

## INDEPENDENT TECHNICAL REPORT ON THE MURPHY PROJECT, NORTHERN TERRITORY, AUSTRALIA



Prepared by Mining Associates Ltd  
for  
Laramide Resources Ltd.

Authors:  
Rob Sowerby  
BAppSci, MEnvEngSci , MAIG

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## 1 SUMMARY

This is an independent technical report on Laramide Resources Ltd's ("Laramide") Murphy Property ("Murphy" or "the Property") in the Northern Territory (NT), Australia prepared in accordance with Canadian National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI43-101).

The Project area is located adjacent to the Northern Territory/Queensland border approximately 1250 km SE of Darwin and 400 km NNW of Mt Isa and centred at latitude 17° 40' 00" S and longitude 137° 50' 00" E. The Property is comprised of four Exploration Licences (ELs), EL9319, EL9414, EL23573 and EL29898 covering 1,049.6 km<sup>2</sup>.

The Project area forms part of Laramide's regional tenement holdings which extend into Queensland and includes the Westmoreland uranium deposits which contain previously reported NI43-101 compliant resources of 27.7Mt at 0.085% U<sub>3</sub>O<sub>8</sub> for 51.9Mlbs contained U<sub>3</sub>O<sub>8</sub>. The company has strategically acquired this regional portfolio of tenements to cover a substantial strike length of the Murphy Inlier including the prospective Westmoreland Conglomerate and tectonic-structural settings prospective for uranium mineralisation in the region

The Murphy Project is broadly comprised of two areas: the Northern and Southern Murphy Project areas. Laramide has been exploring the Northern Murphy area comprising EL's 23573 & 29898 since 2005 and acquired its initial interest the Southern Murphy Project areas comprising ELs 9319 & 9414 in 2011. Due to historic access restrictions the southern areas have received little exploration in recent decades and minimal drilling. On EL9414 no uranium exploration has been undertaken since 1981 notwithstanding several identified anomalies and geological and structural similarities to the Westmoreland region.

Laramide commenced exploration in the area in 2005 after entering into joint venture agreements with the initial holders of EL23573 and EL29898 (formerly EL10335). In 2011 Laramide entered into a joint venture agreement with Rio Tinto Exploration Pty Ltd (Rio Tinto) to explore EL9319 and EL9414 on the Waanyi Garawa Aboriginal Land Trust and under an agreement with the Northern Land Council and the Aboriginal Traditional Owners. As a result of subsequent commercial transactions all four tenements are currently owned (100%) by Lagoon Creek Resources Australia Pty Ltd (a wholly owned subsidiary of Laramide Resources).

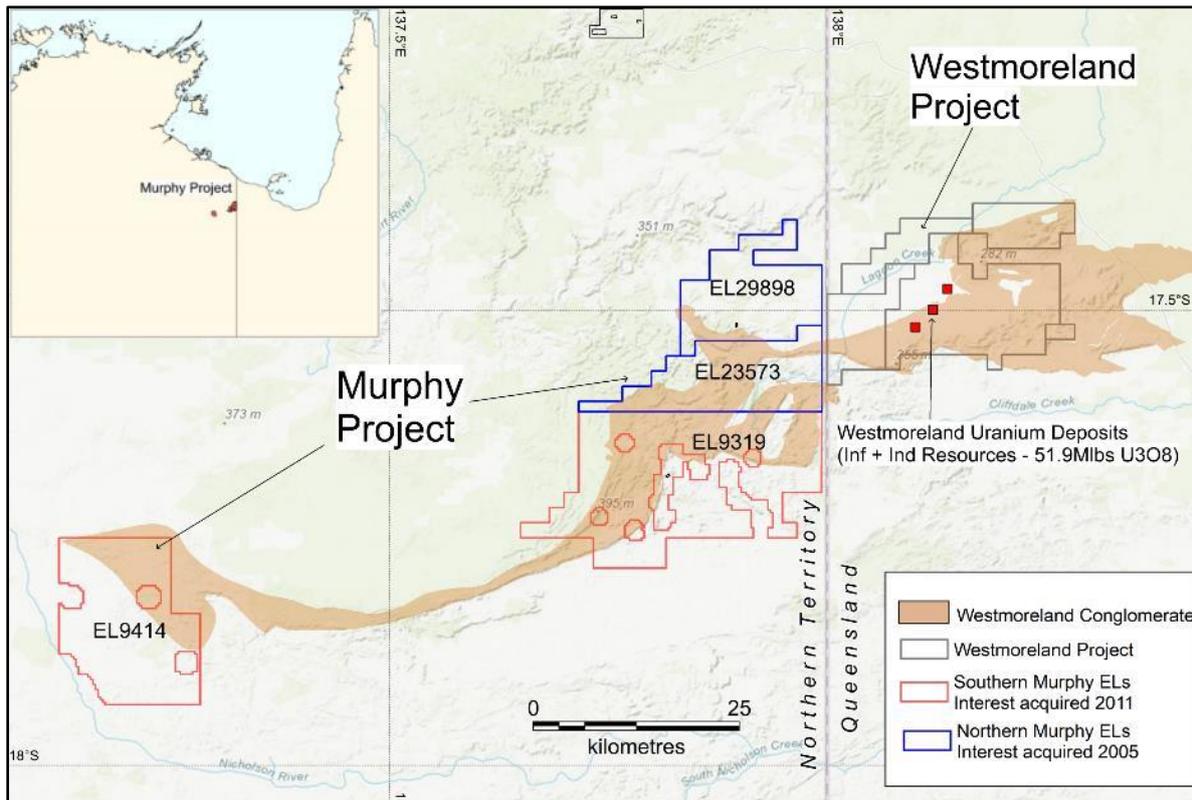


Figure 1.1 Location of Murphy Project area

## 1.1 PROJECT HISTORY

Uranium exploration in the region commenced in the late 1950's and uranium mineralisation was subsequently discovered at a number of locations, most notably at Redtree and Pandanus Creek (historic Eva Mine). Future work would ultimately define the Westmoreland Uranium deposits at Redtree, Huarabagoo and Junnagunna in Queensland that have current NI43-101 compliant resources of 27.7Mt at 0.085% for 51.9Mlbs contained (Lycopodium Mineral Pty Ltd, 2016). The Westmoreland Uranium deposits are owned by Laramide and are located 10 km east of the Northern Territory/Queensland border and adjacent to the Murphy Project tenements.

In the Murphy area, small scale mining of two deposits, Pandanus Creek (Eva Mine) and Cobar II occurred during the 1960's. The Eva mine is located on Mineral Lease MLN585 which is currently held by Verdant Minerals Ltd (Verdant) in the central part of EL9319. During 1960 - 1962, South Alligator Uranium NL selectively mined 306 t of ore averaging 8.37% from the Eva deposit.

During the 1970's and 1980's regional exploration was undertaken in the eastern Murphy Project area by a number of companies including Asarco Australia Pty Ltd (Asarco), Noranda and Kratos Uranium N.L. (Kratos) and Esso Exploration and Production Australia Inc (Esso), CRA Exploration Pty Ltd (CRAE) and Uranerz Australia Pty Ltd (Uranerz). Regional exploration consisted of airborne magnetics and radiometrics surveys and ground follow up of radiometric anomalies. Drill testing of radiometric anomalies was carried out by Kratos, Noranda, CRA Exploration Pty Ltd (CRAE) and Uranerz between the late 1970's and early 1980's. The majority of drilling was undertaken by Kratos during the late 1970's targeting the NE Westmoreland prospect and to a lesser extent the EL Hussen and Cobar II prospect areas. Exploration on ELs 9414 and 9319 has been generally limited to reconnaissance

mapping and airborne radiometric surveys with limited follow up work. Two uranium prospects were also identified on the current EL9414.

## 1.2 GEOLOGY

The Murphy Project area is located within the Murphy Tectonic Province, which is comprised of Palaeoproterozoic metasedimentary, volcanic and felsic intrusive rocks that underlie Mesoproterozoic and younger sedimentary successions in the northeast of the Northern Territory and north western Queensland. It forms an extensive east-west- trending basement high that separates the overlying Mesoproterozoic McArthur Basin succession in the north from the South Nicholson Basin and Lawn Hill Platform successions in the south.

The oldest rocks exposed in the area are Palaeoproterozoic age Murphy Metamorphics that were metamorphosed during the Barramundi Orogeny at approximately 1850 Ma. The Murphy Metamorphics were intruded by granite, quartz monzonite, granite and granodiorite of the Nicholson Granite Complex during the waning phase of the Barramundi event. Cliffdale Volcanics are considered comagmatic with the Nicholson Granite Complex and form a thick sequence of felsic and dacitic volcanics in the region. The Inlier is unconformably overlain to the north and northwest by the Tawallah Group which represent the basal rocks of the southern McArthur Basin. The base is a sequence of conglomerates and sandstones comprising the Westmoreland Conglomerate. In the west of the area in EL9414 the Westmoreland Conglomerate unconformably overlies the Murphy Metamorphics. The Westmoreland Conglomerate is conformably overlain by the andesitic to basaltic volcanics of the Seigal Volcanics. Fine grained dolerite dykes intrude the Westmoreland Conglomerate and are considered to be coeval with the Seigal Volcanics. The volcanics are overlain in turn by younger shallow marine sandstones, siltstones and dolomites of the McArthur Basin.

The Northern Territory Geological Survey (NTGS) Mineral Occurrence database records numerous small uranium, copper, gold and tin occurrences within the Murphy Project area.

The most significant uranium mineralisation in the wider region are Laramide's Westmoreland deposits in Queensland. Mineralisation at Westmoreland occurs in stratabound lenses in the upper part of the Westmoreland Conglomerate and adjacent to a NE trending fault zone intruded by a basic dyke.

In the Murphy Project area, the main occurrences are at the NE Westmoreland, El Hussen and Cobar II Prospects, all of which occur either as stratabound zones close to the Westmoreland Conglomerate/Seigal Volcanics or faulted contacts between these two rock types.

Also notable within the external boundaries of the Murphy Project is the historic Eva mine which occurs on a small mineral lease within the tenement held by Verdant Minerals Ltd. At Eva, mineralisation is hosted by sheared and altered andesitic volcanics of the Cliffdale Volcanics and granophyre/microgranite dykes of the Nicholson Granite Complex.

Gold mineralisation is also known to be associated with uranium mineralisation at Eva and has also been intersected in drilling at the NE Westmoreland prospect and at the Westmoreland Uranium deposits in Queensland.

## 1.3 EXPLORATION AND DRILLING

Laramide commenced exploration in the Murphy Project area in 2005 via Laramide's wholly owned Australian subsidiary Lagoon Creek Resources. The primary focus of initial work on these tenements was the exploration for Westmoreland Style uranium mineralisation associated with the

Westmoreland Conglomerate and fault hosted mafic dykes. Exploration on ELs9319 and 9414 commenced in 2011 after Laramide entered into a joint venture with Rio Tinto to explore these tenements. Between 2005 and 2010, exploration focused on ELs23573 and 29898. Exploration undertaken included:

- high resolution airborne magnetics and radiometrics survey covering ELs23573 and 29898 and adjacent tenements in Queensland.
- RC Percussion and Diamond drilling of the historic El Hussen and NE Westmoreland prospects for a total of 8,102.5 m of drilling in 55 drill holes.
- Diamond drilling of 15 drill holes for 1,771.8 m testing regional structural and radiometric targets.
- Stream Sediment Sampling covering ELs 23573 and 29898 including sampling for Bulk Leach Extraction of Gold analysis (BLEG).
- Local prospect scale ground scintillometer surveys and soil sampling

Best results from drilling were returned from the EL Hussen and NE Westmoreland prospects where discontinuous and thin lenses of mineralisation was intersected up to 4m at 4,270ppm from 128 m in NEWM204. While no significant mineralisation was intersected, drilling confirmed the presence of Westmoreland style mineralisation in the Murphy Project area

Stream Sediment sampling identified a number of drainages with anomalous gold (maximum 214ppb Au) and palladium (maximum 61ppb Pd) in EL23573 in an area of faulted contacts between the Westmoreland Conglomerate and the Cliffdale Conglomerate. These results were comparable to historic stream sediment sampling that identified anomalous gold in the area currently contained within EL9319. Anomalous gold appears to be associated with the Cliffdale Volcanics and Nicholson Granite Complex in this area. A number of areas have been identified that are considered to warrant follow up sampling.

Between 2011 and 2014, Laramide's primary focus was on consolidation of ownership of the Murphy Project including entering into a joint venture with Rio Tinto for ELs9319 and 9414 within the Waanyi Land Trust and undertaking high resolution airborne magnetic and radiometric surveys over ELs9319 and 9414 and a VTEM survey over EL23573. These surveys identified a number of untested radiometric anomalies on ELs9319 and 9414 and bedrock conductors on EL23573 which may represent concealed alteration zones.

In 2015, Laramide initiated its Mineral Systems Project to develop a comprehensive mineral systems model for the region, incorporating both the Murphy Property and Westmoreland Property. The objective of the Mineral Systems Project was to develop an integrated model for exploration incorporating regional drilling datasets, mapping and high-resolution geophysical surveys acquired by Laramide. In 2018 an airborne gravity survey was completed covering ELs 23573, 29898 and 9319 to provide additional data to further support the regional model.

As a result of this work a structural model was developed that identified key structural relationships considered to be favourable for the formation of Westmoreland style uranium deposits and a number of prospective target areas have been identified in the Murphy Property.

## 1.4 CONCLUSIONS

The Northern Murphy area comprising EL's 23573 and 29898 have been explored by Laramide since 2005. Between 2005 and 2010 exploration work focused on the assessment and drill testing of known occurrences at NE Westmoreland and El Hussen and to a lesser extent, radiometric anomalies defined by the 2005 airborne radiometric survey covering ELs 23573 and 29898. This work was primarily focused on outcropping or near surface anomalies and mineralisation and extensions to known mineralisation. While not defining economic mineralisation, exploration confirmed the presence of Westmoreland style mineralisation and alteration types in the area. Further geophysical work over these areas have identified a number of uranium and base metal targets warranting further exploration.

Significantly less historical exploration has been undertaken on the Southern Murphy Project tenement areas due to historic access restrictions yet contain equivalent geological and structural features to the northern Murphy Project area and Westmoreland region.

Based on the geology of the region and the results of exploration and targeting work undertaken by Laramide Resources, the Murphy Property is considered to exhibit geological and structural characteristics that may be prospective for Westmoreland Style and Unconformity-related uranium mineralisation.

Laramide have identified a number of specific, untested structural targets that the company considers favourable for Westmoreland style uranium mineralisation based on the results of its Mineral Systems Project. These target areas warrant further investigation and drill testing.

On the western block of the Murphy Project on EL9414, basal sandstones and conglomerates of the McArthur Basin directly overlie Palaeoproterozoic lithologies of the Murphy Metamorphics. Several radiometric anomalies were identified in this area by Laramide's 2014 airborne radiometric survey. Minimal field work has been undertaken in this area since the 1970's. Further work to investigate these anomalies and to assess the potential for unconformity-related uranium mineralisation is recommended.

Anomalous gold has also been identified in the area and gold mineralisation is also known to occur in the region at the historic Eva Mine and Westmoreland Deposits. Consequently, consideration of the potential for Coronation Hill style gold and palladium mineralisation is warranted.

## 1.5 EXPLORATION RECOMMENDATIONS

Laramide's planned exploration activities on the Property over the next two years include:

2020

- Mapping, ground spectrometer and geochemical surveys targeting radiometric anomalies on the southern Murphy Project area (EL9414 and 9319).
- Follow up mapping and surface sampling in areas with anomalous gold and palladium identified by historic stream sediment sampling focusing on ELs 9319 and 23573
- Sampling and Analysis for Radiogenic Isotope indicators over target areas on ELs 23573 and 29898 defined by the Mineral Systems Project

2021

- Drill testing of priority targets (amount of drilling will be dependent on results of work undertaken in 2020)

Total estimated expenditure for Phase 1 exploration is \$250,000 (refer Table 1-1)

**Table 1-1. Proposed Phase 1 Exploration Expenditure**

<b>2020 Work Programme</b>	<b>Budget (CAD)</b>
Reconnaissance mapping and sampling and follow up of radiometric anomalies and gold in stream sediment anomalies focusing on Southern Murphy Tenements	\$ 175,000
Soil sampling and radiogenic isotope sampling on identified targets on Northern Murphy Project area.	\$ 75,000
<b>Total Budget (Approximately)</b>	<b>\$ 250,000</b>

## **2 INTRODUCTION**

### **2.1 TERMS OF REFERENCE**

This Independent Technical Report has been prepared by Mining Associates Ltd (“MA”) for Laramide Resources Ltd. (“Laramide”) in compliance with disclosure requirements of Canadian National Instrument 43-101 – Standards of Disclosure for Mineral Projects (“NI43-101”). MA was commissioned in November 2019 to prepare this Technical Report to meet the requirements of section 4.2.1 (a) of NI43-101 prepared for Laramide for the purpose of facilitating future fund raising.

### **2.2 INFORMATION USED**

This report is based on technical data provided by Laramide to MA. Laramide provided open access to all the records necessary, in the opinion of MA, to enable a proper assessment of the project and resource estimates. Laramide has warranted in writing to MA that full disclosure has been made of all material information and that, to the best of the Laramide’s knowledge and understanding, such information is complete, accurate and true.

Additional relevant material was acquired independently by MA from a variety of sources. Historical documents and data sources used in the preparation of this technical report are listed the Bibliography. This material was used to expand on the information provided by Laramide and, where appropriate, confirm or provide alternative assumptions to those made by Laramide.

### **2.3 CURRENT PERSONAL INSPECTION BY QUALIFIED PERSONS**

The Qualified Person for this Technical Report is Mr Rob Sowerby, as defined in the regulations of NI43-101.

No site inspection was undertaken during the preparation of this report. Mr Sowerby has inspected the Property on several occasions between 2007 and 2010 as an independent technical consultant to Laramide and is familiar with the geology and exploration undertaken by Laramide during that period. No material changes to the Property have occurred since the date of Mr Sowerby’s last site visit.

The present Technical Report is prepared in accordance with the requirements of NI 43-101 and in compliance with Form 43-101F1 of the Ontario Securities Commission (“OSC”) and the Canadian Securities Administrators (“CSA”).

## **3 RELIANCE ON OTHER EXPERTS**

Copies of the tenure documents, operating licenses, permits, and work contracts were not reviewed. Information relating to tenure was reviewed by means of the public information available through the Northern Territory Government’s STRIKE website (<http://strike.nt.gov.au/>) containing tenure and geoscience information

MA has relied upon this public information, as well as tenure information from Laramide and has not undertaken an independent detailed legal verification of title and ownership of the Murphy Project ownership. MA has not verified the legality of any underlying agreement(s) that may exist concerning the licenses or other agreement(s) between third parties but has relied on, and believes it has a reasonable basis to rely upon Laramide to have conducted the proper legal due diligence.

## 4 PROPERTY DESCRIPTION AND LOCATION

The Murphy Project is located in the Northern Territory, adjacent to the state border with Queensland in Australia. The Property is approximately 1250 km south east of Darwin and 400 km north west of Mount Isa.

### 4.1 PROPERTY TENURE

The Property is comprised of Exploration Licences (ELs) 9319, 9414, 23573 and 29898 covering a total area of 1049.6 km<sup>2</sup> as shown in Table 4-1 and Figure 5-2. The tenement’s status has been verified by MA, through the publicly available information on the Northern Territory Governments online tenement viewing portal (<http://strike.nt.gov.au/>). This includes registered ownership of the leases and licence boundaries.

Title to the Property is held by Lagoon Creek Resources Pty Ltd (LCR), a wholly owned subsidiary of Laramide.

Table 4-1. Details of Murphy Project Licences

Licence ID	Area (Sub-blocks)	Area (sq km)	Issue Date	Current Renewal Period	LAM %	Ownership	Annual (AUD)	rent
EL9319	93	272.2	04/11/2011	03/11/2021	100%		33,429	
EL9414	157	411.3	04/11/2011	03/11/2021	100%		19,925	
EL23573	65	189.8	23/12/2003	22/12/2020	100%		14,017	
EL29898	55	176.3	15/08/2002	14/08/2021	100%		11,907	

### 4.2 HISTORY OF OWNERSHIP AND CURRENT STATUS

#### 4.2.1 EL23573

EL 23573 was granted to Arafura Resources NL on 23<sup>rd</sup> December 2003 originally covering an area of 194 square kilometres. In May 2005 Arafura entered into an agreement with LCR whereby the company could earn a 50% interest by spending AUD\$3 million over 4 years. NuPower Resources Ltd acquired the property from Arafura on 14<sup>th</sup> March 2007 as a result of the demerger of certain uranium interests into the new company. On 31 January 2013, NuPower Resources Ltd changed its name to Central Australian Phosphate Ltd (CAP). In 2013, LCR earned 50% equity in the tenement with the expenditure of AUD\$3 million (C\$2.9 million) over a four-year period on exploration on the tenement.

By 2016, CAP had been acquired by Verdant Minerals Ltd (Verdant) and in the third quarter of, 2018 LCR entered into a sale and purchase agreement with Verdant pursuant to which the Company acquired a 100% interest in EL23573. As consideration for the sale by Verdant of its interest in the Project, Laramide has made payments totalling \$25,000 To Verdant. The sale and purchase agreement requires further payments of AUD\$100,000 on drilling being executed on the tenement and payment on the publication of a NI 43-101 compliant measured and indicated resource equivalent of AUD \$0.05 per pound U3O8 (or equivalent value of an alternative commodity). Laramide can elect to make these further payments in cash or cash plus up to 50% common shares at the Company’s discretion. LCR are now registered as holding 100% of EL23573.

#### 4.2.2 EL 29898

The precursor tenement to EL29898 was EL10335 which was initially granted to Gulf Copper Ltd (formerly Hartz Range Mines Pty Ltd) on 15 August 2002. In May 2013, EL10335 which comprised 335 sub-blocks, was split into two separate exploration licences: EL10335 (215 sub-blocks) and EL29898 (110 sub-blocks), in accordance with the Mineral Titles Act. In 2005, LCR entered into an earn in agreement whereby LCR had an option to earn 90% of any resource discovered on the area by advancing the project to a bankable feasibility study on a prospect within the area and obtaining permits to mine. On October 8, 2014, Laramide announced it has entered into a Sale Purchase Agreement ("SPA") to acquire 100% of EL29898 from Gulf Copper Pty Ltd by paying Gulf AUD\$125,000 in three payments. This amount was subsequently reduced to A\$75,000 and LCR completed the acquisition in 2018 and now registered as holding 100% of EL29898.

#### 4.2.3 ELs 9319 and 9414

ELs9319 and 9414 were granted to Rio Tinto Exploration Pty Ltd (Rio Tinto) in November 2011. In that year LCR entered into an earn-in and joint venture agreement with Rio Tinto and where LCR would act as the operator. Under the Earn in agreement LCR could earn 51% of the Project with the expenditure of A\$10 million over a four-year period. In July 2018 LCR and Rio Tinto entered into a Sale and Purchase Agreement (SPA) whereby LCR would purchase 100% of the Murphy Project, comprising EL9319 and EL9414 and a number of ELAs from Rio Tinto. As consideration for the sale by Rio Tinto of its interest in the Project, Laramide has made two AUD\$150,000 cash payments to Rio Tinto. Under the SPA the Company is also required to make a further payment of AUD\$150,000 in July 2020. Laramide can elect to make these payments in cash or common shares at the Company's discretion.

The Agreement allows for Rio Tinto to have Clawback Rights, a Production Payment, an NSR Royalty and Rights of First Refusal under certain conditions.

The Clawback Rights can be exercised, on a one-time basis, if Laramide discovers and defines a Measured and Indicated Mineral Resource Estimate on the Project with an In-Situ Value estimated in excess of US\$1 billion (US\$1,000,000,000). This would allow Rio Tinto to Clawback a 51% interest in the newly formed (the "Joint Venture") on payment to Laramide of two times their expenditures to that date. Unless and until Rio Tinto has exercised, or waived, its Clawback Right, Laramide would also be obligated to make a one off payment equal to 1% of the Pre-Production Expenditures (the "Production Payment") on the Project from first revenues and also reserves for the benefit Rio Tinto a net smelter return royalty of two per cent (2%) in respect of all product produced from any mining within the Project Area. Rio Tinto will also retain a right of first refusal over future divestiture of the Project under certain conditions.

ELs9319 and 9414 are now held 100% by LCR.

#### 4.2.4 Third Party Mineral Leases

Two small Mineral Leases are located within the external boundaries of the Murphy Project area held by other companies. MLN578 is located within EL29898 and currently held by UAU Pty Ltd. The lease covers an area of 6.47ha over the historic Cobar II prospect area.

MLN585 is located within an internal exclusion area of EL9319. The lease covers the historic Eva uranium mine and has an area of 12.1ha. MLN585 is currently held by Verdant Minerals Ltd.

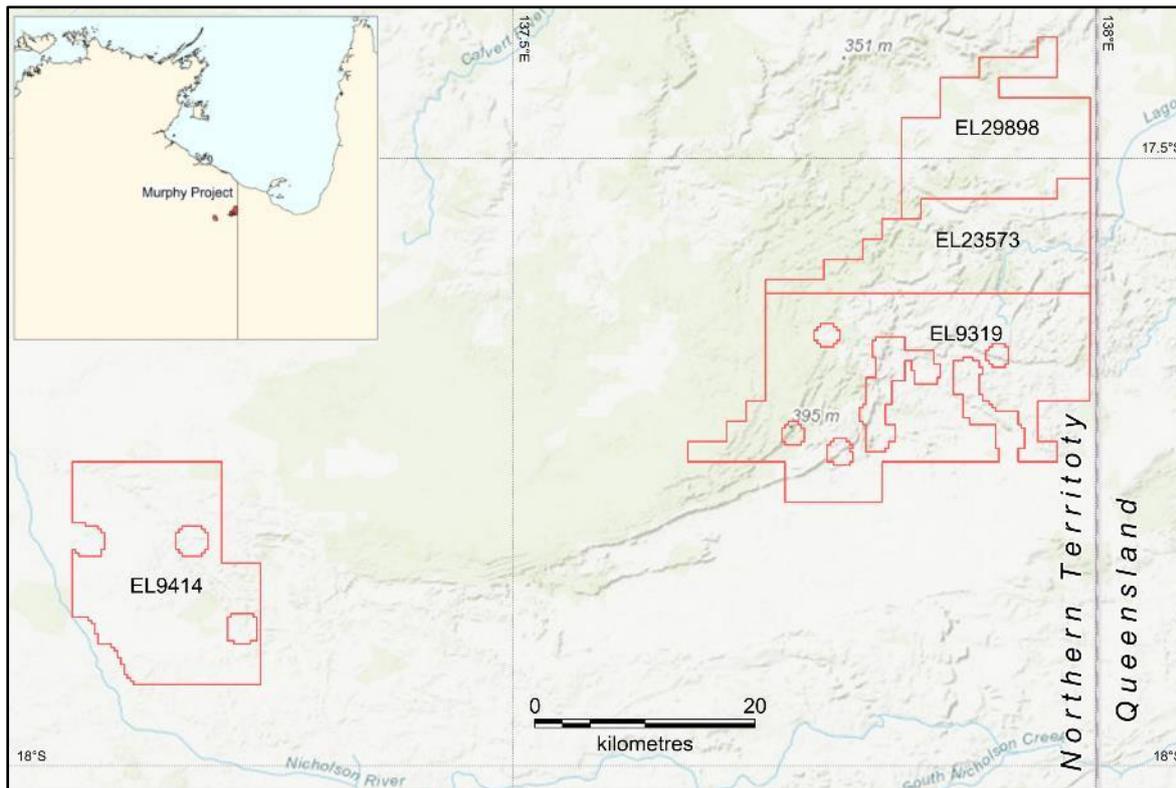


Figure 4-1. Local Property location and access

### 4.3 PROPERTY RIGHTS AND OBLIGATIONS

#### 4.3.1 Exploration licence rights

In Australia, all minerals belong to the Crown. Under the Australian Federal system the Commonwealth and State Governments are responsible for different aspects of the regulatory system. The Commonwealth Government is responsible for overall economic policy, tax, interest rates, foreign investment and corporate law, and for regulations regarding environmental and safety aspects of uranium mining and the sale of uranium product. The six States and the Northern Territory of Australia own and allocate mineral property rights for exploration and mining, regulate operations and collect royalties on minerals produced. The Northern Territory (NT) government owns all minerals and extractive minerals in the NT except for uranium, which belongs to the Australian Government.

The Murphy Project consists of four exploration licences granted under the Northern Territory (NT) Mining Act. Under the NT Mining Act, the holder of an exploration licence has the right to occupy the title area specified in the exploration licence, is authorised to conduct exploration activity on the tenement and has the exclusive right to apply for a mineral lease for all or part of the title area.

The holder of a mineral exploration licence has the right to occupy the land and conduct exploration for minerals on the land. The following activities may be conducted by the title holder on an exploration licence:

- (a) digging pits, trenches and holes and sinking bores and tunnels, in the title area;
- (b) activities for ascertaining the quality, quantity or extent of ore or other material in the title area by drilling or other methods; and

(c) the extraction and removal of samples of ore and other substances in amounts reasonably necessary for the evaluation of the potential for mining in the area. Larger samples of ore may be removed with the authorisation of the Minister.

Exploration licences are granted subject to statutory conditions including obligations to notify landowners of activities, carry out exploration work in accordance with proposed technical work programs and the expenditure requirements for the exploration licence and annual reporting requirements

Prior to undertaking ground disturbing activities including access construction and drilling, a Mine Management Plan (MMP) must be prepared and provided to the administering authority. The MMP must include management actions to reduce environmental impact.

An exploration licence may be granted for a term not exceeding six years and may be renewed for further periods of two years at the discretion of the Minister for Primary Industry, Fisheries and Resources.

Licence holders are required to pay an annual rent for exploration licences calculated on the number of graticular blocks held and to meet annual expenditure requirements which are set according to the proposed work program for the renewal period.

#### 4.3.2 Native Title

Australia's Indigenous peoples have common law rights to their traditional land and waters established by the [Native Title Act](#) in 1993. Aboriginal people who hold, or have claimed, native title rights over land must be consulted about proposed activities on the land. For mineral exploration, there are three main processes used to address native title issues relating to mining and exploration applications in the NT:

- expedited procedure whereby the activities proposed under the grant of the licence considered to have minimal impact on native title rights
- right to negotiate: negotiation with registered native title holders or claimants in order to get consent for mining activities
- Indigenous Land Use Agreement (ILUA): negotiation with native title parties to reach a formal agreement laying out what you are allowed to do. The ILUA is registered with the National Native Title Tribunal.

ELs 23573 and 29898 are located on Wollgorang Pastoral Lease where Native Title has been determined to exist and held by the Gudidiwalia and Binanda Garawa People. Both ELs were granted under the expedited procedure. Future application for mining tenements will be subject to "Right To Negotiate" provisions of the Native Title Act. The Right to Negotiate (RTN) involves a formal negotiation between the State, the applicant for the tenement and any registered native title claimants and holders of native title rights. The RTN objective is for the parties to negotiate in good faith and agree the terms on which the tenement can be granted. The applicant for the tenement is usually liable for any compensation that the parties agree to pay to the registered native title claimants and holders of native title. The parties may also agree on conditions that will apply to activities carried out on the tenement, for example, in relation to heritage surveys.

### 4.3.3 Waanyi Land Trust

Exploration Licences 9319 and 9414 are located on Aboriginal Freehold Land held by the Waanyi/Garawa Land Trust (NT Portion 2006). The grant of exploration and mining tenure on Aboriginal Freehold Land is subject to the provisions of the Federal Aboriginal Land Rights (Northern Territory) Act 1976 (ALRA). Under ALRA, the grant of exploration and subsequent mining titles requires consent by Aboriginal Traditional Owners of the area. Laramide have agreements in place with the Traditional Owners of the Waanyi/Garawa Land Trust and their representative body, the Northern Land Council. These agreements were previously negotiated under the provisions of ALRA to allow for exploration on these ELs and provide a framework for consultation, compensation and royalty payments and agreement on the grant of any future mining tenure and mining activities.

### 4.3.4 Sacred Sites and Cultural Heritage

Aboriginal Sacred Sites in the Northern Territory are protected by the Sacred Sites Act. Under the Sacred Sites Act it is an offence for a person to enter or remain on a sacred site or to carry out work on or use a sacred site. A person who proposes carry out work on land must ensure that they do not interfere with a sacred site by consulting with the Aboriginal Areas Protection Authority (AAPA) and if required, by consulting with Traditional Owners and their representative bodies. A tenement holder may seek to obtain an Authority Certificate from AAPA which indemnifies the holder against prosecution under the offence provisions of the Sacred Sites Act, provided that the holder has complied with the conditions of the certificate. AAPA Certificates have been obtained covering the areas of EL's 23573 and 29898.

On ELs 9319 and 9414, avoidance of sacred sites is managed through processes defined in the ALRA Exploration and Mining agreements the company has with the Traditional Owners and the Northern Land Council.

## 4.4 ROYALTIES

The project area is currently at an early stage of exploration and as such are not subject to production royalties. Any future mining operations will be subject to government royalties. Currently the collection of mining royalties is determined by the provisions of the Northern Territory Mineral Royalty Act 1982 (NT) (the MRA). Royalties are payable to the Northern Territory Government on all minerals except for uranium, petroleum and some extractive minerals. While uranium is owned by the Commonwealth Government, the Uranium Royalty (Northern Territory) Act provides for the Territory to administer the royalty regime on behalf of the Commonwealth, to retain the royalties collected, and to repay any overpayment of royalties. By virtue of an executive arrangement under the Uranium Royalty (Northern Territory) Act 2009 (Commonwealth), the Uranium Royalty (Northern Territory) Act applies the mineral royalty regime under the MRA to new mining operations

Under the MRA, royalties on minerals are charged on the net value derived from the production of a saleable mineral commodity. Currently, the royalty payable is the greater of: (a) 20 per cent of the net value, less \$10 000 (b) or the percentage of the gross production revenue applying to the royalty year as follows: (i) 1 per cent for the royalty payer's first royalty year that begins on or after 1 July 2019 (ii) 2 per cent for the royalty year that follows the royalty year mentioned in subparagraph (i), (iii) 2.5 per cent for each royalty year that follows the royalty year mentioned in subparagraph (ii).

#### 4.5 ENVIRONMENTAL LIABILITIES

Exploration and mining activities that are likely to cause significant ground disturbance require authorisation under the Northern Territory Mine Management Act. Significant disturbance for an exploration program may entail drilling activities that require new road access and drill pad construction. In this case, the proponent must submit a mining management plan which includes plans to minimise and rehabilitate disturbance and the estimated cost to undertake rehabilitation. The NT Government levies an annual fee of 1% of the estimated rehabilitation cost. The rehabilitation costs for the company based on current mine management plans are estimated to be \$64,700.

### 5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

#### 5.1 ACCESS

Exploration Licence 23573 (Lagoon Creek) is located about 235 km southeast of Borrooloola and about 1250 km SE of Darwin and about 40 km NNW of Mt Isa (Figure 5-1, Figure 5-2). The eastern boundary of the EL runs along the state border with Queensland.

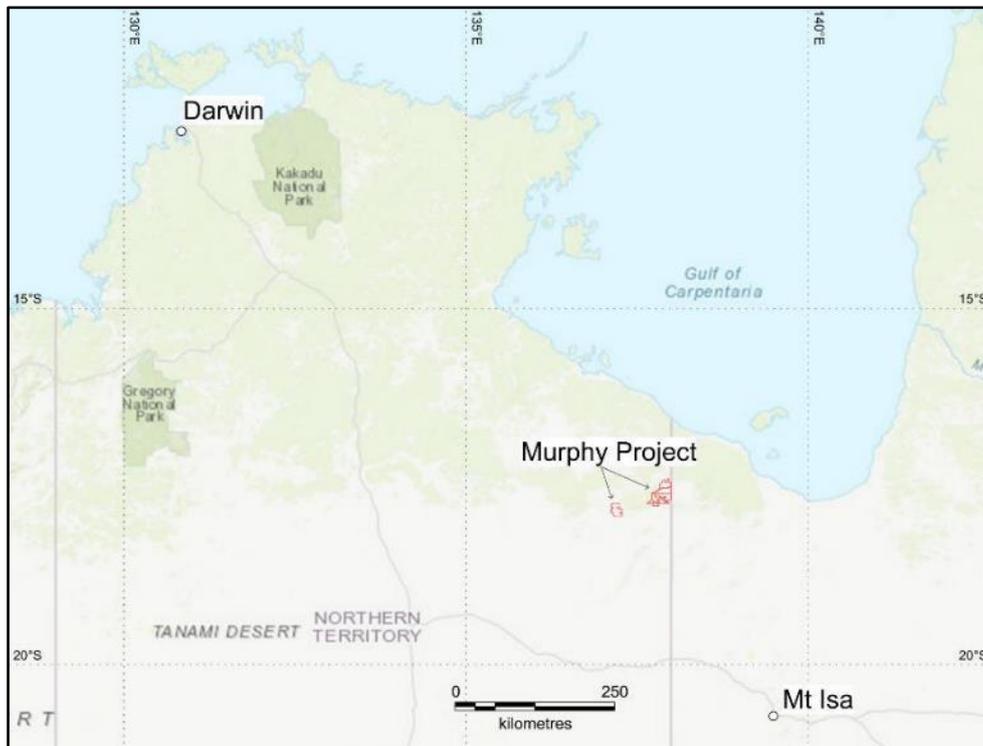


Figure 5-1. Murphy Property Regional Location.

Access to EL 23573 from Borrooloola, the nearest settlement of any size, is by the graded Carpentaria Highway and then by unsealed roads and tracks which access Wollogorang Station.

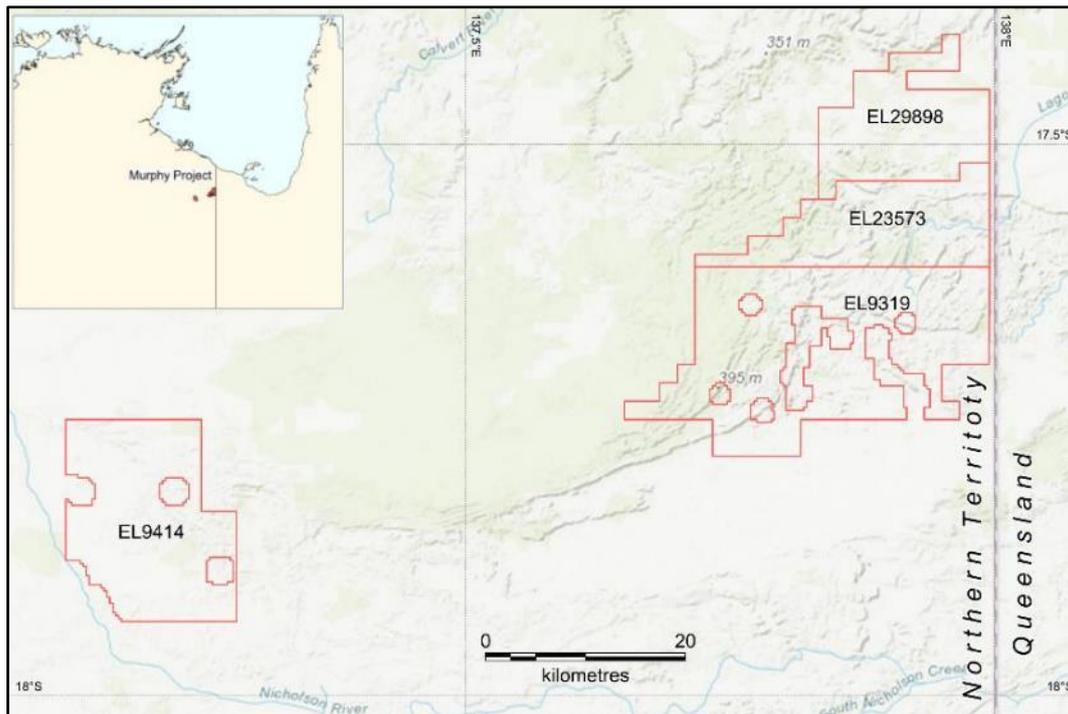


Figure 5-2. Local Property location and access

## 5.2 CLIMATE

The area lies in the tropical monsoon rain belt of northern Australia. Annual rainfall is about 900 mm, most of which falls between December and March. Pre-monsoon tropical storms occur in October and November and can restrict activities temporarily. Virtually no rain falls between the start of May and the end of August. Temperatures range from 20-38°C in summer (“wet season”) and 10-30°C in winter (“dry season”).

## 5.3 PHYSIOGRAPHY

The Murphy Project area is located in a region known as the Gulf Country, which includes the southern shores of the Gulf of Carpentaria and the inland country which drains into the Gulf. It is the largest tropical savannah region in Australia. Topographically the area consists of strike ridges, plateaus and intervening valleys. Soil development is poor with lithosols and shallow siliceous sands present in the area (Ahmad & Wyralak, 1989). The area is drained by a number of ephemeral creeks, the largest being Lagoon Creek which drains the area of EL23573 and EL29898. All water courses in the area are ephemeral and flow only during the wet season. Vegetation consists of scattered small trees, shrubs and spinifex grass. Larger trees occur along water courses.

## 5.4 LOCAL RESOURCES AND INFRASTRUCTURE

The Property is located within tropical savannah woodland utilised primarily for pastoral activities. Regionally, the area contains several past and operating mines including McArthur River zinc mine located 230 km to the northwest, Merlin Diamond Mine located 170 km to the northwest and Century zinc mine 130 km to the southeast. Port Facilities are located at Bing Bong (300 km to the northwest) and Kurumba (300 km to the northeast). The town of Mount Isa is located 400 km southeast of the project area and is a major mining service centre for the region.

The Savannah Highway passes around the northern end of the Property and in this area is a wide, well-formed gravel road. A network of pastoral station tracks provides generally ready access to most of the tenement block.

Laramide has established a semi-permanent 40-person camp approximately 23 km south-south-west of Wologorang Station, out of which all exploration operations are based.

## 6 HISTORY

In early November 1956, the Australian federal government Bureau of Mineral Resources (BMR) commenced a regional airborne scintillometer survey that included the Murphy Project area. Numerous radiometric anomalies were identified leading to a surge in exploration and prospecting activity in the region. As a result, uranium mineralisation was discovered at several locations, most notably at Redtree and Pandanus Creek in Queensland. Future work would ultimately define the Westmoreland Uranium deposits at Redtree, Huarabagoo and Junnagunna in Queensland which have current NI43-101 compliant resources of 27.7 Mt at 0.085%  $U_3O_8$  for 51.9 Mlbs contained  $U_3O_8$  (Lycopodium Mineral Pty Ltd, 2016). The Westmoreland Uranium deposits are owned by Laramide and are located 10 km east of the Northern Territory/Queensland border and adjacent to the Murphy Project tenements.

In the Murphy area, early exploration defined prospects with uranium, tin-tungsten and copper mineralisation. Small scale mining of two deposits, Pandanus Creek (Eva Mine) and Cobar II occurred during the 1960's. The Eva mine is located on Mineral Lease MLN585 which is currently held by Verdant in the central part of EL9319. The deposit was discovered in 1958 and was initially evaluated by BHP Ltd. During 1960 - 1962, South Alligator Uranium NL selectively mined 306 t of ore averaging 8.37%  $U_3O_8$  to a depth of 28 m. Gold mineralisation has been recognised as being associated with uranium mineralisation at Eva (Ahmad, Munson, & Wygralak, 2013). The Eva lease was most recently explored by NuPower Resources Ltd (now Verdant) in 2009.

Subsequent to the initial rush of the late 1950's and early 1960's modern systematic exploration commenced in the 1970's in the area. A review of historic exploration is summarised in Table 6-1.

### 6.1 MURPHY PROJECT EASTERN BLOCK (ELS 23573, 29898 AND 9319).

ELs23573,29898 and 9319 form a continuous block abutting the Northern Territory/Queensland border. Historically, the tenements have been explored as a single project area by a number of companies. Consequently the history of exploration in this area is described together in this section.

During the 1970's regional exploration was undertaken in the eastern Murphy Project area by Asarco Australia Pty Ltd (Asarco), Noranda and Kratos Uranium N.L. (Kratos) and Esso Exploration and Production Australia Inc (Esso). Regional exploration consisted of extensive airborne magnetics and radiometrics surveys which identified numerous moderate radiometric anomalies. Various levels of ground follow up including surface mapping, ground magnetics and radiometric surveys was carried out. Noranda drill tested two radiometric anomalies associated with altered acid volcanics and brecciated sandstone at the Crippled Horse and Red Rock prospects. A total of 7 holes for 415 m of drilling was completed. No significant mineralisation was intersected.

Kratos undertook significant work over an extended period between 1974 and 1990. Comprehensive airborne magnetics and radiometric surveys and ground geophysical surveys including VLF, electromagnetic, Radon, magnetics and radiometrics surveys were completed. The primary focus of

detailed work was in the NE Westmoreland area pursuing mineralisation identified adjacent to a NE trending fault and the contact zone between Siegal Volcanics and the Westmoreland Conglomerate. Drilling and ground geophysics was also undertaken at the El Hussen, Cobar II, Calvert North, Calvert South, Jim Beam and Southern Comfort Prospect areas. Between 1978 and 1982, a total of 20,845 m in 194 holes were drilled in the Murphy Project area of which 13,468 m in 125 holes was undertaken in the NE Westmoreland area. Uranium mineralisation was intersected in the NE Westmoreland area associated with a NE trending fault zone. Best intersections were 3m @ 1.79% U<sub>3</sub>O<sub>8</sub> and 4m @ 4.7g/t Au from 115m in WPD-60 and 11m @ 0.08% U<sub>3</sub>O<sub>8</sub> and 4m @ 6.8g/t Au from 47m in WPD 45 highlighting an association of gold with higher grade uranium mineralisation.

In 1985 Kratos entered into a JV with Central Electricity Generating Board Exploration (Australia) Pty Ltd (CEGBEA). CEGBEA drilled two diamond holes at the Cobar II prospect in 1987 with no significant mineralisation intersected. In 1987 Kratos undertook a regional stream sediment bulk sampling program for kimberlite indicators and platinum group elements with negative results.

Kratos continued exploration in the area on ELs6155-6157 area between 1988 and 1990 with a focus on exploration for Coronation Hill style gold mineralisation. Regional stream sediment sampling was undertaken with Bulk Leach Extraction of Gold (BLEG) analysis. Sporadic gold anomalism (max 40ppb Au) was identified.

Exploration in the area was also undertaken by CRA Exploration Pty Ltd (CRAE), Noranda Australia Pty Ltd (Noranda), Uranerz Australia Pty Ltd (Uranerz), Golden Plateau N.L. and Auridium N.L. Exploration undertaken by these companies was largely reconnaissance work including airborne magnetics and radiometric surveys, stream sediment sampling and ground reconnaissance. Limited drilling was undertaken by CRAE (two diamond drill holes for 149 m) testing radiometric anomalies identified by the airborne survey with negative results. In 1984, Uranerz completed 15 percussion/diamond holes for 1615 m targeting the El Hussen, Black and White and Banana Range Prospect areas and in 1985 a further 13 percussion and diamond drill holes were drilled for 1995.8m at the historic Eva and Norris Mine areas and the Breumat-Mai Prospect. Anomalous uranium mineralisation (maximum of 1m at 440 ppm U<sub>3</sub>O<sub>8</sub>) was intersected in narrow shear zones within dolerite at Breumat-Mai. Strongly altered and weakly uranium mineralised porphyritic intrusive was intersected along strike from the Eva Mine.

Limited exploration for Coronation Hill style gold mineralisation was undertaken in the late 1980's by Golden Plateau NL and Auridium NL. Golden Plateau NL completed regional stream sediment sampling in the area. Anomalous gold was identified in some stream sediment samples in the vicinity of the historic Eva mine workings and drainages within Cliffdale Volcanics and the Nicholson Granite. Auridium NL undertook limited reconnaissance exploration and rock chip sampling.

While excluded from the current tenement package, the historic Eva Mine area occurs within the external boundary of EL9319. The Eva Mine was drilled under MLN585 by Nupower Resources Ltd (Nupower) in 2009. Nupower drilled 50 RC Percussion and diamond drill holes for a total of 2,837m of drilling. High Grade mineralisation was intersected including 31 m at 0.69% U<sub>3</sub>O<sub>8</sub> and 4.55g/t Au and 3 m at 3.62% and 10.56g/t Au. Mineralisation was defined over a strike length of 100 m and a depth of 65 m. Mineralisation occurs in sheared and altered microgranite and andesitic volcanics.

The great majority of drilling in these tenements has been undertaken on ELs23573 and 29898. Drilling on EL9319 has been limited to the drilling undertaken by Noranda in 1972 at the Red Rock and Crippled Horse prospects and by Uranerz at the Brumat-Mai prospects in 1985. A total of 12 holes for 987.7

metres have historically been drilled within the current area of EL9319. Drilling undertaken at the historic Eva uranium and Norris copper mines occurs within areas currently excluded from EL9319.

**Table 6-1. Summary of historical exploration activity on ELs 23573, 29898 and 9319**

Organisation	Period	Description of Work Completed
Various including Mount Isa Mines, North Australian Uranium Corporation, South Alligator Uranium N.L. and United Uranium N.L. Exploration	1956-1970	Undocumented prospecting and exploration in the region resulted in discovery of Eva (Pandanus) and Cobar II deposits. Small scale mining undertaken at Eva and Cobar II.
Asarco (Australia) Pty Ltd	1972-1973	Reconnaissance mapping and scintillometer surveys
Esso Exploration and Production Australia Inc.	1979-1980	Helicopter radiometric Survey and aerial photography.
Noranda	1972-1973	Ground radiometrics and percussion drilling at Crippled Horse and Red Rock prospects – 7 drill holes for 415.2metres.
Kratos Uranium NL	1975-1982	Airborne magnetic and radiometric surveys with ground follow up consisting of mapping, ground magnetics and radiometrics and surface sampling. Percussion and Diamond drilling targeting NE Westmoreland, El Hussen, Cobar II, Calvert North, Calvert South, Jim Beam and Southern Comfort prospects. A total of 194 percussion and diamond drill holes were completed for 20,845metres. Best results were intersected at NE Westmoreland (max 11m @ 0.08% lb/t and 4m @ 6.8g/t Au from 47m in WPD 45).
CRA Exploration Pty Ltd	1979-1980	Airborne magnetics and radiometrics, ground follow up. Two diamond drill holes for 149 m drilled testing radiometric anomalies with negative results.
Kratos Uranium CEGBEA JV	1982-1990	Ground geophysical surveys including VLF, electromagnetic, Radon, magnetics and radiometrics. Two percussion diamond drill holes were completed by CEGBEA at Cobar II with no significant mineralisation intersected. Regional Stream sediment sampling program was undertaken by Kratos with a focus on gold exploration. Maximum gold in stream sediment sample assay of 40ppb Au was returned in the vicinity of the historic Eva Mine.
Uranerz Australia Ltd CEGBEA JV	1983-1989	Reconnaissance exploration including Airborne Radiometric and magnetic surveys and stream sediment surveys. Uranerz completed 28 percussion/diamond drillholes (3,610.8 metres) in 1984 and 1985 testing the El Hussen, Black and White and Banana Range Prospect areas and in 1985 a further 13 percussion and diamond drill holes were drilled for 1995.8mat the historic Eva and Norris Mine areas and the Breumat-Mai Prospect. Anomalous uranium mineralisation (maximum of 1m at 440ppm ) was intersected in narrow shear zones within dolerite at Breumat-Mai
Stockdale	1984-1988	Focus on diamond exploration – stream sediment sampling and bulk sampling.
Golden Plateau N.L.	1987-1988	Stream sediment sampling, rock chip sampling and regional reconnaissance focused on gold exploration
Auridium N.L.	1988-1990	Limited rock chip sampling and regional reconnaissance focused on gold exploration
CRA Exploration Pty Ltd	1989-1990	Limited Stream Sediment Sampling
Nupower Resources Ltd	2008-2009	Drill testing historic Eva uranium mine area. RC Percussion and Diamond Drilling totalling 2,837 m in 50 holes were completed. High Grade mineralisation was intersected including 31 m at 0.69% and 4.55g/t Au and 3 m at 3.62% and 10.56g/t Au.

## 6.2 MURPHY PROJECT – WESTERN BLOCK (EL9414)

Historic exploration on EL9414 is summarised in Table 6-2 and described in detail below. Exploration in the area currently covered by EL9414 was spurred by Australian Government’s Bureau of Mineral

Resources (BMR) undertaking a regional airborne radiometric survey in 1956. The BMR survey identified numerous anomalies of which Anomaly 30 is located within the current area of EL9414.

In 1968 United Uranium NL reported reconnaissance exploration targeting anomalies identified by a BMR survey. United Uranium inspected 37 anomalies in the wider region with no further follow up.

In 1972, Noranda drilled 7 vertical rotary percussion drill holes totalling 419 m targeting Anomaly 30. The highest grade mineralisation found was 7.6m @102ppm . At the time it was concluded that no further drilling was justified.

Between 1979 and 1981 exploration was carried out by Mines Administration Pty Ltd in joint venture with Esso. Esso carried out an airborne radiometric survey, identifying 9 uranium anomalies in the project area. Esso also undertook a track etch survey in the area identifying ‘Anomaly 4901’ as having “a good potential for mineralisation”. Esso reported that the peak of the anomaly occurs in a fault breccia in micaceous siltstones and quartz biotite schists. Three costeans were excavated across the anomaly. Anomalous radioactivity was reported as peaking at 5,000cps on a GR410 spectrometer and extending over a 200 m strike length and associated with an iron rich breccia unit within quartz-biotite schists. Soil and rock chip sampling was undertaken along the costeans however no significant uranium results were returned and the source of the anomaly remains unexplained. Outcrop in the area is poor and exploration was limited to the 200 m strike length of outcropping geology.

Between 1983 and 1989 Stockdale Prospecting Ltd (Stockdale) carried out an exploration targeting kimberlite hosted diamond deposits. Stockdale undertook stream sediment surveys and airborne magnetics surveys. Stockdale reported that while the incidence of diamonds in the area now covered by EL9414 was high, kimberlitic indicators other than chromite were scarce. It was concluded at the time that without further evidence, the diamonds are from a secondary source whilst chromites are from local basic intrusives.

**Table 6-2. Summary of historical exploration activity on EL 9414.**

Company Organisation or	Period	Description of Work Completed
United Uranium NL	1967-1968	Reconnaissance mapping and scintillometer surveys.
Noranda Australia Pty Ltd	1971-1972	Seven percussion drill holes for 419 m at Anomaly 30. Best intersection of 6.6m at 102ppm .
Mines Administration Pty Ltd – Esso JV	1979-1981	Airborne radiometric survey, track etch radon surveys. Costean sampling at Anomaly 4901. Anomalous radioactivity identified in costeans
Stockdale Prospecting Ltd	1983-1989	Stream sediment sampling and bulk sampling for Kimberlite indicator minerals. High incidence of diamonds however source considered to be secondary.

### 6.3 DISCUSSION OF HISTORIC EXPLORATION

Historic exploration in the area was focused primarily on Westmoreland style mineralisation by targeting radiometric anomalies and fault zones within the Westmoreland Conglomerate, particularly close to its contact with the overlying Seigal Volcanics. Most drilling was undertaken along the NE Westmoreland Fault zone and to a lesser extent the EL Hussen and Cobar II prospect areas. Exploration on ELs 9414 and 9319 was generally limited to reconnaissance mapping and airborne radiometric surveys with limited follow up work. No uranium exploration has been undertaken on EL9414 since 1981. Exploration on these tenements has been curtailed since the 1980’s by access restrictions and as a result a number of the targets identified in previous exploration remain to be fully tested by

modern exploration techniques. Rio Tinto lodged applications for EL's 9319 and 9414 in 1995 but these tenement applications were not granted until 2011. Following grant the area was operated by LCR under the farm in agreement with Rio. During this period exploration activities have been restricted to airborne geophysical surveys in part due to depressed financing conditions in the uranium market. Historic work identified uranium mineralisation at the El Hussen, Cobar II and NE Westmoreland prospect areas, each of which shows similarities to the Westmoreland Uranium deposits in Queensland and hence demonstrating that similar mineralising processes were active in the Murphy Project area. The discovery and subsequent work undertaken at the Eva mine identified a variant of uranium and gold mineralisation hosted by sheared andesite of the lower Clifffdale Volcanics and granophyre. Gold mineralisation was also identified at the NE Westmoreland Project. The potential for Coronation Hill style U+Au+Pt and Pd mineralisation was recognised by historic explorers including Kratos and Auridium however exploration for this type of mineralisation was limited to regional surveys which has identified sporadic anomalous gold in stream sediment sampling primarily in the current boundary of EL9319.

## 7 GEOLOGICAL SETTING AND MINERALIZATION

### 7.1 REGIONAL GEOLOGY

The Murphy Project area is located within the Murphy Tectonic Province which is comprised of Palaeoproterozoic metasedimentary, volcanic and felsic intrusive rocks that underlie Mesoproterozoic and younger sedimentary basins in the northeast of the Northern Territory and north western Queensland (Figure 7-1, Figure 7-2). It forms an extensive east-west- trending basement high, that separates the unconformably overlying mid-Proterozoic McArthur Basin succession in the north from the South Nicholson Basin and Lawn Hill Platform successions in the south (Ahmad, Munson, & Wygralak, 2013).

The oldest rocks exposed in the area are the Palaeoproterozoic Murphy Metamorphics which represent a succession of greenschist-facies metamorphosed shale and greywacke and occurring predominantly as phyllitic to schistose metasediments and quartzite. These lithologies are isoclinally folded along east-west axes and were metamorphosed and deformed during the Barramundi Orogenic event at approximately 1850 Ma.

The Murphy Metamorphics are overlain by two Proterozoic cover sequences laid down after the early deformation and metamorphism of the basement, and before a period of tectonism which began at about 1620 Ma. The oldest cover sequence is the Clifffdale Volcanics unit, which unconformably overlies the Murphy Metamorphics. The Clifffdale Volcanics contain over 4000 m thickness of volcanics, more than half of which consist of crystal-rich ignimbrites with phenocrysts of quartz and feldspar. The remainder are rhyolite lavas, some of which are flow banded. The Clifffdale Volcanics, according to Ahmad & Wrygalak (1989), are subdivided into a lower sequence dominated by coarse, poorly sorted porphyritic andesitic/dacitic ignimbrite and an upper sequence of dominantly flow banded alkali rhyolite and tuff.

The Clifffdale Volcanics are comagmatic with the Nicholson Granite and together they comprise the Nicholson Suite. Two samples of Nicholson Granite Complex have yielded SHRIMP U-Pb zircon ages of  $1856 \pm 3$  Ma and  $1845 \pm 3$  Ma (Page, Jackson, & Krassay, 2000). The Nicholson Granite comprises coarse- to medium-grained hornblende- and/or biotite-bearing granite, quartz monzonite, granite and granodiorite.



The Inlier is unconformably overlain to the north and northwest by the Tawallah Group which represents the basal rocks of the southern McArthur Basin. The base is a sequence of conglomerates and sandstones comprising the Westmoreland Conglomerate. The Westmoreland Conglomerate is a flat-lying sequence dipping between 5° and 10° to the NNW. Locally, the Westmoreland Conglomerate consists of a sequence of coarse to gritty feldspathic sandstone with local pebble and cobble lenses, overlaying a basal conglomerate bed containing abundant volcanic material.

The Westmoreland Conglomerate is conformably overlain by the Seigal Volcanics, an andesitic to basic sequence containing interbedded agglomerates, tuffs and sandstones. Fine grained dolerite dykes intrude the Westmoreland Conglomerate and are considered to be coeval with the Seigal Volcanics. Together these units comprise about two-thirds of the total thickness of the Tawallah Group. The volcanics are overlain in turn by the McDermott Formation, the Sly Creek Sandstone, the Aquarium Formation all of which are primarily comprised of shallow marine sandstones, siltstones and dolomites.

The southern side of the Inlier is overlain by Mesoproterozoic members of the Lawn Hill Platform and Nicholson Basin sequences. The Lawn Hill Platform Sequence (c.1595-1591Ma) comprises coarse sands and alternating bands of basalt and rhyolite, with sandstones, siltstones, conglomerates, and dolomitic material. The Lawn Hill Platform Sequence occurs within the Murphy Project area in the south eastern part of EL9414, where the Walford Dolomite of the Fickling Group is present. The Constance Sandstone of the South Nicholson Group unconformably overlies Fickling Group and Murphy Metamorphics lithologies in the southern part of EL9414.

Proterozoic lithologies are overlain by Cretaceous sediments and palaeosols consisting of sandstone and laterites and Cainozoic surficial deposits (laterites, sands, soils), particularly in lower lying areas of the region.

## 7.2 MINERALISATION

The Northern Territory Geological Survey (NTGS) Mineral Occurrence database records numerous small uranium, copper, gold and tin occurrences within the Murphy Project area. Uranium mineralisation has been recognised in several structural and stratigraphic positions (Ahmad,1987). These include:

1. associated with faults and fractures in Murphy Metamorphics;
2. in shear zones in the Clifdale Volcanics near the Westmoreland Conglomerate unconformity;
3. at the reverse-faulted contact between Clifdale Volcanics and Westmoreland Conglomerate;
4. in Westmoreland Conglomerate in close proximity to the overlying Seigal Volcanics;
5. in association with mafic dykes and sills; and
6. in shear zones within the Seigal Volcanics.

The most significant uranium mineralisation in the wider region is Laramide's Westmoreland deposits in Queensland. Mineralisation at Westmoreland occurs in stratabound lenses in the upper part of the Westmoreland Conglomerate and adjacent to a NE trending fault zone intruded by a basic dyke.

Significant occurrences within the Murphy Project area are described further below.

### 7.2.1 NE Westmoreland

At NE Westmoreland, uranium has previously been intersected in drilling by Laramide and historic explorers. The prospect was initially identified as a radiometrically anomalous zone on the eastern boundary of what is now EL23573. Subsequent drilling undertaken by Kratos and Laramide has identified uranium mineralisation associated with a NE trending fault intruded in places by dolerite dykes. Thin and low grade stratabound mineralisation (100-200 ppm) has been intersected in a siltstone unit at the contact between Seigal Volcanics and the Westmoreland Conglomerate. Higher grade mineralisation has been intersected within and adjacent to the fault zone within the upper sandstone unit of the Westmoreland conglomerate in this area however this style of mineralisation appears to be discontinuous in the area drilled. Mineralisation at NE Westmoreland exhibits a number of similarities with the Westmoreland Uranium deposits located 10 km to the east including association with a parallel northeast trending fault zone, chloritic alteration and its occurrence within the upper part of the Westmoreland Conglomerate close to its contact with the Seigal Volcanics.

Best drill intersections returned from the NE Westmoreland prospect area have included 3m @ 1.79% /t and 4m @ 4.7g/t Au from 115m in WPD-60 and 11m @0.07% from 47m including an interval of gold mineralisation from 53m of 4m @ 6.8g/t Au.

### 7.2.2 EL Hussen

The El Hussen prospect was originally discovered in 1957 by Northern Australian Uranium Company who undertook costeaning, drilling and excavation of an exploratory adit. It is located on the boundary between ELs23537 and 29898 and occurs as a northwest trending zone of anomalous radioactivity extending over 1.5 km long that contains patchy uranium mineralisation. Mineralisation is associated with the northwest trending faulted contact between the Seigal Volcanics, and the Westmoreland Conglomerate.

Mineralisation occurs as disseminations within sheared and altered Seigal Volcanics. Alteration occurs primarily as kaolinite and haematite. Minor mineralisation is also present in sandstone of the Westmoreland Conglomerate, where it is in contact with sheared volcanic rocks. Drilling by Laramide in 2007 intersected low grade uranium mineralisation up to 0.02% from 10.95m in EHS7 and 3.5m at 0.02% from 17.35m in EHS7.

### 7.2.3 Anomaly 30 and Anomaly 4901

Anomaly 30 and Anomaly 4901 are located on EL9414 and are associated with surface occurrences hosted by weathered schists of the Murphy Metamorphics. Exploration in the area has been limited with no uranium exploration having taken place in the area since 1981. The occurrence of these anomalies in Palaeoproterozoic metamorphics and in the vicinity of the base of the overlying McArthur Basin differs from the Westmoreland Conglomerate hosted deposits of the region and was initially considered by previous explorers including Esso and Noranda in the 1970's to be prospective for unconformity-related uranium deposits similar to those found in the Alligator Rivers Region in the Northern Territory.

### 7.2.4 Eva Prospect (MLN585 – Verdant Minerals Ltd)

The Historic Eva mine site occurs in an excluded area towards the centre of EL9319. It is held by Verdant Minerals Ltd under a small mineral lease (MLN585). While not held by Laramide, the deposit is included in this section as an example of mineralisation within the Murphy Project area.

Mineralisation is hosted by sheared and altered andesitic volcanics of the Cliffdale Volcanics and granophyre/microgranite dykes of the Nicholson Granite Complex. High grade uranium mineralisation occurs in steeply dipping shoots trending E-W that cut across the host microgranite into andesite associated with intense shearing and fracturing (Buckle, 2010). Alteration assemblages consist primarily of sericite  $\pm$  epidote  $\pm$  talc alteration of the microgranite and chlorite  $\pm$  hematite in andesite.

## 8 DEPOSIT TYPES

Laramide are exploring primarily for Westmoreland Style and Unconformity Related Uranium deposits in the Murphy Project area. The general characteristics of these classes of deposits are summarised below.

### 8.1 WESTMORELAND STYLE URANIUM DEPOSITS

The Murphy Project is located 10 km west of the Westmoreland Uranium deposits in Queensland, which are also held by Laramide (Westmoreland Project). The Westmoreland Project has an Indicated Mineral Resource totalling 36.0 Mlb of uranium contained in 18.7 Mt at an average grade of 0.089%  $U_3O_8$  and an Inferred Mineral Resource totalling 15.9 Mlb of uranium contained in 9.0 Mt at an average grade of 0.083%  $U_3O_8$  ( Lycopodium Mineral Pty Ltd, 2016). Mineralisation occurs in three deposits (Redtree, Huarabagoo and Junnagunna) which occur along the northeast trending Redtree Fault. The fault zone is intruded by dolerite dykes which exhibit a similar composition to the overlying basalts of the Seigal Volcanics.

Uranium mineralisation occurs either as flat lying lenses within pebbly sandstones of the upper part of the Westmoreland Conglomerate either side of the Redtree Fault or as steeply dipping lenses next to and within the fault and dyke. At Junnagunna, uranium mineralisation occurs as flat lying lenses close to the contact with the overlying Seigal Volcanics and at Huarabagoo predominantly vertical mineralisation occurs in a structurally complex area of the Redtree dyke zone. Multiple intrusions of smaller dykes (steeply dipping and horizontal) are associated with the two main vertical dykes. Most of the mineralisation is within the sandstones adjacent to the dykes and the remainder is in the dykes. Uranium is most commonly associated with chlorite  $\pm$  hematite alteration and occurs primarily as uraninite in each deposit.

While the Westmoreland Deposits are sandstone hosted, mineralogic and isotopic studies by Polito et al (2005) indicated strong similarities in the mineralogy, paragenesis, and geochemistry of the Redtree and Junnagunna uranium deposits to the high grade Unconformity related, basement-hosted Nabarlek and Jabiluka uranium deposits in the northern McArthur basin, suggesting possible genetic similarities.

In the Murphy Project area, Westmoreland style mineralisation has been identified by past exploration at the NE Westmoreland prospect.

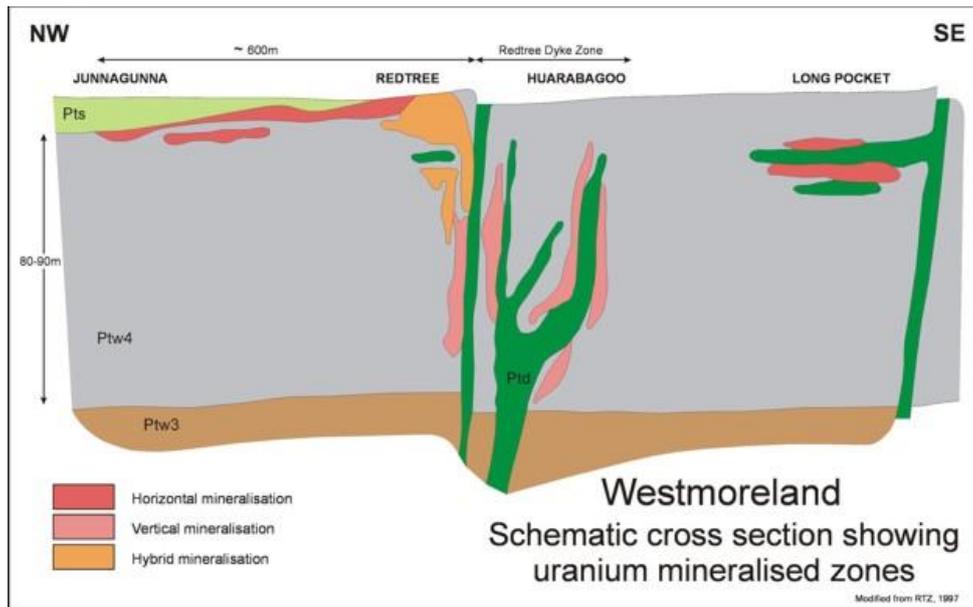


Figure 8-1. Schematic longitudinal section, Westmoreland uranium deposits.

## 8.2 UNCONFORMITY-RELATED URANIUM DEPOSITS

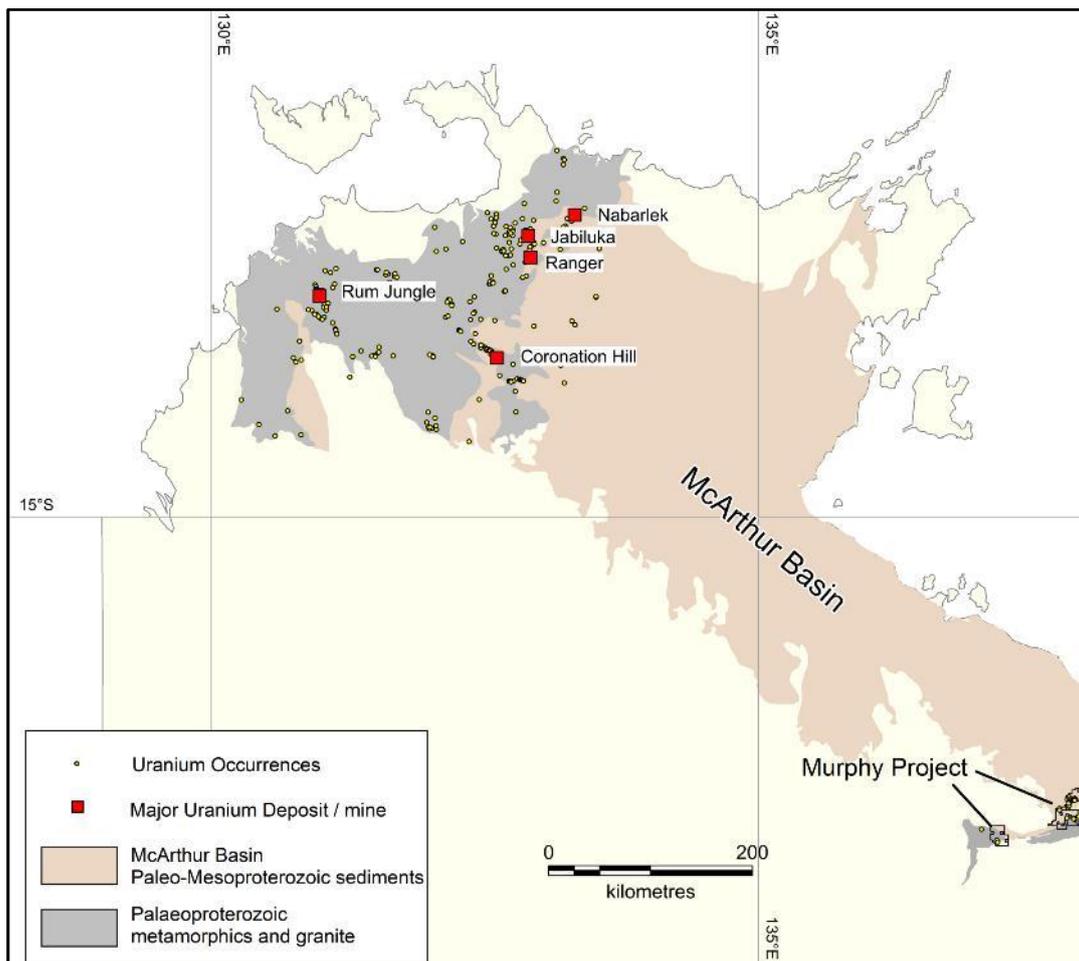
According to the World Nuclear Association, Unconformity-related deposits constitute about one-third of the western world's uranium resources and include some of the largest and highest grade deposits in the world. The largest deposits occur in the Athabasca Basin of Canada and the Alligator Rivers region in the Pine Creek Geosyncline in the Northern Territory of Australia. Major deposits and mines include McArthur River, Cigar Lake and Arrow in Saskatchewan, Canada and the Ranger Uranium Mine, Jabiluka and Nabarlek deposits in the Northern Territory.

Unconformity-related uranium deposits characteristically occur at or near the unconformity between a Palaeo- to Mesoproterozoic sedimentary basin and an Archaean to Paleoproterozoic metamorphic basement. In the Alligator Rivers Province of the Northern Territory, the major uranium deposits are hosted within fault and breccia zones within Palaeoproterozoic metasedimentary rocks, close to the unconformity between basement metamorphic rocks and overlying Katherine River Group sandstones which occur at the base of the Mesoproterozoic McArthur Basin (refer Figure 8-2). Mineralisation at the Ranger, Koongarra and Jabiluka deposits is broadly stratabound associated with low-to moderate angle reverse faults occurring within strongly chloritized pelitic and carbonate metasedimentary rocks of the Cahill Formation. Primary uranium minerals include pitchblende, uraninite and brannerite, and secondary phases, such as torbernite and saleeite are present in the weathered zone. Mineralisation can extend well into the basement rocks along controlling structures: at Jabiluka uranium mineralisation extends at least 500 m below the unconformity surface and Ranger 3 Deeps is at a similar depth below the unconformity. A common feature of the Australian deposits is the presence of chloritization and sericitisation of host rocks. Gold is also associated with uranium mineralisation at Jabiluka 2, Ranger 1 and Koongarra deposits.

Gold mineralisation is also recognised at the Coronation Hill gold-platinum- palladium deposit in the South Alligator Valley area of the Northern Territory which is considered a variant of the unconformity related deposits (Wyborn et al, 1994). Uranium was historically mined at Coronation Hill during the 1960s. From 1961 to 1963, a small open cut and glory hole produced 75 t from 28 850 t ore grading 0.26% (NTGS 2006). A gold resource was defined more recently with an indicated resource of 6.69 Mt

@ 6.42 g/t Au, 0.3 g/t Pt and 1.01 g/t Pd (Minmet, December 2007 in Ahmad et al. 2009). Note that the qualified person has been unable to verify this information regarding mineral resources and that the information is not necessarily indicative of the mineralization on the property that is the subject of the technical report

Gold and PGM/PGE mineralisation occurs as steep dipping thick tabular bodies, developed in zones of fracturing within Palaeoproterozoic siliceous and carbonaceous meta-pelites, overlying sedimentary breccias and quartz-feldspar porphyry and quartz diorite intrusive plugs. Mineralisation occurs in quartz-carbonate haematite veinlets, microfractures and disseminations, in sericite-chlorite altered igneous rocks.



**Figure 8-2. Location of major unconformity-related uranium Deposits in the Northern Territory and relationship with base of McArthur Basin.**

Both the Alligator Rivers and Coronation Hill styles of Unconformity-related mineralisation are considered as relevant models for exploration in the Murphy Project area due to broad regional geological similarities and the presence of uranium and gold mineralisation in the region.

## 9 EXPLORATION

### 9.1 OVERVIEW

Laramide was active on tenements in Queensland which host the Westmoreland uranium deposit. In 2005 and 2006 it entered into joint venture agreements in the northern Murphy Project area with Arafura Resources NL and Hartz Range Mines Pty Ltd to explore EL23573 and 10335 (now EL28989) respectively in the Northern Territory adjacent to its Queensland tenements. In 2011 it entered into a farm in with Rio Tinto for the two tenements ELs9319 and 9414 in the southern Murphy project area.

Exploration on the Northern Murphy Project area commenced in 2005 via Laramide's wholly owned Australian subsidiary Lagoon Creek Resources. The primary focus of work on these tenements has been the exploration for Westmoreland Style uranium mineralisation associated with the Westmoreland Conglomerate and fault hosted mafic dykes. Between 2005 and 2010 exploration work focused on the assessment and drill testing of known occurrences at NE Westmoreland and El Hussen and to a lesser extent radiometric anomalies defined by the 2005 airborne radiometric survey covering ELs23573 and 29898. During this period Laramide was also undertaking resource definition drilling programmes in Queensland to increase the resource levels and further explore potential surrounding the Westmoreland deposit.

Subsequent to Laramide entering into the earn in agreement for EL9414 and 9319 on the Southern Murphy area in 2011, the company has undertaken a more regional approach to exploration acquiring high resolution geophysical data to establish an integrated exploration model for the area. During this period, Laramide has worked to consolidate ownership of the properties and recently completed the outright acquisition of all four tenements that comprise the Murphy Project.

Key components of exploration undertaken by Laramide is provided below while details of drilling programs are provided in Section 10.

### 9.2 AIRBORNE GEOPHYSICAL SURVEYS

Laramide have commissioned several different types of airborne geophysical surveys during their involvement with the property (Figure 9-1). Combined magnetics-radiometrics, time-domain electromagnetics and gravity gradiometry surveys have all been undertaken and are described in detail below.

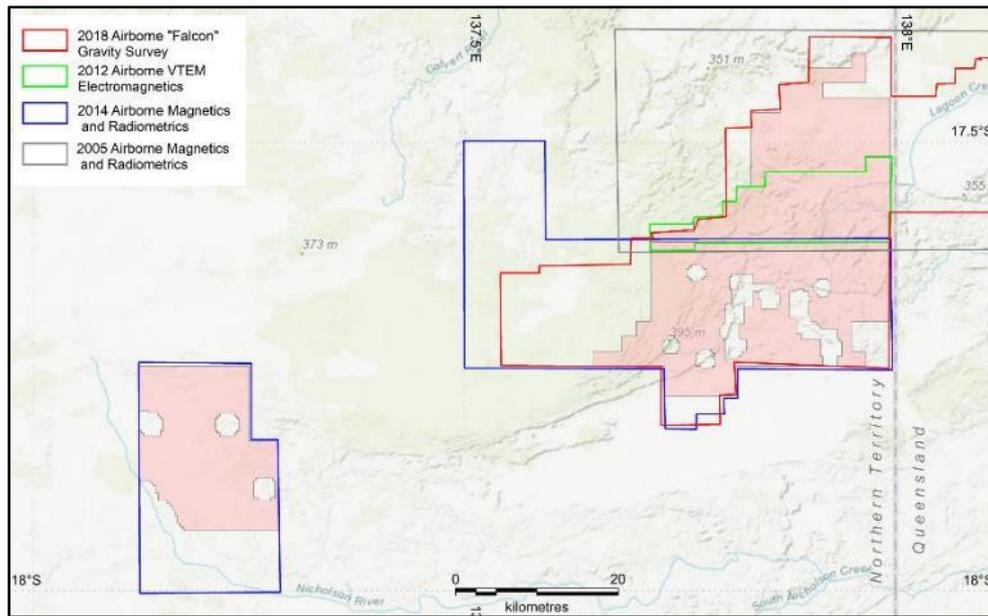


Figure 9-1. Coverage of airborne geophysical surveys carried out by Laramide since 2005.

### 9.2.1 Airborne Magnetic and Radiometric Surveys

Two high resolution airborne magnetic and radiometric geophysical surveys have been completed over the Murphy Project area. In 2005, an airborne radiometric and magnetics survey covering the entirety of EL23573 and 10335 (now EL28989) and the company’s adjacent Queensland tenements was completed. The survey was flown by UTS Geophysics at 60 m flight height on 100 m spaced lines for a total of 21,500 line kilometres. The survey identified several radiometric anomalies and in 2006, the anomalies at Debbil Debbil, El Hussen and NE Westmoreland were ground located and followed up with ground radiometrics. Drilling was subsequently undertaken at El Hussen and NE Westmoreland in 2006. Ground follow up of a further 11 radiometric anomalies was carried out in 2009 including ground radiometrics and soil sampling. Drill testing of 3 radiometric anomalies was completed in 2010 (refer Section 10).

In 2014 the Company commissioned a high resolution magnetic and radiometric survey in two blocks covering ELS 9414 and 9319 and a total of 16,304 line km. The surveys were flown at 100 m line spacing and a flying height of 60 m. This survey was the first comprehensive high resolution magnetic and radiometric survey to be flown over much of this area. The survey identified several radiometric anomalies which have yet to be assessed. These include linear radiometric (U and U/Th) anomalies that extend beyond the historical uranium occurrences at Anomaly 30 and Anomaly 4901 on EL9414 (Figure 9-2) and coincident with magnetic trends in the Palaeoproterozoic Murphy Metamorphics where Laramide is exploring for Unconformity-related uranium mineralisation. Radiometric anomalies were also identified on EL9319, associated with the Nicholson Granite and Cliffdale Volcanics and lower Westmoreland Conglomerate.

No ground follow-up of radiometrics on either EL9319 or 9414 has been undertaken. Combined radiometric and magnetic survey datasets have subsequently been utilised in an integrated approach to generating targets.

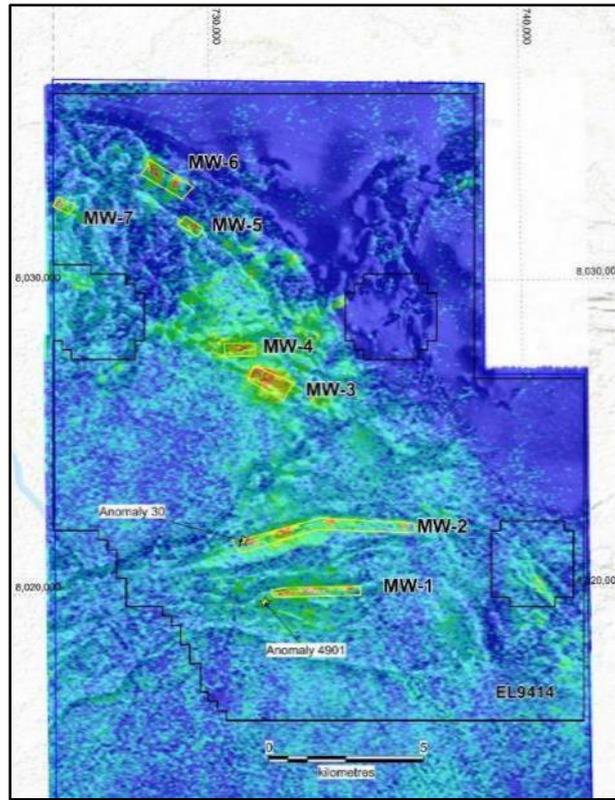


Figure 9-2. 2014 Survey Airborne Radiometrics (U/Th) on Magnetics over EL9414, showing U/Th anomalies for follow up.

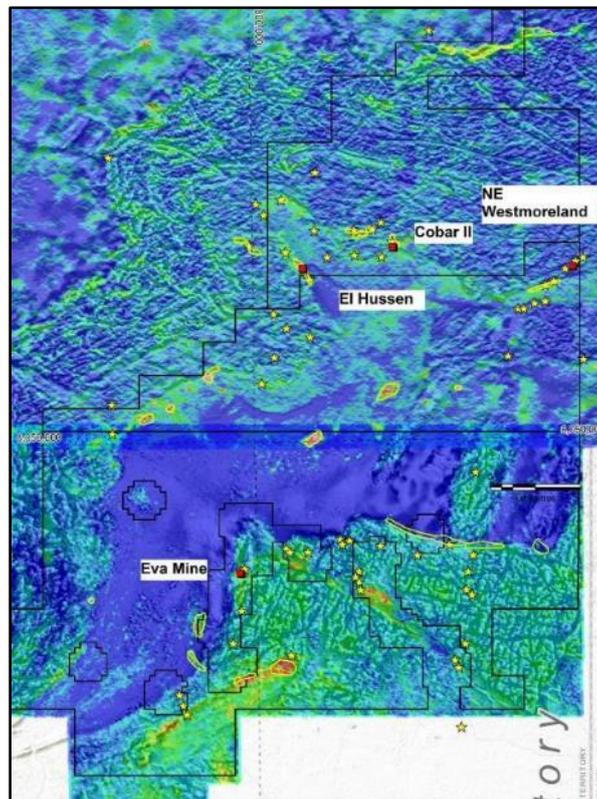


Figure 9-3. Combined airborne radiometrics (U/Th) (2005 and 2014) over eastern Murphy tenement block. Radiometric anomalies are outlined in yellow

### 9.2.2 Airborne VTEM – Electromagnetic Survey

In 2012 Geotech Ltd. carried out a helicopter-borne electromagnetic survey over EL23573 using the VTEMplus system (Versatile Time Domain Electro Magnetics). A total of 1,113 line-kilometres were surveyed. The survey was undertaken to identify structures and potentially alteration zones to assist in targeting concealed uranium, gold and base metal mineralisation and to provide

The survey identified a broad region of enhanced conductivity evident in the NE of the licence surrounding the NE Westmoreland area (Figure 9-4). Modelling of the response indicated these basement sources are flat lying conductors at the base of the Seigal Volcanics and may represent a larger areal alteration anomaly in the basal basalt, surrounding more discrete zones of proximal alteration related to U mineralisation.

Numerous discrete conductive features were also identified that may represent basement conductors (Figure 9-4). These anomalies are considered to warrant further investigation as possible indicators of basement alteration associated with uranium+gold or base metal mineralisation.

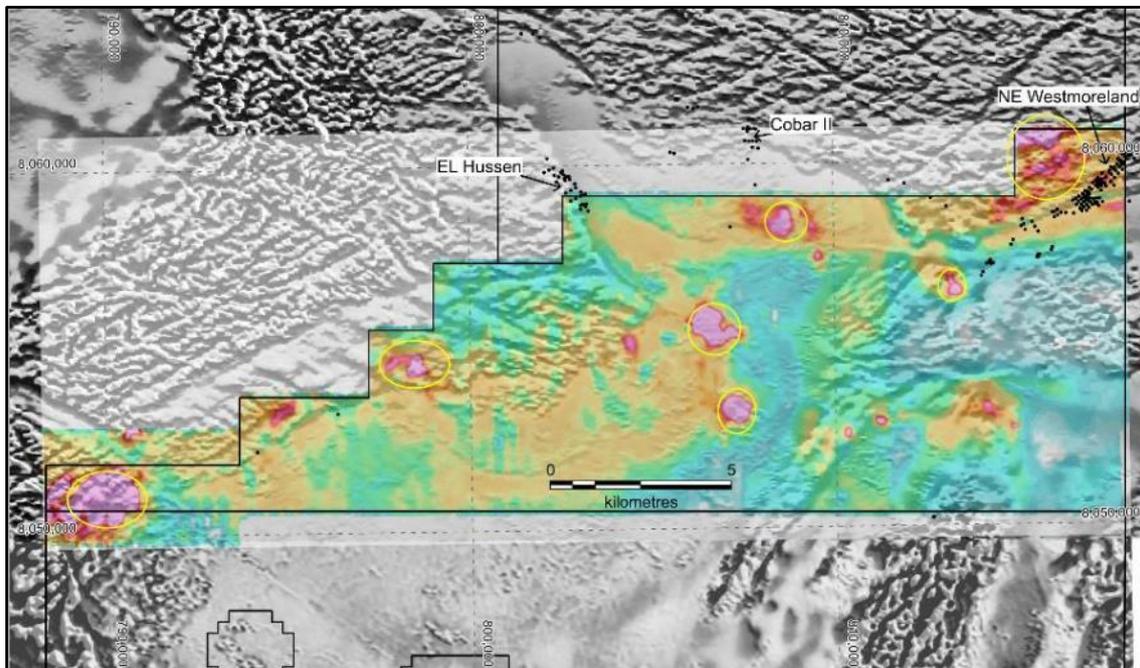


Figure 9-4. Image of VTEM conductivity (Tau) indicating possible bedrock conductors (marked by yellow circles).

### 9.2.3 Airborne Gravity Survey

Laramide engaged CGG Aviation Australia Pty Ltd to conduct a FALCON Airborne Gravity Gradiometry Survey covering ELs23573, 29898 and EL9319 and Laramide’s adjacent Westmoreland Project area in Queensland. A total of 3,007 line kilometres of data acquired on 800 m spaced north-south flight lines during August 2018.

The survey was undertaken as part of Laramide’s Mineral Systems Project to model and identify basement structures and fluid pathways for uranium mineralisation in the area. Further processing of the gravity data has included 3D Inversions to build a model of basement geology in the region (Figure 9-5). Recent interpretation of the gravity and previous magnetic survey data and inversions has resulted in the identification of structural settings considered by Laramide to be prospective for

uranium mineralisation based on studies of the equivalent datasets over the Westmoreland Uranium deposits.

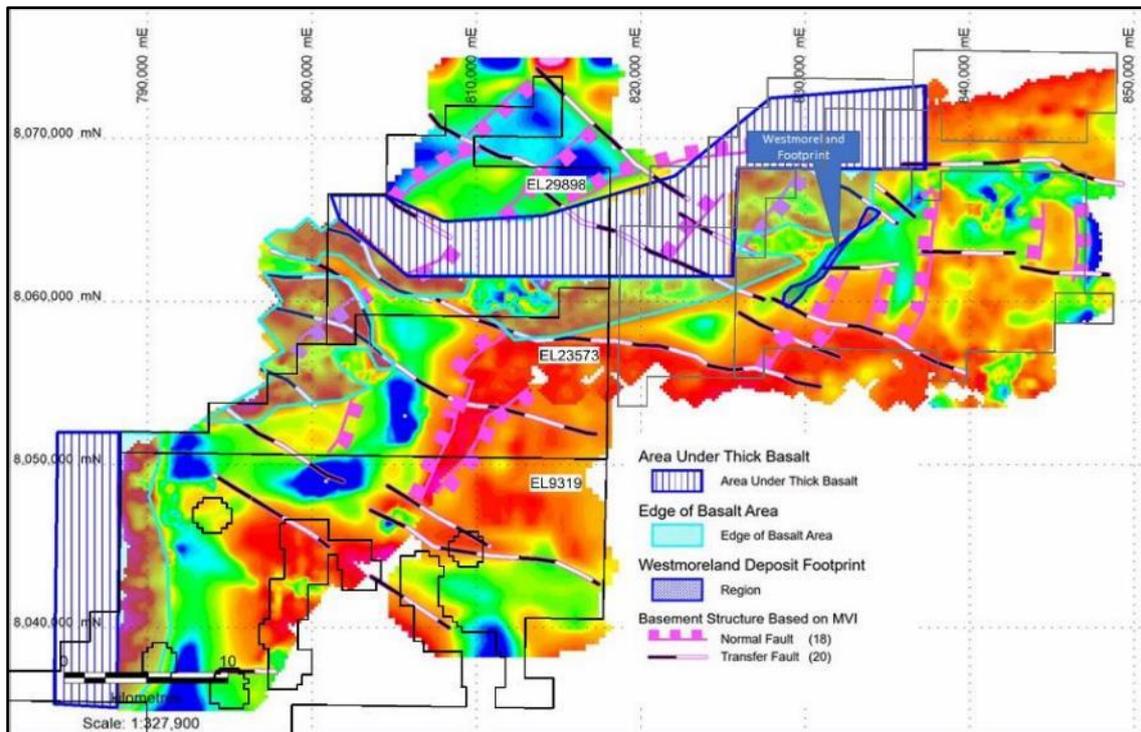


Figure 9-5. Image of Airborne Gravity Inversion model showing interpreted structural framework.

### 9.3 SURFACE GEOCHEMICAL SURVEYS

A regional stream sediment sampling program was conducted over in 2007 to explore for gold and palladium mineralisation in addition to uranium. Samples were obtained from 272 locations within the current project area on ELs23573 and 29898 (Figure 9-6). Samples were obtained for Bulk Cyanide Leach analysis for gold, platinum and palladium as well as multi-element analysis for base metals and uranium. Sporadic anomalous gold (maximum 214ppb Au) and palladium (maximum 61ppb Pd) was identified in EL23573 in an area of faulted contacts between Westmoreland Conglomerate and Clifdale Conglomerate. A limited follow up sampling program in the vicinity of two anomalous gold sample locations did not repeat the anomalous results. Further follow up of anomalies is warranted.

Limited prospect scale soil and rock chip sampling has been carried out in several areas on EL23573 and EL29898 to confirm radiometric anomalies. Soil sampling was also undertaken at the historic Dianne Copper workings over two programs in 2007 and 2011. 197 samples were obtained on a 50 m spaced grid. Mullock piles were inspected and found to be mineralised volcanic breccia with Cu mineralization in the matrix and between clasts. Samples were sieved to -3 mm and submitted to ALS Chemex for ME-MS61 analysis. Assay results included elevated concentrations of copper (maximum 6,530ppm Cu) and silver (maximum 1.62ppm Ag) in the vicinity of the workings. Outcropping mineralisation and workings are associated with a fault zone within basalts of the Seigal Volcanics

In 2009, 11 target areas within EL29898 and were selected for detailed follow up. Target areas were selected based on a compilation of airborne radiometric and magnetic data and where structural zones were interpreted that may be prospective for uranium mineralisation under cover. Follow up work comprised prospect scale ground scintillometer surveys and soil sampling with a total of 581

samples taken on 10 of the 11 target areas. Ground radiometrics and soil sampling was also undertaken at the Conglo radiometric anomaly on EL23573

Soil sampling returned low uranium assays however, rock chip results of up to 2,180ppm U were returned from Target 3 on EL29898.

No surface geochemical sampling has been undertaken by Laramide on ELs9319 and 9414. Stream sediment sampling was carried out by Golden Plateau in 1988 over the area occupied by EL9319 identified anomalous gold up to 143 ppb Au close to the Eva Mine area. Anomalous gold was associated more strongly with areas where Clifdale Volcanics and Nicholson Granite Complex lithologies are present. Combined historic and Laramide stream sediment sampling geochemistry is shown on Figure 9-6.

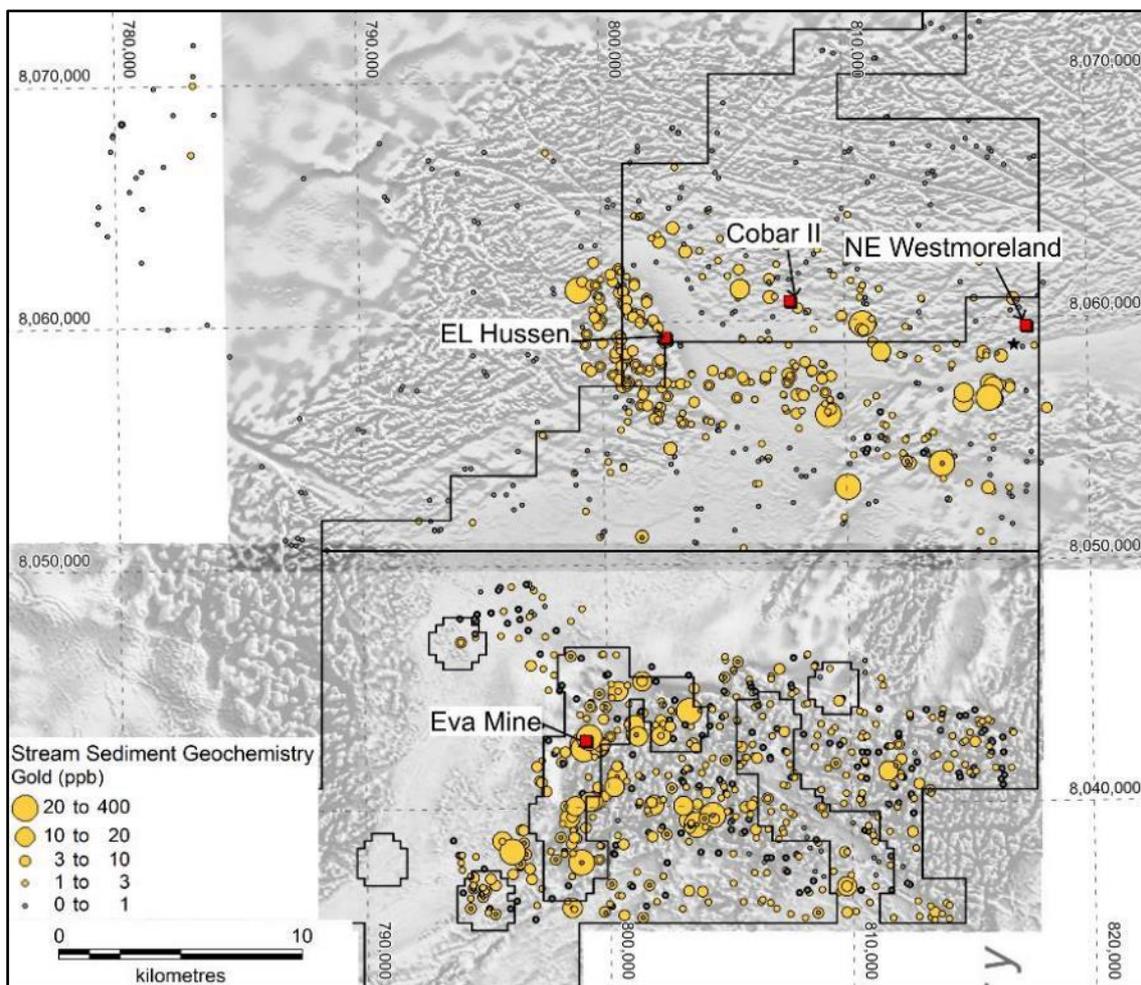


Figure 9-6. Combined stream sediment sampling geochemistry for Au incorporating Laramide stream sediment sampling and historic sampling (sourced from Northern Territory Geological Survey geochemical database)

#### 9.4 MINERAL SYSTEMS PROJECT

In 2015, Laramide initiated its Mineral Systems Project to develop a comprehensive mineral systems model for the region, incorporating both the Murphy Project and Westmoreland Project. The objective of the Mineral Systems Project is to incorporate various aspects of structural architecture, sedimentology, fluid sources and pathways from regional to prospect scale to generate an integrated exploration targeting model for the area.

While focusing on uranium mineralising processes, the project is also investigating exploration vectors in relation to gold and base metals.

Work undertaken to date has included:

- Comprehensive interpretation of solid geology incorporating data from regional drilling datasets, mapping and high-resolution geophysical surveys acquired by Laramide.
- Detailed study of multi-element geochemistry of the region including regional data and deposit scale data from the Westmoreland Uranium deposits.
- Collection of Short Wave Infra-Red (SWIR) spectral data collection and assay from 143 drill holes in both the Northern Territory and Queensland to characterise alteration in the vicinity of known mineralisation and identify wider alteration halos.
- Processing of airborne magnetics, gravity data including 3d inversion modelling of gravity and magnetics data to develop a basement and basin architecture model.
- Incorporation of VTEM data to identify potential areas of alteration.

This work has resulted in a refined model for geology and mineralisation in the region. Inversion modelling of magnetics and gravity data has identified a number of structural zones underlying shallow to moderate depths of cover (<200 m) and blind at surface to traditional uranium exploration techniques (Figure 9-5).

The current model considers that Westmoreland style uranium mineralisation is located along reactivated normal faults in segments bounded by coeval transfer structures. The normal and transfer structures are interpreted to be syn- extensional faults controlling the deposition of Westmoreland Conglomerates. Uranium mineralisation at Westmoreland is located both along dykes emplaced in the reactivated faults, and along the contact with the overlying Siegal Volcanics. Mineralisation is bounded by structures interpreted to be reactivated transfer faults, in particular where the bounding structures juxtapose shallow basement against deeper Westmoreland Conglomerate fill.

Work has identified several targets based on the revised structural model and interpretation of geophysical data. These targets focus on prospective structural locations for Westmoreland Style deposits and are located along NE trending structures now defined by dykes and bounded by NW trending reactivated transfer faults. The targets are located on ELs23573 and EL29898. An additional target area has been identified associated with a magnetic anomaly adjacent to an interpreted high U-Th granite near the Eva Mine area. The target area is interpreted to be a possible magnetic skarn zone prospective for copper, gold and tin mineralisation.

The location of structural target zones and interpreted alteration zones are shown on Figure 9-7.

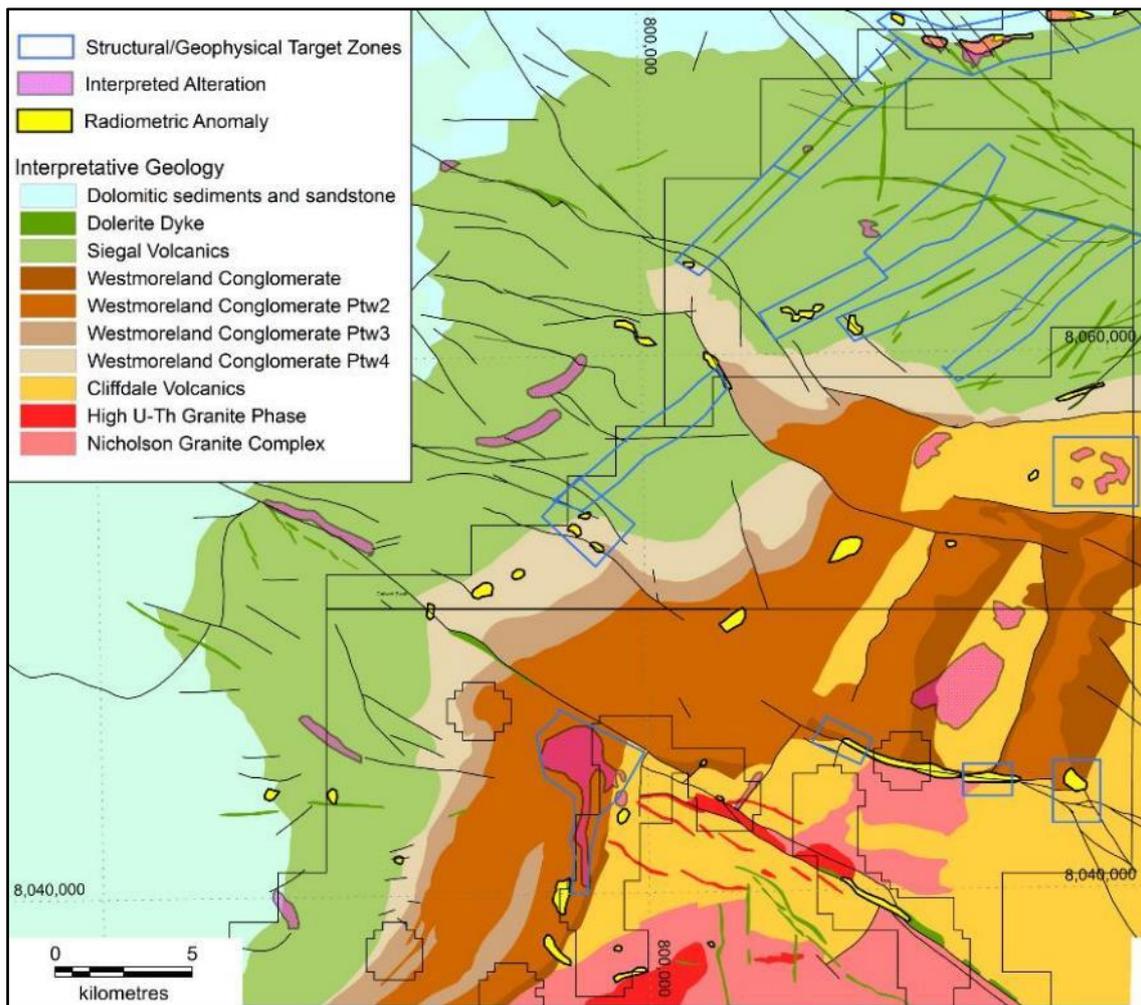


Figure 9-7. Solid geology interpretation showing structural target areas, radiometric anomalies and areas of interpreted alteration based on interpretation of VTEM and magnetics data.

## 10 DRILLING

### 10.1 OVERVIEW

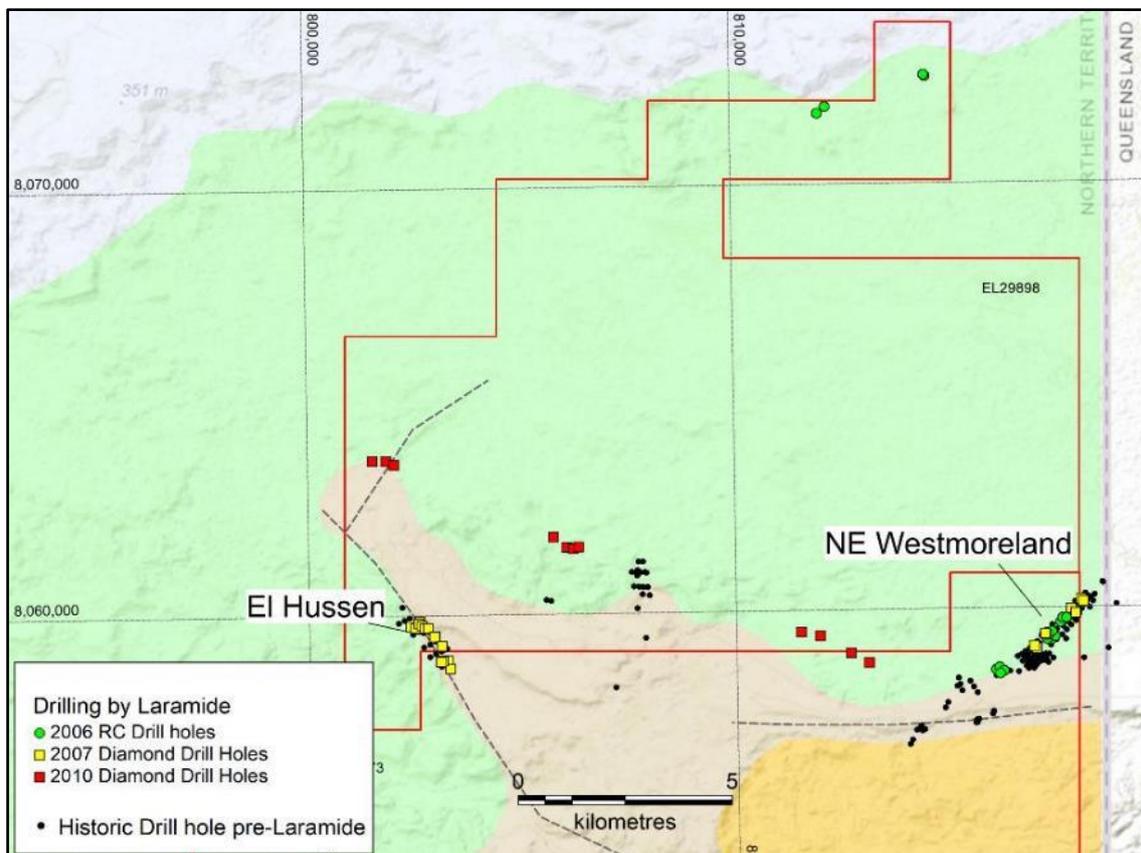
A total of 9,874.3m of RC Percussion and Diamond drilling in 70 drill holes has been completed by Laramide on the Northern Murphy Project area of EL's 23573 and 29898. The majority of the drilling was undertaken in 2006 and 2007 to test structural targets at the historic NE Westmoreland and El Hussen prospect areas. A lesser amount of drilling was carried out to test of a number of radiometric and regional structural targets in 2006 and 2010.

No drilling has been undertaken on the Southern Murphy project area of EL's 9319 and 9414.

A summary of drilling including location, quantity and methods is provided in Table 10.X below and the location of drilling is shown on Figure 10-1.

**Table 10-1. Summary of Drilling undertaken by Laramide on the Murphy Project area.**

Year	Prospect	Holes	Metres
2006	NE Westmoreland	23	2,814m RC
2006	"Northern Zone"	4	570m RC
2007	NE Westmoreland	12	2,126.5 NQ Diamond Core
2007	El Hussien	20	3,162m NQ Diamond Core
2010	Structural target zones on EL23573 and 29898.	11	1,201.8m NQ Diamond Core
Total		70	3,384m RC / 6,490.3m NQ



**Figure 10-1. Location map of drilling undertaken by Laramide on the Murphy Project area.**

## 10.2 DRILLING METHODS AND SURVEY

In 2006, RC Percussion drilling was carried out using a truck mounted UDR drill rig and utilising a 5 1/4" face sampling hammer. In 2007 and 2010 NQ diamond core drilling was undertaken using a truck mounted Boart Longyear LF70 diamond drill rig for all drill holes. All sites were surveyed using hand-held GPS with an approximate accuracy of + 4 m. Down hole surveys were undertaken at a depth of approximately 100 m in each drill hole using an Eastman Single shot downhole camera.

## 10.3 RESULTS

### 10.3.1 NE Westmoreland Prospect

Drilling at NE Westmoreland in 2006 and 2007 was designed to test both flat lying and steeply dipping mineralization associated with dyke filled fault zones. Most holes were designed to be drilled -55° to the southeast (135°). In addition, magnetic lineaments trending roughly 075° were found to coincide with higher scintillometer readings where they cross the main fault. Several holes were oriented 55° dip to the south to test these zones.

Hole depths ranged from 51 m to 221 m. In 2006, twelve RC Percussion holes failed to reach their planned target depths due mainly to excessive inflows of groundwater. A further 9 drill holes were drilled in 2007 using diamond drilling techniques, in part to test targets where RC percussion drilling had been ineffective in reaching target depths. Best results are shown in Table 10-2 with drill locations shown in Figure 10-2. Thin, low grade mineralisation was intersected close to the contact between the Westmoreland Conglomerate and overlying Seigal Volcanics whereas narrow higher-grade uranium mineralisation up to 4 m at 4,270 ppm was intersected adjacent to the vertical fault zone in chloritized sandstone.

**Table 10-2. Anomalous uranium intersections (>1m at >100ppm ) from drilling at NE Westmoreland prospect.**

HoleID	AMG84 East	AMG84 North	Dip	Azimuth	Depth of Hole (m)	Depth From (m)	Length (m)	U <sub>3</sub> O <sub>8</sub> ppm
NEWM 200	815943	8058384	-55	135	51	15	2	149
NEWM 204	817119	8059191	-55	135	195	69	2	621
					AND	128	4	4,270
NEWM 205	817149	8059159	-55	135	146	64.75	1.5	1,620
NEWM 207	817148	8059194	-55	135	176	67	2	234
NEWM212	817742	8059768	-55	135	200.1	120.5	4.5	121
NEWM 214	817088	8059222	-60	-60	186	66	2	171
NEWM 217	817326	8059151	-63	-63	204	61	2	289
NEWM 222	816875	8058894	-65	-65	84	75	2	1,023
NEWM231	816842	8058928	-55	135	181.5	60.25	2	369

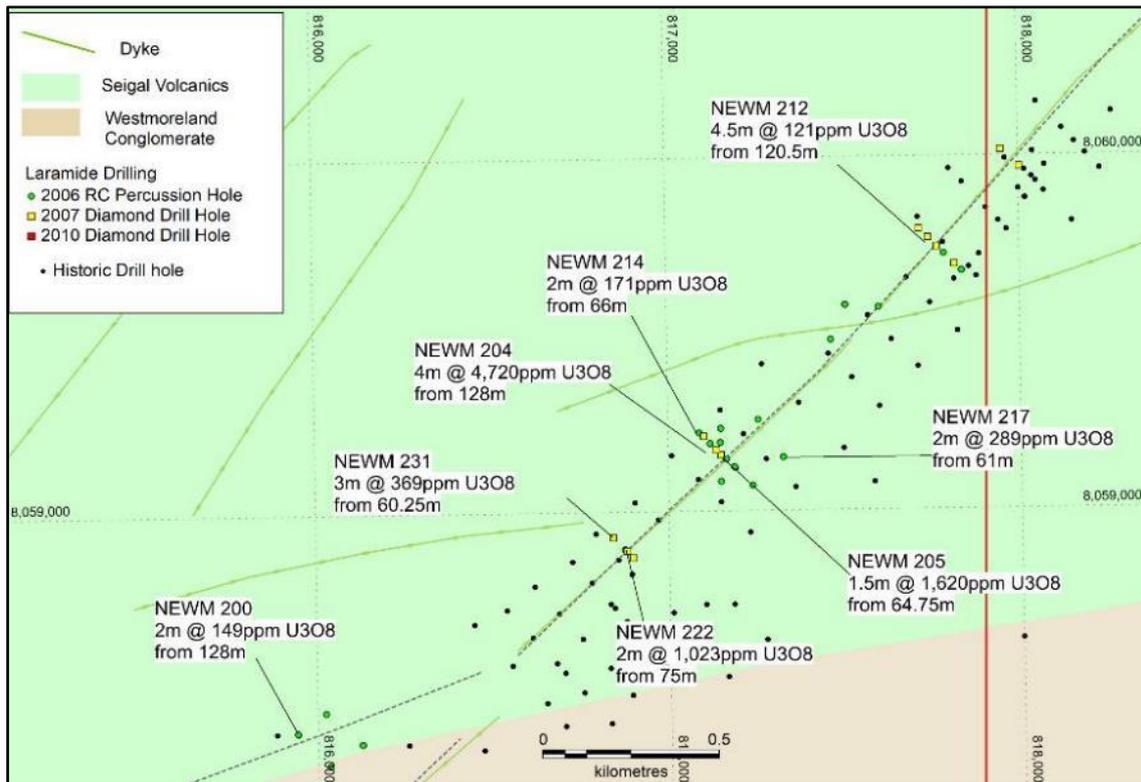


Figure 10-2. Location of Laramide drilling at NE Westmoreland prospect.

### 10.3.2 El Hussen

The historic mineralisation model for the El Hussen Prospect is that of flat lying mineralisation along the base of the Seigal Volcanics and high-angle mineralization along a NE trending thrust fault. In addition to the main thrust fault, to the south there are minor northeasterly trending faults that offset the lithological contacts and the plane of the thrust fault. These correlated to radiometric highs from Lagoon Creek Resources 2005 airborne radiometric survey. Laramide undertook drilling at El Hussen in 2006 to test the importance of north east trending cross structures to mineralisation of the El Hussen thrust system as well as the recognised thrust fault. Drilling intersected low-grade mineralisation associated with strongly fractured and chloritized volcanics close to the faulted contact with sandstone of the Westmoreland Conglomerate (Table 10-3, Figure 10-3).

Table 10-3. Anomalous uranium intersections (>1m at >100ppm ) from drilling at El Hussen prospect.

HoleID	AMG84 East	AMG84 North	Dip	Azimuth	Depth of Hole (m)	Depth From (m)	Length (m)	U <sub>3</sub> O <sub>8</sub> ppm
EH-1	802470	8059699	-40	61	142.5	3.25	3	186
					AND	16.25	3	196
EH-8	802506	8059597	-55	240	178.6	39.25	4	195
EHS-7	802948	8058751	-63	68	151	7.05	9.75	172
					AND	17.35	3.5	219

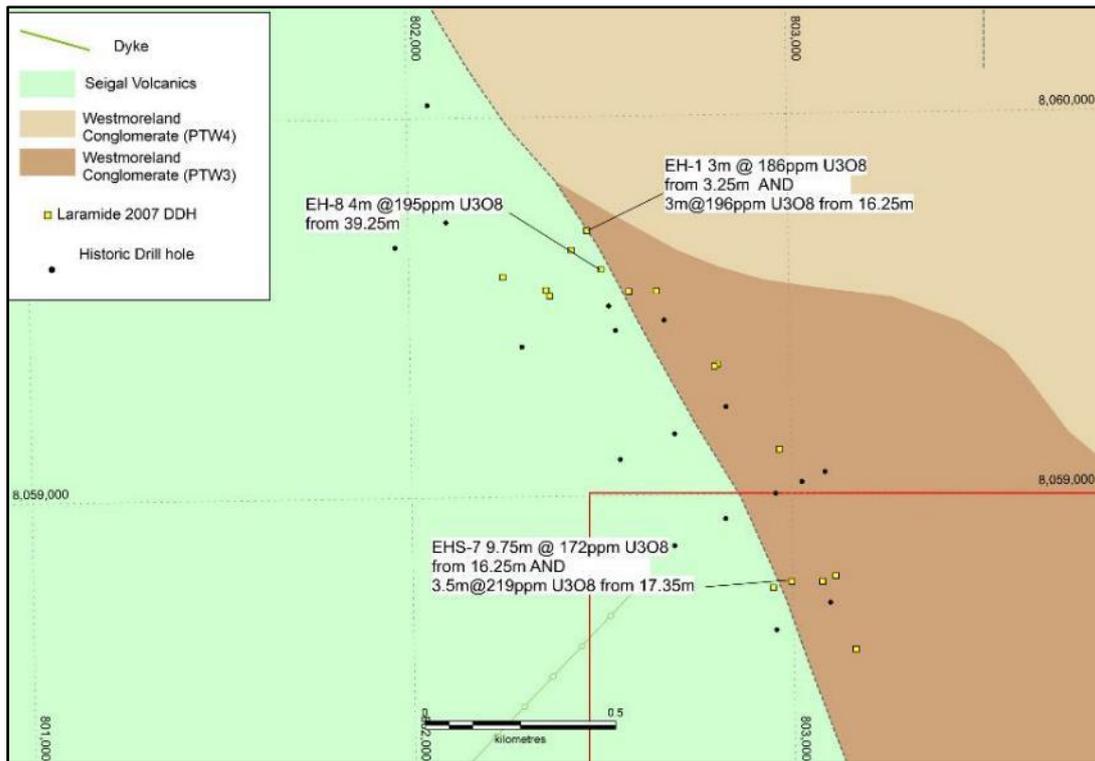


Figure 10-3. Location of Laramide drilling at El Hussen prospect.

### 10.3.3 Regional Drilling

Drilling was undertaken on regional targets in 2006 and 2010. In 2006, four RC percussion drill holes were drilled to test an area referred to as the Northern Contact zone, an area where radiometric anomalies occur close to the upper contact of the Seigal Volcanics and the overlying carbonates of the McDermott Formation. In 2010, 11 drill holes were drilled in 4 areas to target fault zones which may act as pathways for uraniumiferous fluids as evident in the combined magnetic and radiometric imaging in areas where the prospective contact zone between Seigal Volcanics and Westmoreland Conglomerate occurs at shallow to moderate depths. The location of these holes is shown in Figure 10-1. No significant mineralisation was intersected in either the 2006 or 2010 programmes although low level gamma radiometric responses were routinely encountered within a thin siltstone unit that occurs at the contact between the Seigal Volcanics and underlying sandstone.

## 11 SAMPLE PREPARATION, ANALYSES AND SECURITY

### 11.1 STREAM SEDIMENT AND SOIL SAMPLING AND ANALYSIS

Stream sediment sampling was carried out by collecting 3 samples from each location. Each sample was sieved on site and collected in calico bags. One sample of about 5 kg was sieved to -2mm and submitted for bulk cyanide leach and analysis for Au, Ag, Cu & Pd (ALS Method Au-CN12). Two samples were sieved to -#80 mesh and around 2 kg each, one for multi element ICP analysis (ALS Method ME MS41 - ICP-MS & ICP-AES) and the second for storage.

Soil samples were collected using a shovel to dig to approximately 30 cm depth. Samples were field sieved to -2mm, and subsequently to -80 mesh (177 micron) prior to submission for analysis.

All samples were bagged into individually numbered calico bags and then consolidated into batches of 5-10 samples and placed into polyweave sacks that are sealed. Samples were transported by road to ALS Laboratories in Townsville, Queensland for uranium and multi-element ICP analysis (ALS Method ME MS41 - ICP-MS & ICP-AES).

### **11.2 DRILL SAMPLING AND ANALYSIS**

RC Percussion drill samples were split upon exit from the sampling cyclone in 25/75 proportions and collected in calicos and large plastics respectively. A sample was collected in chip trays and logged.

Each large sample was tested for radiometric response using a Gamma Surveyor scintillometer. Samples exceeding background levels were collected for assay, as were those samples 2 m above and 2 m below.

For drill core, core was retrieved in approximately 3 m runs from the core barrel and carefully placed into core trays with core blocks designating the depth intervals of individual runs. Core trays were subsequently measured and marked to 1 m intervals and core recovery checked. Core recoveries were good for both the 2007 and 2010 drilling programs and predominantly between 97% and 100%.

Following geological logging, the sampling interval was determined through a combination of a downhole gamma probe and a "GF Instruments Gamma Surveyor" scintillometer to identify zones with above background radioactivity. Selected intervals were split with a diamond core saw and half the core samples were submitted to ALS laboratories in Townsville (2006) and Mount Isa (2010) for uranium (ALS technique ME-XRF05), multi-elements (ALS technique ME-ICP61) and gold (ALS technique AA25) analysis. The remaining half of the core was stored at the Laramide camp site.

All samples were bagged into individually numbered calico bags and then consolidated into batches of 5-10 samples and placed into polyweave sacks that were sealed. Samples were transported by road to ALS Laboratories in Townsville, Queensland for analysis.

No systematic duplicate, standards or blank sample program have been implemented as drilling was considered to be at an early stage of assessment, however assay results were compared back to downhole gamma and scintillometer results. Assay results were broadly consistent with the tenor of downhole gamma and scintillometer results. As no significant mineralisation was intersected no further confirmatory sampling or analysis was deemed necessary.

## **12 DATA VERIFICATION**

Data verification undertaken by MA included an independent review of open file reports submitted to the Northern Territory Geological Survey by previous tenement holders as well as previous annual reports prepared by Laramide geologists. Where drilling or sampling has been undertaken by Laramide in close proximity to historic exploration work, the respective results have been compared.

Mr. Sowerby, (MAIG), of Mining Associates Pty Ltd visited the Murphy Property on several occasions between 2007 and 2010 as an independent geologist for the purpose of reviewing exploration results and drilling and sampling procedures on Laramide's Westmoreland and Northern Territory project areas. Mr. Sowerby has also held discussions with Laramide's Australian subsidiary's Director, Mr. Bryn Jones.

## 12.1 INDEPENDENT SAMPLES

No independent samples have been taken for this report. The project is at an exploration stage of work and as yet, no resource has been identified. The author has visited the site in 2007, 2008 and 2009 and has inspected the NE Westmoreland and El Hussen prospects. The results of assays of Laramide drilling samples and stream sediment sampling show similar order of magnitude anomalism to that returned from historic exploration where comparable exploration programs have been undertaken.

Laramide have used ALS Laboratories for sample analysis throughout its exploration programs on the Murphy Project tenements. ALS is an independent lab that has developed and implemented a Quality Management System (“QMS”) at each of its locations designed to ensure the production of consistently reliable data. The ALS quality program includes quality control steps through sample preparation and analysis, inter-laboratory test programs, and regular internal audits and takes into consideration the requirements of ISO/IEC 17025:2017 and ISO 9001:2015. ALS maintains ISO registrations and accreditations, which provide independent verification that a QMS is in operation at the location in question.

## 13 MINERAL PROCESSING AND METALLURGICAL TESTING

No mineral processing or metallurgical testing has been carried out on the Property.

## 14 MINERAL RESERVE ESTIMATES

There are no defined mineral resources within the Murphy Project Tenements that would conform to either the Canadian NI43-101 or Australian JORC codes.

## 15 ADJACENT PROPERTIES

The Murphy Project is adjacent to Laramide’s Westmoreland Project in Queensland. The Westmoreland Project is comprised of 3 Exploration Permits for Minerals (EPMs) covering an area of 440.7 km<sup>2</sup>. The Westmoreland Project area contains the Westmoreland Uranium Deposits of Redtree, Huarabagoo and Junnagunna. In April 2016 Laramide reported and Indicated mineral resource of 18.7 Mt at 0.089% (36.0 Mlbs contained metal) and an Inferred Mineral Resource of 9.0 Mt at 0.083% (15.9 Mlbs contained metal) in accordance with NI43-101 standards.

As stated previously in this report, two small legacy Mineral Leases are contained within the external boundaries of the Murphy Project.

MLN575 is currently owned by UAU Pty Ltd and covers an area of 7.3 hectares over the historic Cobar II prospect. MLN585 is located within the external boundaries of EL9319 and contains the historic Eva Mine. MLN585 covers an area of 11.7 hectares and is held by Verdant Minerals Ltd. A brief description of the geology of the Eva deposit is provided in Section 7 of this report.

## 16 OTHER RELEVANT DATA AND INFORMATION

The author is not aware of any other relevant data and information.

## 17 INTERPRETATION AND CONCLUSIONS

The Northern Murphy area comprising EL’s 23573 and 29898 has been explored by Laramide since 2005. Between 2005 and 2010 exploration work focused on the assessment and drill testing of known occurrences at NE Westmoreland and El Hussen and to a lesser extent, radiometric anomalies defined

by the 2005 airborne radiometric survey covering ELs 23573 and 29898. This work was primarily focused on outcropping or near surface anomalies and mineralisation and extensions to known mineralisation. While not defining economic mineralisation, exploration confirmed the presence of Westmoreland style mineralisation and alteration types in the area. Further geophysical work over these areas have identified a number of uranium and base metal targets warranting further exploration.

The Southern Murphy Project areas comprise ELs 9319 and 9414. Due to historic access restrictions exploration in these areas has been limited in recent decades. On EL 9414 no uranium exploration has been undertaken since 1981 notwithstanding several identified anomalies and strong geological and structural similarities to the Westmoreland region. Subsequent to Laramide entering into the EL 9414 and 9319 farm-in agreement in 2011, the company has undertaken a more regional approach to exploration acquiring high resolution geophysical data and undertaking the Mineral Systems Project to establish an integrated exploration model for the area.

The results of this work and the integration of historical data sets has identified a number of target areas prospective for uranium, gold and base metal mineralisation.

Exploration has been carried out by Laramide on the Murphy Project tenements in two broad phases. Between 2005 and 2010 work focused on ELs 23573 and 29898 in the Northern Murphy Project area with assessment and drill testing of known occurrences at NE Westmoreland and El Hussen and to a lesser extent, radiometric anomalies defined by the 2005 airborne radiometric survey. This work was primarily focused on new zones of outcropping or near surface mineralisation and extensions to known mineralisation. Exploration confirmed the presence of Westmoreland style mineralisation and alteration types in the area, but no economic drill intercepts.

Subsequent to Laramide entering into a JV for EL 9414 and 9319, the company has undertaken a more regional approach to exploration acquiring high resolution geophysical data and undertaking the Mineral Systems Project to establish an integrated exploration model for the area. The results of this work and the integration of historical data sets identified several target areas prospective for uranium, gold and base metal mineralisation (Figure 17-1)

### **17.1 WESTMORELAND STYLE URANIUM POTENTIAL**

The Mineral Systems project identified target areas considered by Laramide to be prospective for Westmoreland Style uranium mineralisation. Targets are the result of integration of 3D inversion modelling of magnetics and gravity, VTEM data that outlines areas of interpreted concealed alteration and geological interpretation. Four target areas have been identified as priority areas for follow up work and drill testing.

MA considers the targets identified by Laramide to be prospective for uranium mineralisation and are based on high quality geological interpretation and high resolution geophysical data supported by the company's detailed knowledge of the Westmoreland Uranium deposits. While the company's drilling between 2006 and 2010 did not identify significant mineralisation in the area, the information gathered did demonstrate geological processes similar to those responsible for the formation of the Westmoreland Deposits were likely to have been active in the Murphy Project area. A substantial proportion of the project area remains untested where potential host rocks occur under relatively shallow cover (<200 m).

## 17.2 UNCONFORMITY RELATED URANIUM POTENTIAL

On the western block of the Murphy Project on EL9414, basal sandstones and conglomerates of the McArthur Basin (Westmoreland Conglomerate) directly overlie Palaeoproterozoic lithologies of the Murphy Metamorphics. This area is considered prospective for Unconformity-Related uranium mineralisation similar to the Ranger and Jabiluka deposits that occur at the same stratigraphic level on the northern margin of the McArthur Basin. Exploration within EL9414 has historically been limited due to access issues. Exploration in the 1970's identified two uranium prospects at Anomaly 30 and Anomaly 4901. Low grade uranium mineralisation was identified at surface and in costeans. Laramide have subsequently gained access to the area and carried out an airborne magnetics and radiometrics survey that has identified a number of radiometric anomalies in the area. No ground-work has been undertaken to date however ground follow up of radiometric anomalies is planned in 2020. In summary EL9414 is an under-explored area with identified radiometric anomalies prospective for unconformity -related mineralisation.

## 17.3 UNCONFORMITY AND INTRUSION RELATED GOLD AND GOLD-PALLADIUM MINERALISATION

Gold mineralisation is present in the region, generally associated with uranium mineralisation. High grade gold intersections have been reported at the Eva mine and NE Westmoreland prospect as detailed previously in this report. The geology of the southern part of the project shows broad similarities in tectono-stratigraphic relationships with the South Alligator River Valley area of the Pine Creek Orogen. These similarities include Barramundi age I-Type granite intrusions and coeval felsic and andesitic volcanics. Gold and palladium mineralisation occurs at the historic Coronation Hill Uranium Mine in the South Alligator River Valley in zones both with and without uranium mineralisation. Gold mineralisation outside uranium zones is associated with high level quartz feldspar porphyry and diorite intrusives. It is noted that gold mineralisation at the Eva Mine (owned by Verdant Minerals) within EL9319 is associated with a felsic intrusive and andesite with similar ages to South Alligator Valley intrusives and volcanics.

More generally, fractionated I-Type granites of the Barramundi Orogeny similar to the Nicholson Granite Complex are known to be associated with gold mineralisation in the Pine Creek Orogeny of the Northern Territory.

Regional stream sediment sampling undertaken by previous explorers has identified anomalous gold and palladium as detailed in this report. Anomalous areas occur primarily in the southern part of EL23573 and on EL9319 where the Nicholson Granite Complex and Cliffdale volcanics predominate. Further assessment of the potential for Coronation Hill Style or granite related gold mineralisation in these areas is recommended.

## 17.4 POTENTIAL FOR BASE METAL MINERALISATION

Laramide has identified an area on EL9319 associated with a U/Th enriched granite phase as a potential target for skarn type base metal mineralisation associated with a magnetic anomaly in this area. Strong EM conductive anomalies identified by the VTEM survey over EL23573 were also highlighted as potential base metal or gold targets. A number of small copper and tin occurrences are noted to be present in the wider area. Potential for significant base metal mineralisation is considered secondary to uranium and gold mineralisation.

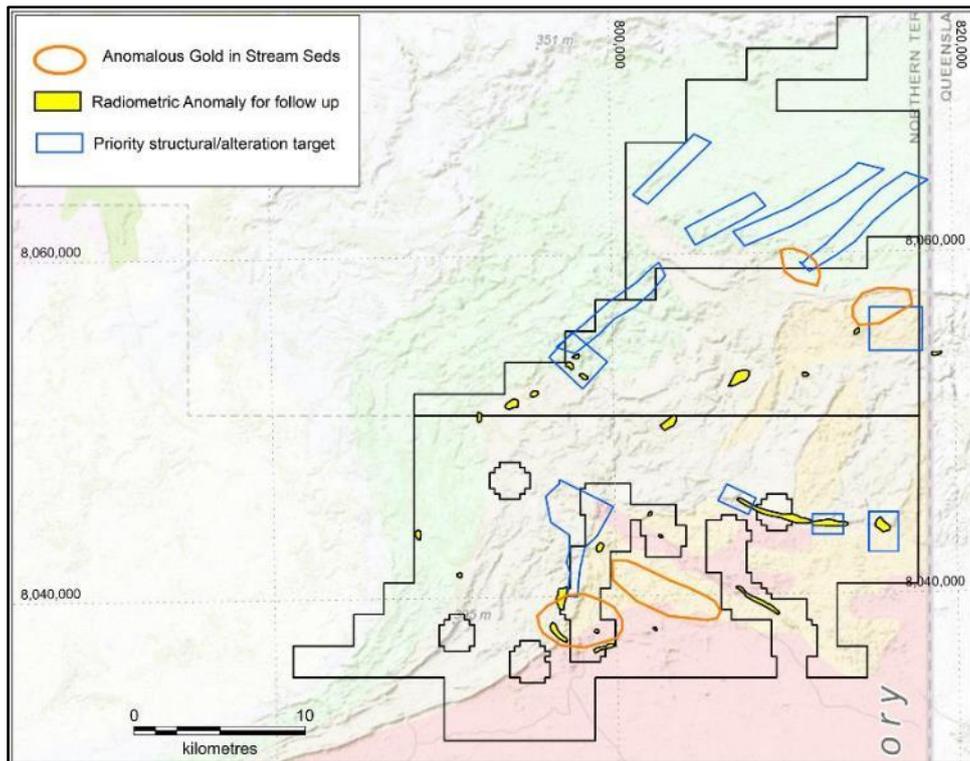


Figure 17-1. Priority target areas, radiometric anomalies and areas of anomalous gold in stream sediment for follow up on eastern tenement block.

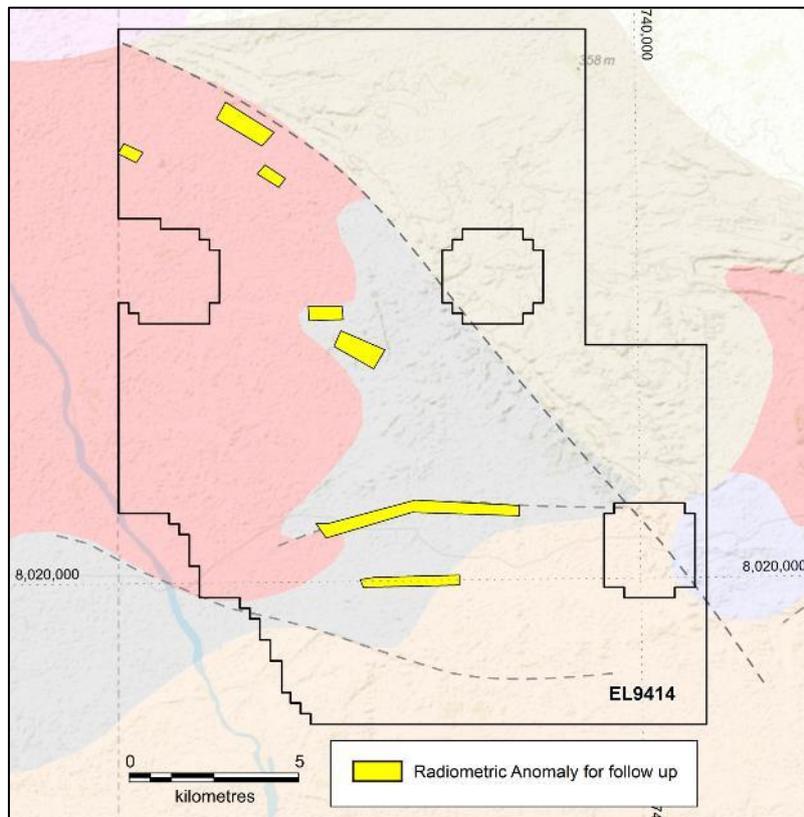


Figure 17-2. Radiometric anomalies for follow up on western tenement block.

## 18 RECOMMENDATIONS

In the Author’s opinion the Murphy Project is prospective for Westmoreland style and unconformity related uranium mineralisation. Furthermore, the potential for Coronation Hill Style (see section 8) and intrusion related gold mineralisation warrants further evaluation. Recent work by LAM, including a systematic approach to developing a mineral systems model for the area, provides a sound basis for further exploration and targeting concealed mineralisation on the Northern Murphy tenements.

The Southern Murphy tenements, in particular EL9414, have received significantly less exploration work in the past and have been largely unexplored since the 1980’s. Reconnaissance sampling and follow up of historic surface anomalies is recommended for the initial phase of exploration including assessment of the potential for both uranium and gold mineralisation.

Ground follow up of these anomalies including soil and rock sampling is recommended as an initial step. For the targets identified on ELs23573 and 29898 that are concealed by cover material, it is recommended to undertake soil sampling and analysis for Pb and U isotopes to identify evidence of radiogenic plumes above the target areas.

Laramide propose to undertake the following work program over the next two year period:

Phase 1:

Phase 1 work planned for 2020 includes:

- Follow up mapping and sampling of anomalies focusing on gold stream sediment sampling and radiometric anomalies on the Southern Murphy Tenements.
- Mapping and sampling of Unconformity at base of Westmoreland conglomerate on EL9414 to assess the potential for Unconformity related Mineralisation.
- Follow up of gold in stream sediment anomalies on EL9414 and EL23573
- Soil sampling with analysis for trace element and radiogenic isotope signatures on concealed target areas identified by Mineral Systems review on ELs29898 and 23573.

Total estimated expenditure for Phase 1 exploration is \$250,000 (refer Table 18-1)

**Table 18-1. Proposed Phase 1 Exploration Expenditure**

2020 Work Programme	Budget (CAD)
Reconnaissance mapping and sampling and follow up of radiometric anomalies and gold in stream sediment anomalies focusing on Southern Murphy Tenements	\$ 175,000
Soil sampling and radiogenic isotope sampling on identified targets on Northern Murphy Project area.	\$ 75,000
Total Budget (Approximately)	\$ 250,000

Phase 2:

It is planned to advance priority targets identified in Phase 1 undertake initial Reverse Circulation Percussion and Diamond Drilling of these targets in 2021.

The quantum of drilling undertaken in Phase 2 will be dependent on the results of Phase 1 work.

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## 20 CERTIFICATE AND SIGNATURE

I, Robert Sowerby hereby certify that:

- a) I am an independent Consulting Geologist employed by Mining Associates Ltd, with its office at L6/445 Upper Edward Street, Spring Hill, QLD, Australia.
- b) This certificate applies to the Technical Report entitled: "INDEPENDENT TECHNICAL REPORT ON THE MURPHY PROPERTY, NORTHERN TERRITORY, AUSTRALIA" dated 20 May 2020 of which I am the author and responsible person. I am a Qualified Person as defined in National Instrument 43-101 ("NI 43-101").
- c) I graduated from University of Southern Queensland University in 1987 with a BAppSci in Geology. I am a member of the Australasian Institute of Geoscientists. I have over 30 years' experience in the minerals industry and have had diverse experience in mineral exploration and project assessments.
  - i. I have specialist experience in uranium in a wide range of geological environments.
  - ii. My experience includes mine geology, exploration, resource estimation and due diligence studies
  - iii. I have worked more recently as a consulting geologist, and have consulted primarily in relation to project assessments in uranium, gold and copper
- d) I visited the Murphy Property most recently in June 2012
- e) I am responsible for all sections of this Technical Report.
- f) I am independent of the issuer (Laramide Resources) as described in Section 1.5 of NI 43-101. I have no direct or indirect interest in the Property that is the subject of this report. I do not hold, directly or indirectly, any shares in Laramide Resources or other companies with interests in the Murphy Property.
- g) I have previously worked for Laramide Resources as an independent consultant on Laramide's neighbouring Westmoreland Project between 2007 and 2010.
- h) I have read the Rule and this report is prepared in compliance with its provisions. I have read the definition of "qualified person" set out in NI 43-101 and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirement to be a "qualified person" for the purposes of NI 43-101.
- i) At the effective date of the technical report, to the best of my knowledge, information and belief, the report contains all scientific and technical information that is required to be disclosed in order to make this report not misleading.

Dated at Brisbane this 22<sup>nd</sup> of May 2020.

{Signed and Sealed}  
[Rob Sowerby]

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Rob Sowerby BAppSci, MEnvEngSci, MAIG  
Qualified Person