

Northern Territory Resources Suite 1 Level 1, 3 Whitfield St., Darwin, NY Po Box 37446 Winnellie NT 0821 Tel: +61 437 690 958

### **GROUP TECHNICAL REPORT**

# **GROUP REPORT 438**

# 23 AUGUST 2017 - 22 AUGUST 2018

Titleholder Northern Territory Resources

Project Operator Northern Territory Resources

Titles/Tenements ELRs 125, 146, & 148

Tenement Manager/Agent AMETS Pty Ltd

Mine/Project Name Mt Fitch (No. 2)

Personal author(s) Joseph Lori

Company reference number N/A

**Target Commodity or Commodities** Cu, Pb, Co, Ni, Ag & Zn

**Date of report** 18 October 2018

Datum/Zone GDA94/Zone 52

250 000 K Mapsheet Darwin SD5204

Pine Creek SD5208

**100 000 K Mapsheet** Bynoe 5072

Reynolds River 5071

Contact details Joseph Lori - Doe Run Australia: jlori@doerun.com

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### 1. Abstract

The Mt Fitch (No. 2) Project comprises of Exploration Licences in Retention (ELR) 125, 146 and 148 (the licences). These licences are located approximately 55km South of Darwin and have a combined area of 2,791.7 hectares.

The licence area sits within the highly prospective and resource rich Rum Jungle Mineral Field within the Pine Creek Orogen. The area is known to host various commodities, which includes copper, lead, nickel, zinc, cobalt and uranium.

Northern Territory Resources (NTR) has entered into an Agreement which has been assigned to Doe Run Australia NL (DRA). During the reporting period a LiDAR survey was flown over all of the NTR tenements. As well, all the tenements in Group 438 we subject to a geophysics re-processing program, and a historic core hole re-logging program is underway. These activities were completed to validate and strengthen the current interpretation of geophysical anomalies.

# 2. Copyright

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### 3. Location and Access

The Mt Fitch (No. 2) licences are located approximately 55 kilometres south of Darwin and nearby the original mine sites of the Whites and Intermediate (Rum Jungle) Deposits.

Access from Darwin is via sealed roads to Batchelor and thence via the Batchelor and Rum Jungle Roads.

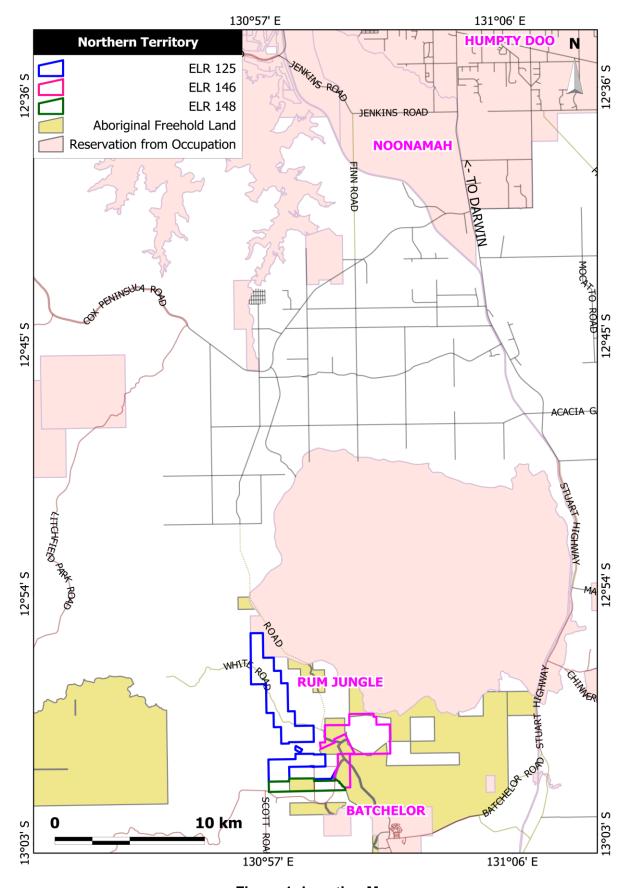


Figure 1- Location Map

# 4. Tenure and Land Use

The licences cover numerous Freehold portions of land. The below table shows the details of each licence.

Licence	Titleholder	Area (Ha)	Cadastre
	Northern Territory Resources	1,427.9	Hundred of Goyder (315) - Parcel 982
			Hundred of Goyder (315) - Parcel 998
			Hundred of Goyder (315) - Parcel 957
			Hundred of Goyder (315) - Parcel 999
			Hundred of Goyder (315) - Parcel 963
			NT Portion (000) - Parcel 3283
			Hundred of Goyder (315) - Parcel 2881
			Hundred of Goyder (315) - Parcel 877
			Hundred of Goyder (315) - Parcel 876
ELR 125			Hundred of Goyder (315) - Parcel 981
			Hundred of Goyder (315) - Parcel 996
			Hundred of Goyder (315) - Parcel 991
			Hundred of Goyder (315) - Parcel 993
			Hundred of Goyder (315) - Parcel 992
			Hundred of Goyder (315) - Parcel 995
			Hundred of Goyder (315) - Parcel 2951
			Hundred of Goyder (315) - Parcel 2952
			Hundred of Goyder (315) - Parcel 2918
			Hundred of Goyder (315) - Parcel 994
EL D. 4.40	Northern Territory Resources	1,008	Hundred of Goyder (315) - Parcel 2940
ELR 146			Hundred of Goyder (315) - Parcel 2968
			Hundred of Goyder (315) - Parcel 1069
	Northern Territory Resources	355.8	Hundred of Goyder (315) - Parcel 2989
			Hundred of Goyder (315) - Parcel 2988
ELR 148			Hundred of Goyder (315) - Parcel 2104
			Hundred of Goyder (315) - Parcel 3028
			Hundred of Goyder (315) - Parcel 2918

# 5. Topography & Hydrology

The topography within the area is dominantly low, with limited outcrops. Roads intersect the licence and small creeks and river branches also flow through the licence and flow into the Finnis River.

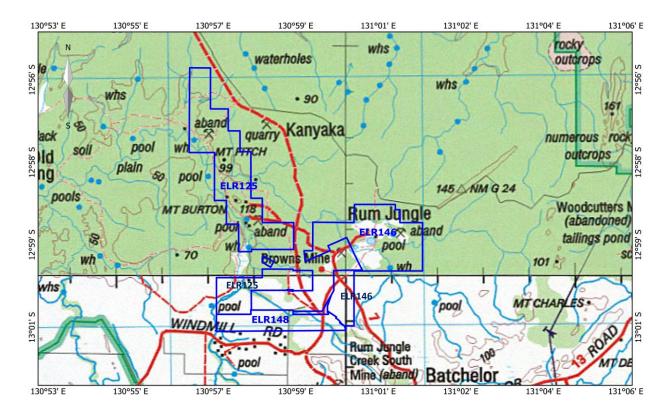


Figure 2 - Topography Map

# 6. Geology

The project area is situated within the Rum Jungle Mineral Field of the Palaeoproterozoic Pine Creek Orogen. The Pine Creek Orogen largely consists of variably deformed and metamorphosed Palaeoproterozoic metasedimentary and intrusive rocks forming part of the North Australian Craton.

The Pine Creek Orogen is well known for exploration and NTR believes that there is a potential for this region to host significant Copper, Lead, Cobalt, Nickel, Zinc and silver deposits.

As shown in Figure 3, numerous known significant faults intersect the licences at various trends.

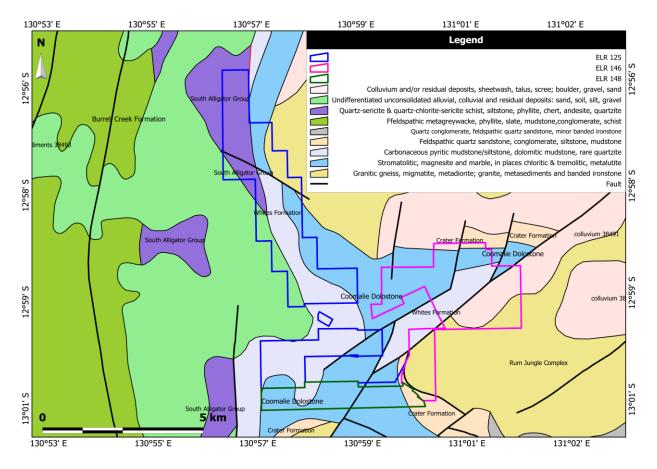


Figure 3- Geology Map

### 7. Exploration Rationale

The licences sit within the highly prospective and resource rich Pine Creek Orogen. The area is known to host various commodities, which includes copper, lead, nickel, zinc, cobalt and uranium.

NTR believes that an economic Pb-Zn-Cu-Ni-Co deposit will be found within the project area.

# 8. Previous Exploration

### **ELR125**

Numerous companies have completed extensive exploration on the licence area since it was granted. These works included, mapping, sampling, assaying, geophysical surveys and RC drilling.

In 2005, Compass Resources Ltd. completed a drilling program to quantify the extent of known low grade copper-cobalt-nickel mineralisation in the lateritised oxide zone overlying the Coomalie Dolomite. Further drilling was also conducted from 2008 to 2009.

During the 2011 to 2012 reporting period, ELR 125 was incorporated into the data reprocessing and geophysical remodelling that took place due to the erroneous data that was previously received. All errors were removed from this data set and the data was effectively remodelled. Targets were generated for additional geophysics and potential drilling and ground reconnaissance for a potential IP survey was completed.

Also during 2012, this tenement was subjected to a regional airborne FALCON gravity survey. This survey included gravity, magnetics and LIDAR high resolution elevation data. The data was modelled, processed and incorporated into a large regional data modelling package. The modelling incorporated all of the previous EM, IP, MAG and gravity data into one complete package. Approximately 6km of IP ground survey was also acquired.

During 2014 to 2015, Compass incorporated all of the geophysical survey data into a broad regional data set to model targets for further exploration drilling.

(from Compass Annual Reports prepared by Johansen)

### **Territory Iron**

During 2013 to 2014, Territory Iron carried out reconnaissance and collected 22 rock chip samples.

During 2014 to 2015, Territory drilled 13 RC drill holes. Two-hundred and sixty-two samples were sent for geochemical analysis.

During 2015 to 2016, Territory did desktop studies and rehabilitated drill sites and roads.

During 2015 to 2017, Territory did desktop studies and monitored rehabilitated drill sites and roads.

#### **ELR 146**

Extensive exploration has been conducted on ELR146 since it was granted.

In 2003-2004, as part of a joint venture agreement with Phelps Dodge Australasia Inc. over the Browns Mining Leases and parts of the surrounding tenements, a detailed gravity survey was undertaken to help target sulphide accumulations at depth near the old Shaft at the Browns Deposit.

In 2004-2005, a two phase reverse circulation drill programme was completed in the Browns East area between the two old open cut mines. The first part of drilling was planned to delineate the contact of the Coomalie Dolomite and the overlying Whites Formation, and to check out reported copper and uranium mineralisation near the western edge of the Whites open cut mine. Follow up drilling involved 9 RC holes, planned to intersect the copper-cobalt zones located by the phase1 drilling.

Two angled RC holes were completed at the Rum Jungle East uranium prospect on the eastern side of the Whites open cut mine.

In late 2005, an additional two vertical RC were completed at the RJ east prospect. These were holes 05RJE03 and 05RJE04. Both intersected good uranium mineralisation; including 6m at 0.14% U3O8 between 67 and 73 m in 05RJE03 and 2m at 0.48% U3O8 between 43 and 45m in 05RJE04.

In 2006, drilling for base metals recommenced in the Browns East area between the two old open cut mines. Heavy water flows prevented several holes reaching their planned depths. Up until the end of the report period, 12 holes were attempted, identified as 06BE01 to 06BE12. Significant base metal mineralisation was intersected including:

06BE04 - 59 to 111m - 52m at 2.3%Cu, 0.5%Pb, 0.3%Co, 0.2% Ni, 65g/t Ag

06BE06 - 64 to 78m - 14m at 2.5%Cu, 2.9%Pb, 0.3%Co, 0.3% Ni, 34g/t Ag

During late 2006- 2007, several programs were undertaken and employed both RC and diamond drilling methods. All RC sampling was carried out using a cyclone and sample splitter. Wet samples which could not be split were treated by hand. Diamond core was cut in half using a diamond saw. The samples were sent to ALS Chemex for analysis. Samples were pulverised to 85% passing 75 microns or better. A four acid "near-total" digest was used followed by ICP-AES (OG62) analysis for Cu, Pb, Zn, Co, Ni, Ag, Mn, Fe, S, Mg, Ca, and U. Samples with higher uranium values (>150ppm U) were re-analysed by XRF for U and Ti. Radioactivity was measured for each sample with a GR 110 scintillometer or a SPP2 scintillometer on site. Holes with anomalous radioactivity were surveyed with an Auslog slimline natural gamma probe within the drill rods.

Due to the difficulties encountered with high water inflows during the early part of 2006, it was decided to concentrate on diamond drilling during the remainder of 2006. To this end five

diamond drillholes were completed (06BE013-06BE18) using a Longyear LF90 drill rig owned by Underdale Drillers Pty. Ltd.

Three RC holes were also successfully drilled at the end of 2006 when the water table was at its lowest (06BE019-06BE21). These holes were drilled by H2O Pty Ltd utilising a T3 RC drilling rig with 1200/360 onboard air. Two diamond holes were also completed to obtain PQ core samples for metallurgical testwork (M06BE001 and 002).

Drilling recommenced in the area on 29th May 2007 and 20 RC holes were completed up to the end (September 2007) of the last reporting period (07BE01-20). These holes were drilled by H2O Pty Ltd utilising a T3 RC drilling rig with 1200/360 onboard air.

During the 2010 reporting period HNC undertook remodelling (database validation, block modelling, preliminary pit designs) of the sulphide and oxide deposits on ERL 146 to recalculate grades and tonnes based on 2010 metal prices.

Electromagnetic, magnetic and gravity data was also reprocessed as part of the planning for the surveys.

During 2011 a detailed airborne electromagnetic/magnetic survey along with a heli-assisted ground gravity infill survey were both carried out. The airborne survey consisted of 100m E-W flight lines over the entire ERL while the ground gravity survey was designed to infill existing survey points and was spaced at approximately 500m grid points over most of the licence. A portion of the tenement was excluded in the SE as it was a sensitive Aboriginal area.

A total of 111.5 line Km of electromagnetics/magnetics was flown and 33 gravity data stations were acquired.

During 2012 HAR/ Compass and Territory Iron completed 11 RC holes and 11 Diamond drill holes. HAR/ Compass also FALCON gravity survey over the licence during 2012- 2013. This survey included not only gravity but also acquired magnetics and LIDAR high resolution elevation data.

#### **Territory Iron**

Geological mapping within the Yarram Project Area of ELR 146 was carried out over the period 23rd to 26th January 2012 by an independent geological consultant. The intention of the mapping was to assist in the interpretation of previous results that have been obtained in earlier drilling programs, and to recommend further exploration targets.

The mapping indicated that mineralisation occurs in a series of brecciated siltstone, shale and dolostone horizons in the Coomalie Dolostone Formation. The breccias are composed mainly of goethite/limonite and are frequently cored with lenses of hematite. The mineralised zones appear to be associated with faults trending approximately southwest.

During 2013, Territory carried out reconnaissance work along with collecting 17 rock chip samples.

The data for the airborne FALCON gravity survey was modelled, processed incorporated into a large regional data modelling package during 2014. The modelling incorporated all of the previous EM, IP, MAG and gravity data into one complete package.

(from Compass Annual Reports prepared by Johansen)

# **ELR148**

This licence has been considered prospective since the mid 20th century. Initial focus was on uranium and later broadened to base metals. Various exploration companies have conducted exploration on the licence area since 1951. More recently though, Compass Resources drilled three RC holes in late 2004 for metallurgy studies.

During 2004- 2007, an infill drill programme of 68 RC and three diamond core holes was undertaken primarily to help ascertain the optimised shape for an open cut pit. The drilling was spaced to achieve a nominal collar spacing of 25 metres within the resource. This drilling extended the resource to the south and east over an area of elevated cobalt and nickel values.

Six metallurgical holes were also drilled, to get representative material for test-work. All metallurgical holes were assayed prior to metallurgical work.

The Joint Venture partners embarked on a complete review of the geology and controls on mineralisation during 2007- 2009. This program is ongoing and has consisted of reinterpretation of dill logs utilising litho-geochemistry together with re-logging and / or reinterpretation of previous RC drill chips & diamond core. A new 3D model and updated resource of Area 55 has been produced.

During 2010- 2011, the Area 55 project feasibility studies mentioned in last year's report; which include archaeological, hydrogeological, metallurgical and geotechnical works, was put on hold during the year due to the company shifting its focus from oxide targets to sulphide targets. This work has not been cancelled but put on hold.

As a result of this shift a broad geophysical program had just finished during compilation of the 2010 report. Historical geophysical surveys were reprocessed and investigated in the lead up to this work.

This survey consisted of a detailed heli-borne electromagnetic program (AEM), detailed infill gravity program and a detailed airborne magnetic survey.

AEM flight lines were oriented both north south and east west across ELR 148 at 100m line spacing. A total of around 60 line km was flown (inclusive of tie-lines).

15 infill gravity stations were also collected within ELR 148 to infill existing data gaps.

Both sets of data were submitted to the Department once some erroneous data had been corrected and reprocessed.

During 2011 detailed first pass detailed 3D geophysical modelling was undertaken. As a result of this modelling a number of electromagnetic targets were generated in ELR 148. There was a delay in this process as some serious acquisition errors were encountered in the overall data. This took a great part of the year to work out and overcome.

Column leach testing of the ore and waste material from the proposed Area 55 pit has been ongoing throughout the year. Groundwater monitoring and radon monitoring studies were also completed as part of the environmental approvals process which has now been put on hold.

During 2011- 2012, a number of historical (8) bulk oxide samples were sent to China for further study, this work has been put on hold pending a further detailed assessment of the oxide potential of the project area. Ground planning for a detailed IP survey was carried out. Drill planning and modelling continued in preparation for the airborne gravity survey to be received.

During 2012-13 this tenement was subjected to a regional airborne FALCON gravity survey. This survey included not only gravity but also acquired magnetics and LIDAR high resolution elevation data.

The line spacing was approximately 200m and is currently being modelled with other geophysical data. The entire survey has been individually split out into individual tenement data and has been submitted to the department. Approximately 17.6 line km of data acquisition fell on this tenement.

(from Compass Annual Reports prepared by Johansen)

# 9. Exploration During Reporting Period

During the reporting period a LiDAR survey was flown over the entire NTR land package, and historic airborne electromagnetic (AEM) geophysical data within Group 438 was re-processed. Interpretation of the re-processed data is currently underway. Historic drill core was re-logged.

LiDAR Survey: The entire NTR land tenure was flown to gain detailed topography. The work was completed by Earl James & Associates of Darwin, NT. In the figure below the black line represents the area that was flown with 2 point coverage, or 1 meter resolution. Inside the blue outline the area was flown with 4 point coverage, or 0.5 meter resolution. Over the next year the LiDAR data will be combined with existing geophysical coverage of the tenements to strengthen further geophysical and geological interpretation.

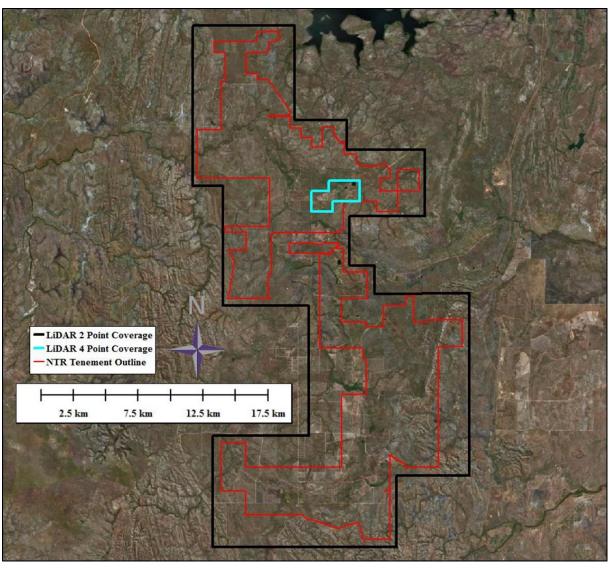


Figure 4 - LiDAR Coverage of the NTR Tenements

Geophysics Re-processing: In 2010, Compass Resources completed an Aerial Electromagnetic (AEM) survey covering the entire land package. During a technical review of this data it was recognized by DRA and NTR that there were potential issues with the AEM data, especially within the XTEM (time domain windows) portion of the survey. The original survey was split into 4 areas. The data in Area 4 (pictured below) was re-processed to validate the EM anomalies. David McInnes of Montana GIS was contracted to complete the re-processing. To date the re-processed data and models have been received from Montana GIS but the final technical report is still pending. This will be submitted to NTGS once received.

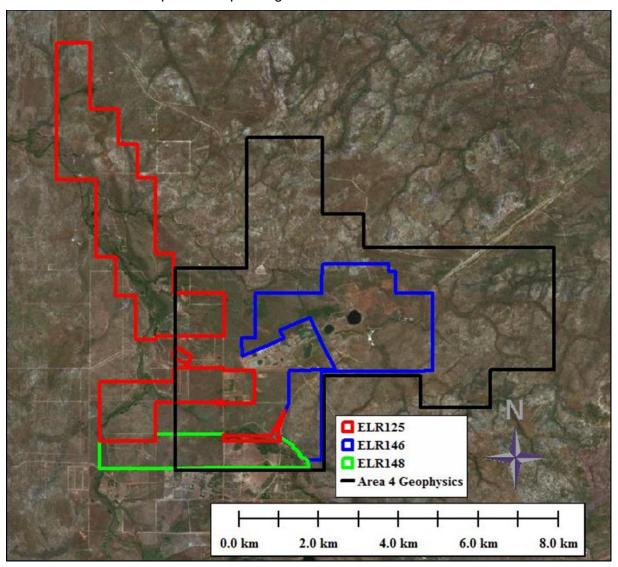


Figure 5 - Area 4 Geophysics Re-processing

Historic Core Re-Logging: Approximately 100 historic core drill holes remain on the Browns property from within the NTR tenement package. They are currently in state of deterioration from being stored outside without cover. Drill holes with identification labels remaining are being re-logged, re-boxed, and placed in dry, covered storage. The majority of the historic drill core is from Browns, Browns East (Rum Jungle), Mt. Fitch, and Area 55. All of these known ore bodies fall within Group 438 with the exception of the Browns Deposit. Re-logging was completed for core preservation, historic log validation, and improved geologic understanding of the ore bodies. Core holes re-logged to date include: MFN3, 05MFS19, 05MFS20, 06BE14, 08BE01, 08BE03, 08BE05, 08BE45, 08BE46, EMB01, EMB02, and M07A5505. No interpretation has been made of the re-logged core to date.

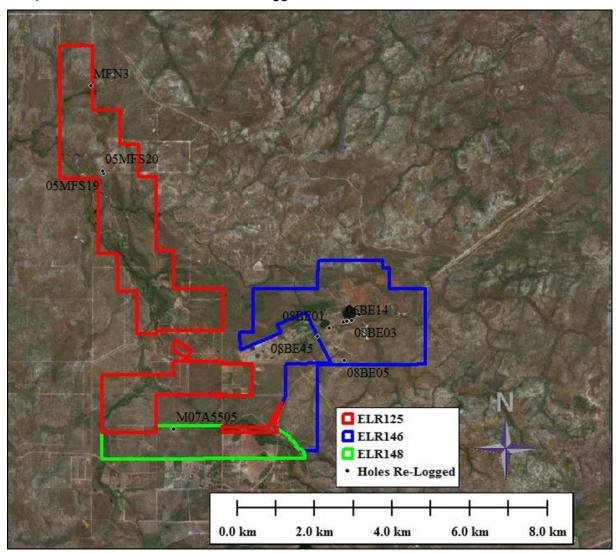


Figure 6 - Re-logging collar locations

#### 10. Conclusions and Recommendations

During the next reporting period (23 August 2018 to 22 August 2019), NTR & DRA intends to carry out further office studies including combining the newly acquired LiDAR data with the airborne gravity data to further refine and strengthen geophysical anomalies. If the reprocessing of AEM data within Area 4 proves to be beneficial, the remaining three areas will be subject to re-processing. This work is being completed to further refine geophysical anomalies in order to design future exploration and mining programs.

### 11. References

Glass, L. ELR125 Annual Technical Report For the Period 23 August 2016- 22 August 2017. Territory Iron Pty Limited. 2017

Johansen, G. ELR125, ELR146, ELR 148, Mt Fitch (No.2), Group Technical Report 382/16 From 23rd August 2015 to 22nd August 2016. Compass Resources Limited. 2016