

MA364 Annual Technical Report for the period 2 July 2018 – 1 July 2019

Titleholder:	Northern Territories Resources Pty Ltd
Project Operator:	Northern Territories Resources Pty Ltd
Tenement Agent:	AMETS Pty Ltd
Reporting Period:	2 July 2018 – 1 July 2019
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Date:	26 August 2019
Target Commodities:	Cu Pb Zn Ag Co Ni
Mapsheets:	Noonamah 1:100,000 / Bynoe 1:100,000 / Darwin 1:250,000

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Abstract

MA364 is located approximately 60km south of Darwin and 15km northwest of Batchelor. Access from Darwin is via sealed roads to Batchelor and then northward via the Litchfield Road. MA364 was granted on the 2nd July 1993 for a period of five (5) years to Compass Resources Limited. The tenement was subject to a joint venture between Compass Resources Limited and Billiton Australia Gold Pty Ltd (later Acacia Resources Limited) commencing on the 4th August 1993. The joint venture was managed by Acacia Resources Limited until mid-June 1997 with Compass Resources Limited resuming management thereafter. Northern Territories Resources acquired MA364 in December 2016. MA364 comprises four (4) units for approximately 3.48km² and was last renewed on the 20th September 2018 for a two (2) year term, expiring on the 1st July 2020. Activities over the tenement have formed part of the Company's regional exploration strategy targeting discovery of polymetallic mineralisation within the highly prospective Rum Jungle Mineral Field. Several regional geophysical surveys have been completed over the area including electromagnetics, magnetics, ground gravity and airborne gravity. During the reporting period, the tenement (3.48km²) was subject to a regional LiDAR survey with the area flown with 2-point coverage or one-metre resolution. Additional activities have focussed on the compilation of exploration works completed by Doe Run. This succeeds the termination of a Heads of Agreement between Cove House and Northern Territories Resources ('NTR' or the 'Company') through which Doe Run were granted an exclusive right to complete detailed geological assessment of nominated tenements held by NTR, including MA364. Since termination of this agreement NTR has implemented a sale process targeting identification of a potential purchaser to reinstate project operations and exploration activities.

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1.1 Location, Title History, Physiography and Access

MA364 is located approximately 60km south of Darwin and 15km northwest of Batchelor. Access from Darwin is via sealed roads to Batchelor and then northward via the Litchfield Road. The tenement forms part of a broader and in part contiguous tenement package held by Northern Territories Resources ('NTR' or the 'Company').

The tenement is located within the Pine Creek Bioregion characterised by a tropical monsoonal climate. The area records an average annual rainfall of 1,564mm with most occurring during the wet season between November and March. The tenement is generally characterised by low topography with limited outcrop. Vegetation comprises eucalyptus woodland of moderate density.

The licence is covered by privately owned Freehold Land and a Crown Lease in Perpetuity.

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MA364 comprises four (4) units for approximately 3.48km² and was last renewed on the 20th September 2018 for a two (2) year term, expiring on the 1st July 2020.

In December 2016 Cove House and NTR entered into a Heads of Agreement ('HOA') with Doe Run, a United States based mining company. Under the terms of the HOA, Doe Run were granted an exclusive right to complete a detailed geological assessment of nominated tenements held by NTR, including EL27005. The HOA also provided Doe Run with the right to acquire some or all the NTR tenure at an agreed date.

On 14 February 2019, Doe Run advised termination of the HOA and withdrawal from all involvement in the nominated tenements. NTR subsequently resolved to re-market the Company assets. Commencing March 2019, the sale process has suitably advanced such that, at the date of this application, the Company have all reasonable expectations a sale will be proceed with sufficient resources to reinstate project operations and exploration activities.

1.2 Geological Setting

MA364 is located within the Rum Jungle Mineral Field which forms part of the Paleoproterozoic Pine Creek Orogen. The Rum Jungle Mineral Field comprises two granitic basement domes (the Rum Jungle and Waterhouse domes) of the Archean Rum Jungle Complex which are unconformably overlain by a thick sequence of Paleoproterozoic metasedimentary and volcanic rocks (McCready, et al., 2004).

Of the overlying stratigraphy, the Mount Partridge Group is of particular economic significance and includes the Whites Formation; a sequence of metamorphosed carbonaceous siltstone, mudstone and shale that hosts the Browns polymetallic (Pb-Zn-Cu-Co-Ni) sulphide Mineral Deposit (McCready, et al., 2004). The Browns deposit is the largest mineral deposit identified in the Rum Jungle area (McCready, et al., 2004).

The structural architecture of the region is dominated by the Giants Reef Fault; a northeast – southwest trending fault zone that separates the Rum Jungle and Waterhouse Domes with predominantly episodic dextral strike-slip movement (Gordon, 2008).

MA364 covers sequences of the Coomalie Dolostone and the overlying Whites Formation of the broader Mount Partridge Group.

The area is covered by extensive colluvium with limited outcrop.

1.3 Exploration History

In late 2010, MA364 was covered by a regional aerial electromagnetic ('AEM') survey utilising a gpX-TEM Heliborne Time Domain EM system (Rosewall, 2011). Completed on 100m east-west flight lines, the survey was reportedly affected by military radar signals and minor internal inaccuracies which were rectified by post processing in 2011 (Rosewall, 2011). Approximately 43-line km fell within MA364 (Lori, 2018).

A regional ground gravity survey was also completed during 2010 with eleven (14) stations occurring within MA364 (Rosewall, 2011).

During 2012, MA364 was included in a regional airborne gravity survey utilising the Falcon AGG system allowing simultaneous acquisition of magnetics and high-resolution elevation data (LiDAR) (Rosewall, 2012). The survey covering MA364 was completed on 200m north-south flight lines with approximately 18-line km falling within MA364 (Lori, 2018).

During 2012, a ground IP (Induced Polarisation) survey line of approximately 900m was also acquired on the tenement (Lori, 2018).

Subsequently, MA364 was included in several regional scale desktop assessments targeting synthesis of the various geophysical datasets (including electromagnetics, magnetics and gravity) to enhance exploration targeting (Rosewall, 2015).

In 2015, two (2) IP lines were completed across the tenement between 8568000mN and 8535000mN (Edgar, 2016).

In 2018, Northern Territories Resources and Doe Run continued with detailed desktop studies and data compilation of all available technical data covering MA364. Doe Run completed a review of previous technical reports for the tenement as well as historical drilling including the 2000 and 2007 MFN drill hole series. In addition, all geophysical data collected during 2010-2015 by Compass Resources was compiled into a GIS database for the tenement (Lori, 2018).

On 14 February 2019, Doe Run advised termination of the HOA and withdrawal from all involvement in the nominated tenements including MA364.

1.4 Exploration Rationale

MA364 is dominated by extensive sequences of the broader Mount Partridge Group known to host several polymetallic mineralisation occurrences, including the Browns polymetallic (Pb-Zn-Cu-Co-Ni) sulphide Mineral Deposit.

Of the broader Mount Partridge Group, the contact between the Coomalie Dolostone and the overlying Whites Formation is considered particularly prospective where several zones of polymetallic mineralisation have been intersected in this position. In addition, the chemical contrast between these sequences (dolomite and shale) is considered to act as a favourable precipitation mechanism for oxide mineralisation characteristic of the Mt Fitch oxide deposit.

1.5 Exploration Activities Completed During the Reporting Period

During the reporting period, the tenement (3.48km²) was subject to a regional LiDAR survey using 2-point coverage or one-metre resolution (Lori, 2018). The survey was completed by Earl James & Associates and also covered the Company's broader tenement holding.

Additional activities have focussed on the compilation of exploration works completed by Doe Run. This succeeds the termination of a Heads of Agreement between Cove House and Northern Territories Resources ('NTR' or the 'Company') through which Doe Run were granted an exclusive right to complete detailed geological assessment of nominated tenements held by NTR, including MA364.

Since termination of this agreement NTR has implemented a sale process targeting identification of a potential purchaser to reinstate project operations and exploration activities.

1.6 Conclusions & Recommendations

MA364 is located within the Rum Jungle Mineral Field which forms part of the Paleoproterozoic Pine Creek Orogen considered highly prospective for polymetallic mineralisation occurrences. The tenement covers successions of the Mount Partridge Group including the Whites Formation; a sequence of metamorphosed carbonaceous siltstone, mudstone and shale that hosts the Browns polymetallic (Pb-Zn-Cu-Co-Ni) sulphide Mineral Deposit (McCready, et al., 2004). The Browns deposit is the largest mineral deposit identified in the Rum Jungle area (McCready, et al., 2004).

Approximately 500m south of MA364, the Whites Formation hosts the Mt Fitch oxide deposit comprising a combined Indicated and Inferred Mineral Resource of 6.5Mt at 0.3% Cu, 0.1% Co and 0.1% Ni. In consideration of these known mineral occurrences, the propsectivity of MA364 is reinforced by an analogous geological setting.

It is recommended a comprehensive compilation and synthesis of historical geological and geophysical datasets be completed to refine exploration targeting. Exploration targeting criteria derived from characterisation of known mineralisation could be utilised to improve vectoring. These criteria include though are not necessarily limited to an apparent stratigraphic affinity, geochemical and geophysical expression.

1.7 Data (File Verification Listing)

Exploration Work Type	Filename	Format
LiDAR Survey (DEM)	710000_8569000_1m_DEM	.asc
	710000_8570000_1m_DEM	.asc
	710000_8571000_1m_DEM	.asc
	711000_8568000_1m_DEM	.asc
	711000_8569000_1m_DEM	.asc
	711000_8570000_1m_DEM	.asc
	711000_8571000_1m_DEM	.asc
	712000_8568000_1m_DEM	.asc
	712000_8569000_1m_DEM	.asc
	712000_8570000_1m_DEM	.asc
	713000_8568000_1m_DEM	.asc
	713000_8569000_1m_DEM	.asc
	713000_8570000_1m_DEM	.asc
LiDAR Survey (contours)	710000_8569000_1m_DEM_contours	.shp
	710000_8570000_1m_DEM_contours	.shp
	710000_8571000_1m_DEM_contours	.shp
	711000_8568000_1m_DEM_contours	.shp
	711000_8569000_1m_DEM_contours	.shp
	711000_8570000_1m_DEM_contours	.shp
	711000_8571000_1m_DEM_contours	.shp
	712000_8568000_1m_DEM_contours	.shp
	712000_8569000_1m_DEM_contours	.shp
	712000_8570000_1m_DEM_contours	.shp
	713000_8568000_1m_DEM_contours	.shp
	713000_8569000_1m_DEM_contours	.shp
	713000_8570000_1m_DEM_contours	.shp

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