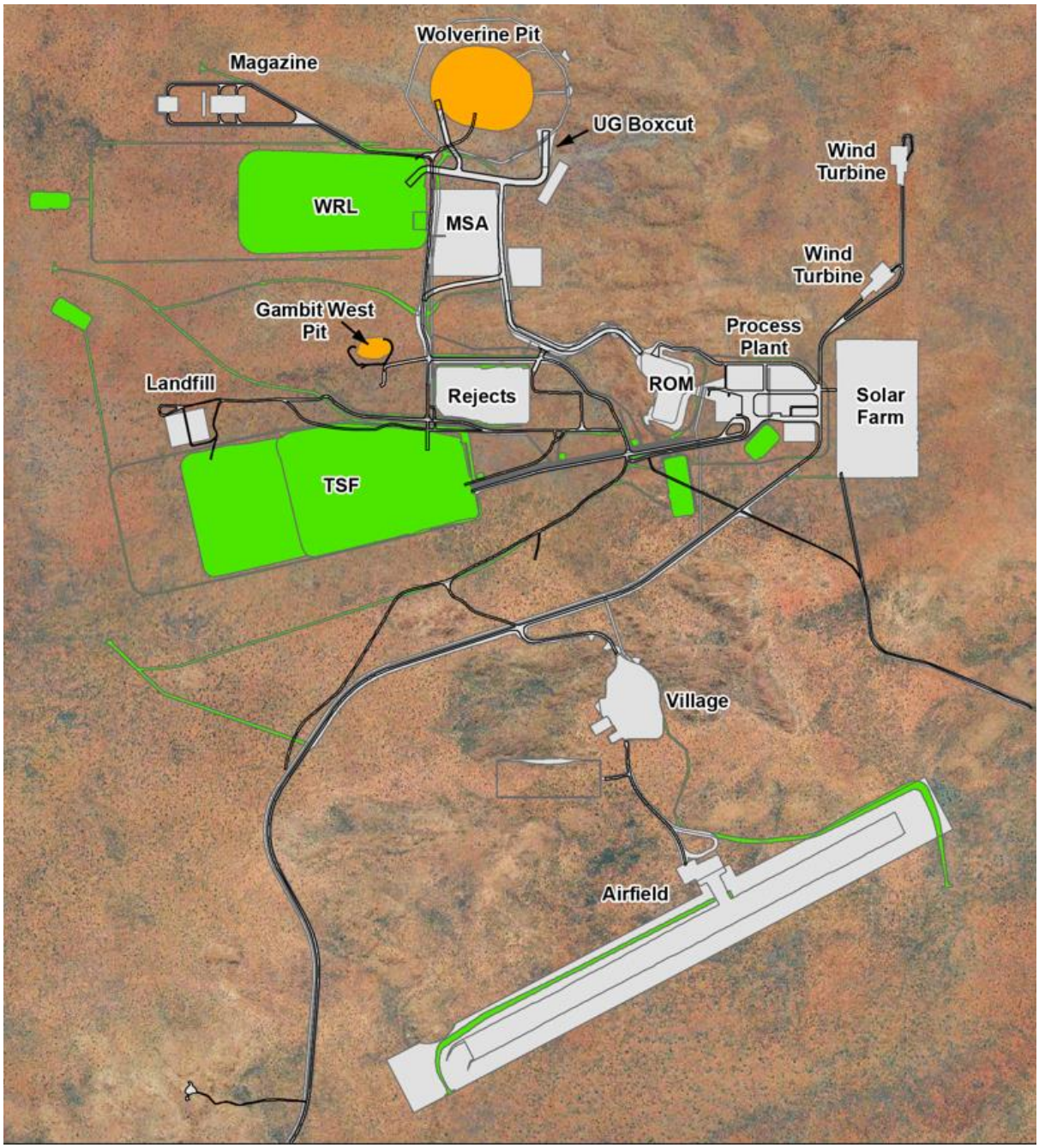
The NPI engineering and design for the DFS was largely completed during the quarter and the associated procurement activities to inform the DFS capital and operating costs was well progressed with most tenders returned and in adjudication phase.

The key packages are described below and Figure 3 provides the proposed infrastructure layout for the project site.

- Bulk earthworks package for the construction of the tailing's storage facility, expansion of the airfield as well as roads and site wide earthworks incorporating surface water management.
- Supply and installation package for the water supply infrastructure.
- Supply package of modular buildings for the village expansion and the other NPI buildings and the supply of potable and wastewater treatment facilities.
- Construction package for village expansion and associated facilities together with the other NPI buildings
- Power purchase agreement contract for the provision of site power.
- The village and flight services contracts, the diesel supply contract, and pricing for reagents and consumables.

For personal use only

Figure 3: Browns Range HRE Project – Infrastructure Layout



Project Execution

The development of the Project Execution Plan (**PEP**) was progressed during the quarter. The PEP provides for project execution to be managed by the Northern Minerals Owners Team expanded with specialist delivery skills as required to form an Integrated Owners Team (**IOT**) to execute the implementation of the project. A steering committee of senior stakeholders from NTU and specialist project delivery expertise will provide project governance and guidance on strategy for delivery of the project.

For personal use only

The development of a feasibility level Operational Readiness (**OR**) plan to ensure optimal capability and systems to operate from start-up was commenced during the quarter. A specialist OR consultant, in consultation with NTU team, developed the DFS OR plan and estimate for the necessary OR activities to achieve maximum value from start-up and optimal ramp-up duration.

Schedule

Whilst most work programs associated with the DFS are on target, during the September quarter completion of the mine design, cave flow modelling and scheduling has taken longer than initially planned. Due to this delay, it is likely that the DFS (originally contemplated to be completed in Q4 2023) will be completed at the end of January 2024.

Front end engineering design (FEED) and finalisation of key construction contracts is planned post completion of the DFS. Subject to FID end Q2 2024, construction is expected to commence in Q4 2024. Construction activities are planned to initially focus on expanding the existing village, airstrip and water supply, with construction of the process plant targeted for mid-2025. Mining activities are scheduled to start in Q2 2026, with commissioning of the process plant commencing in Q4 2026.

Expenditure on feasibility study activities during the Quarter was approximately $1.9 million with an additional $0.9 million in site costs.

Resource Definition Drilling Campaign Planning

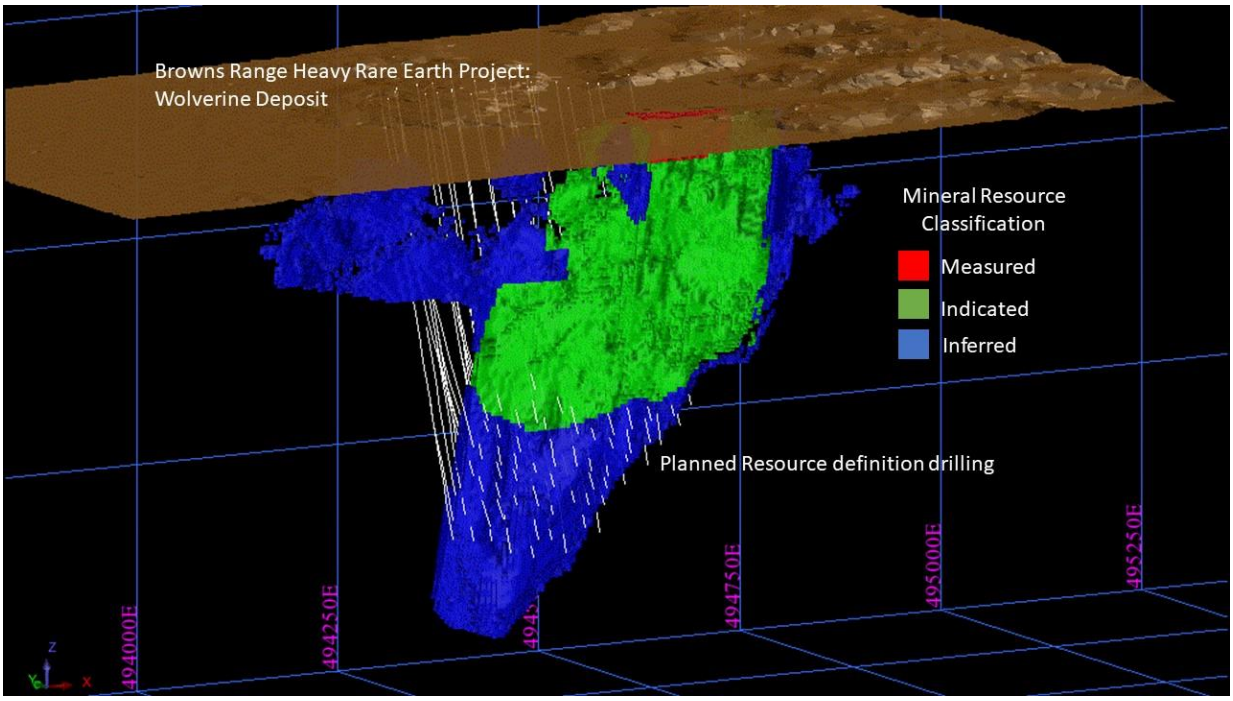
During the quarter, planning for a Mineral Resource definition drilling program at the Wolverine deposit commenced. The primary objective of the program is to increase the geological confidence from the Inferred to Indicated classification between the 150 mRL and 0 mRL, (Between approximately 305m to 495m below surface). Additional technical data including hydrological, geotechnical and metallurgical data will be acquired contemporaneously during the drilling program to support the existing specialist studies in these disciplines.

This planned directional drilling program consists of 24 surface drill collar positions, with a total of 66 diamond drill intersections for a total of 18,131m, targeted on a 25 m *25 m grid. Drilling is planned to commence during Q4 2023, with completion of the drilling component of this program during Q2 2024.

A 50% grant of the total cost has been secured through the Critical Minerals Development Program (**CMDP**) to support the drilling program.

For personal use only

Figure 4: Wolverine deposit Resource Definition drill planning

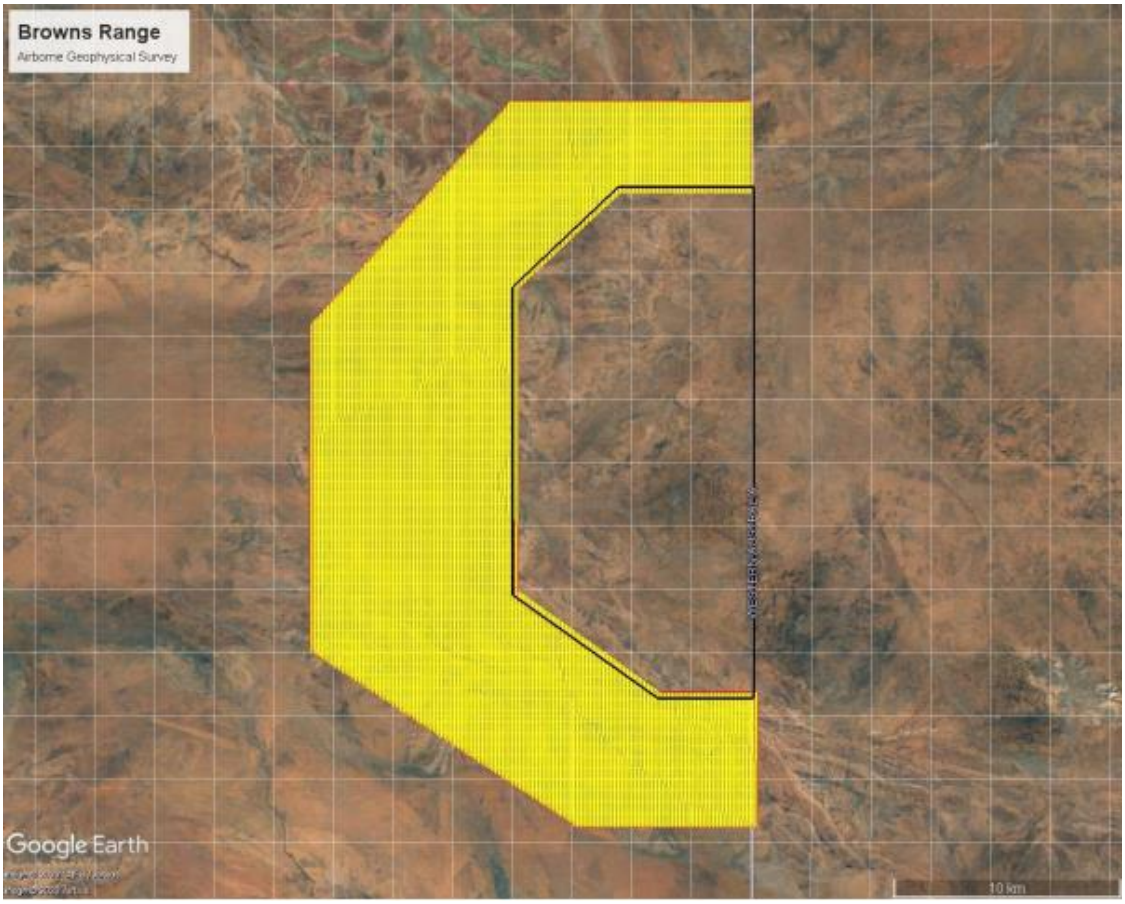


EXPLORATION

An airborne geophysical survey was flown over Browns Range during the quarter, with the program acquiring 7,243-line kilometres of magnetic and radiometric data at 50m line spacing. The data acquired is contiguous to the Mining lease (M80/627), which hosts the Browns Range Heavy Rare Earths Project. Once processed, this data will provide improved resolution geophysical imagery for near mine structural observation and interpretation of the basement geology for exploration targeting purposes, and within the structural setting of the Wolverine deposit.

For personal use only

Figure 5: Browns Range Airborne Geophysical Survey – 7,243-line km at 50m line spacing



Expenditure on exploration and evaluation activities during the quarter was approximately $1.0 million.

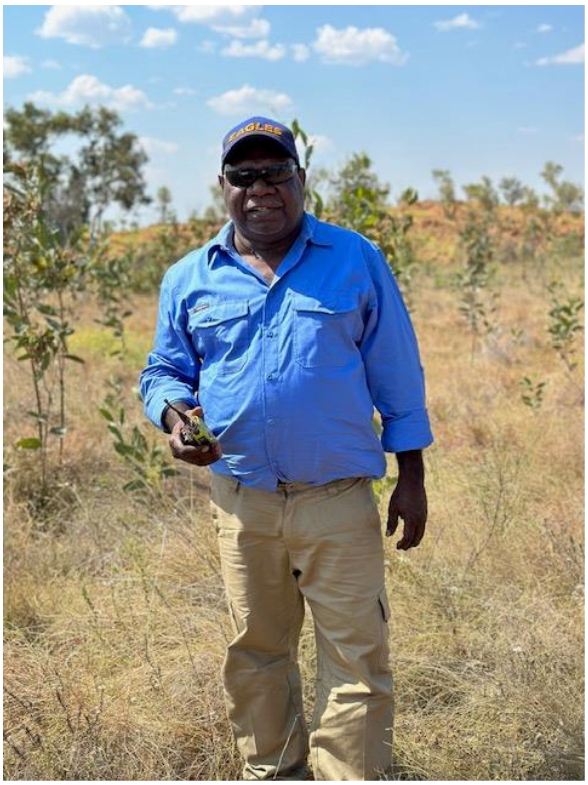
ENVIRONMENTAL, SOCIAL AND GOVERNANCE

Extensive baseline surveys were completed during the quarter. Ethnographic surveys for the development footprint were finalised and archaeological surveys of the expanded footprint commenced.

For personal use only

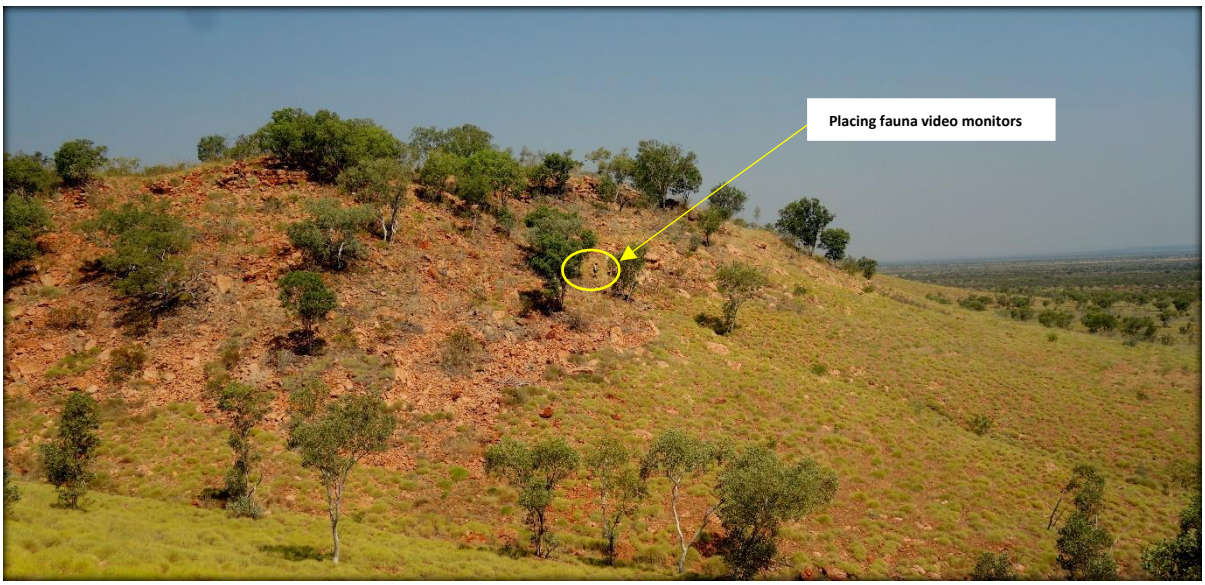
For personal use only

Figure 6: Heritage Survey team participant – Timothy Mosquito



Mattiske Consulting undertook flora and vegetation surveys, whilst Bamford Consulting conducted fauna surveys in the field. These additional environmental baseline surveys are to accommodate footprint changes for road deviations and infrastructure additions. The amendments will be captured in a variation submission (Section 45C of the Environmental Protection Act) to the approved Ministerial Statement 986 for the Browns Range Project.

Figure 7: Bamford Consulting placing fauna video monitors



As part of the NAIDOC celebrations in July, Northern Minerals sponsored the NAIDOC Youth Dance and employees had fun participating in a youth basketball carnival in Halls Creek.

Figure 8: Northern Minerals sponsored NAIDOC Youth Dance in Halls Creek

Northern Minerals was thrilled to host a community meeting and Birlirr Ngawiyiwu Catholic School visit in Ringer Soak on 5 September. The purpose of the visit was to provide engagement and consultation with the Ringer Soak Community, a geology lesson to the school children and participate in the opening of the playground at the school that Northern Minerals erected. The day was a success with an estimated 80 community members attending the event.

Figure 9: Geologist Alex Lewis providing the Birlirr Ngawiyiwu Catholic School children a geology lesson

For personal use only

As Northern Minerals heads toward implementation of the Browns Range Project, the Company is committed to providing transparency and opportunities for the local communities. To increase engagement with the business communities, Northern Minerals became members of the East Kimberley Chamber of Commerce and Industry (EKCCI) and the Broome Chamber of Commerce and Industry (BCCI).

Project Funding

During the quarter the Company progressed the process of scoping and seeking proposals from qualified Independent Technical Engineers (ITE) to produce a Technical Due Diligence Report on the Company's Browns Range Project. This report will focus on all aspects of the project and will use the Company's Definitive Feasibility Study (including all associated external technical reports, NTU Management team interviews and site visit) as the basis of its assessment.

In addition, the Company sought proposals from Independent Market Consultants to produce a comprehensive Market Due Diligence Report including focussing on the market for NTU's specific rare earth elements (particularly Dysprosium and Terbium).

Both Independent Reports form the foundations of potential lender due diligence processes such as NAIF and EFA. As at the date of this report, parties had been selected and appointed to commence the process of undertaking these reports.

The Company continues to review additional forms of project funding as part of its process of developing and securing an appropriate funding package for the project.

Capital Raising

During the quarter the Company successfully raised $25m (before costs) via a placement to institutional and sophisticated investors at $0.030 per Northern Minerals share (New Shares) (Placement). Proceeds from the Placement, along with existing cash reserves and Critical Minerals Development Program (CMDP) funding will enable the Company to finalise the Browns Range Project definitive feasibility study, complete the CMDP work programs, progress certain early works with long lead items and provide general working capital as estimated below:

- Critical minerals grant development programs (est $11.8 million).
- Browns Range site, tenure and other exploration costs (est. $10.5 million).
- Finalise definitive feasibility study costs (est. $4.1 million).
- Initial early works development activities (est. $6.1 million).
- Other working capital and costs of the Placement (est. $8.1 million)

For personal use only

The Placement comprised the issue of 833,333,334 new fully paid ordinary shares in Northern Minerals at an offer price of $0.030 per New Share, which represented a discount of:

- 9.1% to the last closing price at the time on 28 August 2023 of $0.030 per Northern Minerals share; and
- 9.7% to the 5-day volume weighted average price (VWAP) at the time of $0.0332 per Northern Minerals share.

New Shares were issued pursuant to Northern Minerals' existing placement capacity under ASX Listing Rule 7.1 and additional placement capacity under ASX Listing Rule 7.1A.

Canaccord Genuity (Australia) Limited and Argonaut Securities Pty Limited acted as joint lead managers to the Placement.

CORPORATE

During the quarter the Company continued to expand its management capability in particular, appointing Angela Glover to the role of Chief Operating Officer and Dale Richards to the role of Head of Geology.

Angela has over 20 years' experience in resources and industry in WA, NT and Queensland, including with BCI Minerals, BBI, Atlas Iron, WMC Resources and Alcan Gove. Experienced in heritage and native title management, social and external affairs management.

Dale has over 25 years international experience in the mining industry managing exploration and growth, operational geology and near mine resource operational readiness. He has extensive experience in underground and open pit mining operations with comprehensive skillset including order of magnitude studies, geological interpretation and modelling, Mineral Resource estimation, integration into mine planning, capital project management, systems implementation and operations reconciliation.

PAYMENTS TO RELATED PARTIES OF THE ENTITY AND THEIR ASSOCIATES

Payments made during the Quarter and included in 6.1 and 6.2 of Appendix 5B – Mining exploration entity quarterly cash flow report are detailed below:

Aggregate amount of payments to related parties and their associates included in cash flows from operating activities total $0.409 million.

This comprises of payments to Executive and Non-executive directors' remuneration from services. There were no payments to related parties and their associates included in cash flows from investing activities.

AUTHORISED BY THE BOARD OF DIRECTORS OF NORTHERN MINERALS LIMITED

For further information:
Northern Minerals
Nicholas Curtis – Executive Chairman
+61 411 425 784

For media and broker enquiries:
Jane Morgan Management
Jane Morgan – Investor Relations Manager
+61 405 555 618

For personal use only

FUTURE PERFORMANCE AND FORWARD-LOOKING STATEMENTS

This Report contains certain "forward-looking statements". The words "expect", "anticipate", "estimate", "intend", "believe", "guidance", "should", "could", "may", "will", "predict", "plan" and other similar expressions are intended to identify forward-looking statements. Any indications of, and guidance on, future earnings and financial position and performance are also forward-looking statements. Forward-looking statements, opinions and estimates provided in this Report are based on assumptions and contingencies that are subject to change without notice and involve known and unknown risks and uncertainties and other factors that are beyond the control of Northern Minerals, its directors and management including any further impacts of COVID-19 on Northern Minerals' continued trading and operations. This includes statements about market and industry trends, which are based on interpretations of current market conditions.

You are strongly cautioned not to place undue reliance on forward-looking statements, particularly in light of the current economic climate and the significant volatility, uncertainty and disruption caused by factors including the COVID-19 pandemic.

Forward-looking statements are provided as a general guide only and should not be relied upon as an indication or guarantee of future performance. Actual results, performance or achievements may differ materially from those expressed or implied in such statements and any projections and assumptions on which these statements are based. These statements may assume the success of Northern Minerals' business strategies, whether the success is realised in the period for which the forward-looking statement may have been prepared or otherwise. No representation or warranty, express or implied, is made as to the accuracy, likelihood of achievement or reasonableness of any forecasts, prospects, returns or statements in relation to future matters contained in this Report. The forward-looking statements are based on information available to Northern Minerals as at the date of this Report. Except as required by law or regulation (including the ASX Listing Rules), none of Northern Minerals, its representatives or advisers undertakes any obligation to provide any additional or updated information whether as a result of a change in expectations or assumptions, new information, future events or results or otherwise.

For personal use only

For personal use only

About Northern Minerals

Northern Minerals Limited (ASX: NTU) (Northern Minerals or the Company) owns 100% of the Browns Range Heavy Rare Earths (HRE) Project in northern Western Australia, tenements uniquely rich in the heavy rare earth elements dysprosium (Dy) and terbium (Tb).

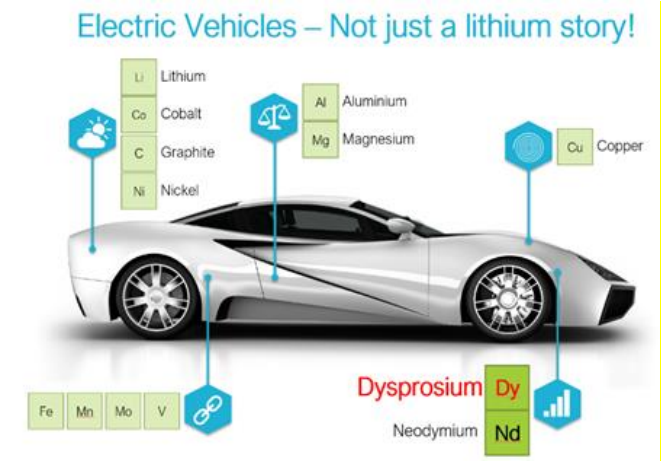
Dysprosium and terbium are critical in the production of dysprosium neodymium iron-boron (DyNdFeB) magnets used in clean energy, military, and high technology solutions. Dysprosium and terbium are prized because their unique properties improve the durability of magnets by increasing their resistance to demagnetisation.

The Project's flagship deposit is Wolverine, which is thought to be the highest-grade dysprosium and terbium orebody in Australia. The Company is preparing to bring Wolverine into production with the objective of providing a reliable alternative source of dysprosium and terbium to production sourced from China. Northern Minerals is one of only a few companies outside of China to have produced these heavy rare earth elements.

To further its strategic objective, Northern Minerals is undertaking a Definitive Feasibility Study for a commercial scale beneficiation plant to process Wolverine ore.

Apart from Wolverine, Northern Minerals and has several other deposits and prospects within the Browns Range Project that contain dysprosium and other heavy rare earth elements, hosted in xenotime mineralisation.

For more information: *northernminerals.com.au*.



NORTHERN MINERALS

TENEMENT REPORT

Details of mining tenements as at the quarter ended 30 September 2023 (ASX Listing Rule 5.3.3).

.Project	Location	Tenement ID	State	Status	Holder Application	Interest
Browns Range WA	Browns Range	E80/4479	WA	Granted	Northern Minerals	100%
	Browns Range	E80/4782	WA	Granted	Northern Minerals	100%
	Browns Range	E80/5040	WA	Granted	Northern Minerals	100%
	Browns Range	E80/5041	WA	Granted	Northern Minerals	100%
	Browns Range	M80/627	WA	Granted	Northern Minerals	100%
	Browns Range	M80/649	WA	Application	Northern Minerals	100%
	Browns Range	L80/76	WA	Granted	Northern Minerals	100%
	Browns Range	L80/77	WA	Granted	Northern Minerals	100%
	Browns Range	L80/78	WA	Granted	Northern Minerals	100%
	Browns Range	L80/79	WA	Granted	Northern Minerals	100%
	Browns Range	L80/107	WA	Application	Northern Minerals	100%
	Browns Range	L80/0109	WA	Application	Northern Minerals	100%
	Browns Range	L80/0110	WA	Application	Northern Minerals	100%
	Browns Range	L80/0111	WA	Application	Northern Minerals	100%
	Browns Range	L80/0113	WA	Application	Northern Minerals	100%
	Browns Range	E80/5260	WA	Granted	Northern Minerals	100%
	Browns Range	E80/5261	WA	Granted	Northern Minerals	100%
	Browns Range	E80/5367	WA	Granted	Northern Minerals	100%
	Browns Range	E80/5368	WA	Granted	Northern Minerals	100%
	Browns Range	E80/5369	WA	Granted	Northern Minerals	100%
	Browns Range	E80/5370	WA	Granted	Northern Minerals	100%
	Browns Range	E80/5418	WA	Granted	Northern Minerals	100%
	Browns Range	EL24193	NT	Granted	Northern Minerals	100%

For personal use only

For personal use only

.Project	Location	Tenement ID	State	Status	Holder Application	Interest
Browns Range NT	Browns Range	EL24174	NT	Granted	Northern Star Resources	REE rights only
	Browns Range	EL26270	NT	Granted	Northern Minerals	100%
	Browns Range	EL26286	NT	Granted	Northern Minerals	100%
	Browns Range	ELA32161	NT	Application	Northern Minerals	100%
	Browns Range	ELA32162	NT	Application	Northern Minerals	100%
John Galt	John Galt	E80/4298	WA	Granted	Northern Minerals	100%
	John Galt	E80/4967	WA	Granted	Northern Minerals	100%
	John Galt	E80/5070	WA	Granted	Northern Minerals	100%
	John Galt	E80/5230	WA	Granted	Northern Minerals	100%
Boulder Ridge	Boulder Ridge	EL29594	NT	Granted	Northern Minerals	100%
	Boulder Ridge	ELA24849	NT	Application	Northern Minerals	100% (excluding gold rights)
	Boulder Ridge	ELA24935	NT	Application	Northern Minerals	100% (excluding gold rights)
	Boulder Ridge	EL24177	NT	Granted	Northern Minerals	100%
	Boulder Ridge	EL25171	NT	Granted	Northern Star Resources	REE rights only
	Boulder Ridge	ELA28868	NT	Application	Northern Star Resources	REE rights only
	Boulder Ridge	EL27590	NT	Granted	Northern Star Resources	REE rights only
Gardiner-Tanami NT	Tanami	EL23932	NT	Granted	Northern Star Resources	REE rights only
	Tanami	EL25009	NT	Granted	Northern Star Resources	REE rights only
	Ware Range	EL26498	NT	Granted	Northern Minerals	100%
	Ware Range	EL26541	NT	Granted	Northern Minerals	100%
	Pargee	EL27367	NT	Granted	Northern Minerals	100%
	Tanami	EL29592	NT	Granted	Northern Star Resources	REE rights only

.Project	Location	Tenement ID	State	Status	Holder Application	Interest
	Tanami	EL29593	NT	Granted	Northern Star Resources	REE rights only
	Tanami	EL29595	NT	Granted	Northern Minerals	100%
	Tanami	ELA29619	NT	Application	Northern Star Resources	REE rights only
	Tanami	EL26635	NT	Granted	Northern Star Resources	REE rights only
	Tanami	ELA32163	NT	Application	Northern Star Resources	REE rights only
	Tanami	ELA32164	NT	Application	Northern Star Resources	REE rights only
Rabbit Flats	Rabbit Flats	ELA25159	NT	Application	Northern Star Resources	REE rights only
	Rabbit Flats	ELA25160	NT	Application	Northern Star Resources	REE rights only

The Company neither had granted nor relinquished any mining tenements in the quarter. No farm-in or farm-out agreements were entered into during the quarter. Four miscellaneous license applications were lodged for the Browns Range WA project.

For personal use only