



Titleholder: Rio Tinto Exploration Pty Ltd

Operator: Lagoon Creek Resources Pty Ltd

Titles/Tenements: EL 9414

2nd Annual Report

Tenement Manager/Agent: Rio Tinto Exploration Pty Ltd

Corporate Author: Lagoon Creek Resources Pty Ltd

Target Commodities: Uranium and Gold

Reporting Period: 4 November 2012 to 3 November 2013

Datum/Zone: GDA94/Zone53

1:250,000 Map sheet: Calvert Hills (SE 53-8)

1:100,000 Map sheet: Nicholson River (SE 6362)

Contact Details:

Lagoon Creek Resources

PO Box 103, Spring Hill, QLD, 4004

Telephone: 07 3831 3407

Contents

APPENDIX.....	i
ACKNOWLEDGEMENT AND WARRANTY	1
SYNOPSIS.....	2
INTRODUCTION.....	3
Location and Access	3
Physiography Climate and Vegetation.....	3
TENURE	4
GEOLOGICAL SETTING	5
Structural setting	6
Eva Mine	7
HISTORIC EXPLORATION	8
EXPLORATION YEAR 1: NOVEMBER 2011 – NOVEMBER 2012	11
Target Selection	12
EXPLORATION YEAR 2: NOVEMBER 2012 – NOVEMBER 2013	13
CONCLUSION	14
Proposed Work Program Year 3: November 2013 – November 2014	14
REFERENCES.....	15
APPENDIX	
Appendix 1	EL 9414 Tenement Location
Appendix 2	Geology of EL 9414
Appendix 3	Exploration Target Areas on Geology Map

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SYNOPSIS

Lagoon Creek Resources Pty Ltd (LCR), a wholly owned subsidiary of Laramide Resources Ltd, is currently exploring for sandstone hosted, unconformity related uranium in a number of Northern Territory tenements including EL 9414. In May 2011 LCR entered into an earn-in and joint venture agreement with Rio Tinto Exploration Pty Ltd (Rio Tinto); LCR would act as the operator.

Rio Tinto is the registered holder of Exploration Licenses 9319, 9414, 28721, 28722, 28723 and 28724, collectively known as the 'Murphy Project', in the Northern Territory. The exploration license for EL 9414 was originally applied for in 1995 and subsequently granted in November 2011.

During the first year of tenure, 4th November 2011 and the 3rd November 2012, LCR completed a desk top study of the area using geological maps, explanatory notes, regional geophysical datasets and incorporated open-file data provided by the Northern Territory Geological Society (NTGS). In addition, a search by the Aboriginal Areas Protection Authority (AAPA) for culturally significant areas was carried out as well as Land Access meetings with the Northern Land Council (NLC) and Traditional Owners being planned

During the second year of tenure, 4th November 2012 to 3rd November 2013, LCR received approval by the NLC and Traditional Owners for the initial proposed work program. LCR planned to fly a high resolution radiometric and magnetic airborne survey to facilitate targeting over the tenement area; however, exploration was delayed due to Laramide Resources ASX listing attracting limited investors. With this in mind, LCR completed a review of quotes for the airborne geophysics survey.

INTRODUCTION

Location and Access

The tenement is situated in the Northern Territory on Aboriginal Land held by the Waayni/Garawa Aboriginal Land Trust and is administered by the NLC. The centre of EL 9414 is located approximately 73km SSW of Calvert Hills Station and approximately 31km E of Benmara Station. Most exploration undertaken on EL 9414 will be based out of LCR's Camp Caroline (located within EL 29898) which is approximately 138km NNE from the tenement by existing tracks. The Camp is already used by LCR to undertake exploration in both the Northern Territory and Queensland. The location of EL 9414 and Camp Caroline is shown in **Appendix 1**.

Physiography Climate and Vegetation

EL 9414 is situated in the Gulf Falls and Uplands bioregion. The NTGS Calvert Hills (SE 53-8) Explanatory Notes indicates that the area comprises a combination of escarpments, low-lying hills and pediplains, which typically display grey and brown clays, lithosols and shallow earthy sands. Other areas can comprise strike ridges and intervening valleys, with the shallow cover being siliceous sands.

A flora and fauna 'snapshot' report was undertaken for EL 9414, acquired from the Northern Territory Natural Resource Management (NT NRM) InfoNet website. The report states that vegetation is predominantly 'open woodland', with <1% woodland and <2% open forest, the majority of which is in the northern part of the area.

The report also advises of the following introduced plants, which have been identified as problem weeds in one or more locations in northern Australia, however, there are no weeds of national significance:

Starburr; Khaki Weed; Ulcardo Melon; Nutgrass; Awnless Barnyard Grass; Hyptis; Spiked Malvastrum; Bitter Broom; Spiny-head Sida; Flannel Weed; Townsville Lucerne; and Noogoora Burr.

TENURE

EL 9414 consists of 138 sub blocks and was acquired by Rio Tinto after applying for the exploration license in 1995, and was subsequently granted on 4th November 2011. In May 2011 LCR entered into an earn-in and joint venture agreement with Rio Tinto; (registered holder) LCR would act as the operator. The EL covers approximately 386.78km².

GEOLOGICAL SETTING

EL 9414 is underlain largely by rocks of the Murphy Inlier. The Murphy Inlier is Early Proterozoic 'basement rock' consisting of the Murphy Metamorphics, the Cliffdale Volcanics and the Nicholson Granite Complex. These are partly overlain by the Middle Proterozoic McArthur Basin, and the Lawn Hill Platform and South Nicholson Basin.

The Murphy Metamorphics are the oldest sequence in the Murphy Inlier and are suggested to be at least 1900Ma to 2100Ma old (Plumb and Derrick, 1975). The sequence consists of shale, siltstone, greywacke and volcanic deposits metamorphosed to greenschist facies quartz-albite-muscovite-biotite schist and gneiss. The Murphy Metamorphics are poorly exposed at the surface.

The Nicholson Granite Complex can be divided into 8 lithological units, however, it is possible to simplify these into two petrological and age related groups. Group A (Pgn_a), 1820±103Ma, comprises hornblende and/or biotite bearing adamellite and ganodiorite. Group B (Pgn_b), 1621±28Ma, comprises biotite and/or muscovite bearing granite and adamellite.

The Cliffdale Volcanics sequence is over 4000m thick and has been divided into 5 members and several sub-members. The Cliffdale Volcanics can be simplified into two petrological and age related groups. Group A (Pcc_a), age not yet determined, comprises rhyolitic and alkali rhyolitic ignimbrite. Group B (Pcc_b), 1770±20Ma, comprises flow banded alkali rhyolite lava and minor tuff. The age of Group A is uncertain.

The Tawallah Group is the oldest (c.1800-1713Ma) group of the McArthur Basin sequence and overlies the Murphy Inlier with an angular unconformity; it comprises alternating intervals of detrital sediments, volcanics and carbonates (including the Westmoreland Conglomerate and Seigal Volcanics Formations). 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 deposited above conformably. The South Nicholson Basin Sequence (c.1500-1400Ma) generally comprises alternating sandstone formations.

The central and majority of the northern part of EL 9414 predominantly comprises Murphy Inlier sequence. The north-eastern part of the tenement comprises the Westmoreland Conglomerate of the Tawallah Group, while the southern part comprises

Constance Sandstone (sandstones and siltstones) of the South Nicholson Basin. The Early Cretaceous Mullaman Beds (soil, sand and lateritic soil and laterites) and Cainozoic Surficial Deposits (laterites, sands, soils) sporadically overlie the whole area. Refer to **Appendix 2**.

Structural Setting

The Murphy Inlier is the exposed part of the Murphy Tectonic Ridge with the north-western margin of the Ridge defined by the Tin Hole Hinge Line. The Tin Hole Hinge Line represents a thrust fault along which the Westmoreland Conglomerate moved south-ward. Along the hinge line the Westmoreland Conglomerate dips steeply at angles of 60° to 45° to the north.

Within the Murphy Inlier, the Murphy Metamorphics are isoclinally folded along east-west axes and dip sub-vertically to the north. The Clifdale Volcanics are in some areas folded or tilted to the north with intense faulting and veining, and intruded by the Nicholson Granite Complex. The Tawallah Group generally has a regional dip of 10° to the northwest. The youngest sequence within the Lawn Hill Platform Sequence (the Fickling Group) dips regionally at approximately 5° to the south. The South Nicholson Group shows very little folding, however, minor faults and joints are present. (NTGS Calvert Hills (SE 53-8) Explanatory Notes)

An intensely faulted zone (north-south and east-west orientations) within the Westmoreland Conglomerate is located in the mid-north-eastern part of EL 9414, with northwest-southeast faulting present to the northwest. In the centre of the tenement, two east-west trending faults are present within the Murphy Metamorphics (?horst). Due to the younger strata and surficial deposits, faulting within the southern half of the Area is not as evident.

Eva Mine

The Eva Mine uranium deposit, which shares similar geology and a close proximity with EL 9414, was discovered in 1956 by Eva Clark. Numerous companies have worked on Eva Mine since its discovery, including BHP, South Alligator River N.L., United Uranium N.L., and Uranerz/CBEBE. Eva Mine is now held by NuPower Resources Ltd under Mineral Lease 585, and has an approximate area of 12.14Ha.

The mine is situated within the Cliffdale Volcanics and outcrops on a slope capped with Westmoreland Conglomerate. The beds of steeply dipping green sericite-epidote altered quartzite and argillaceous sandstone, interbedded with porphyritic lavas, host the bulk of the ore – on the Westmoreland Conglomerate and Cliffdale Volcanics unconformity.

Historically, the mine area has been subject to much drilling and many geophysical surveys. Mining was undertaken by South Alligator River N.L. between 1960 and 1962 producing 336 tonnes of ore, averaging 8.37% U₃O₈. Geochemical surveys over the area revealed some gold mineralisation, with individual assays up to 300g/t Au.

HISTORIC EXPLORATION

Within EL 9414, there are 2 known uranium occurrences, 'Anomaly 30' and 'Anomaly 4901'. Refer to **Appendix 3**.

In 1972 a drill program was carried out by Noranda Australia Ltd over 'Anomaly 30', which is located in the centre of EL 9414. The program comprised 7 vertical rotary percussion drill holes totalling 1375 feet. The highest grade mineralisation found was 0.32lbs U₃O₈/short ton, and this was over a narrow width. At the time it was concluded that no further drilling was recommended.

Early 1979 Mines Administration Pty Ltd (Minad) ordered a photogeological interpretation covering EL 1234, which covers part of the present day area of EL 9414, to be undertaken by Luxton Hunting and Associates using National Mapping RC 9 aerial photographs. An airborne geophysical program was recommended.

From May 1979, Esso Australia Ltd. (Esso) became operator of EL 1234. Esso carried out an Airborne Radiometric Survey, and 9 uranium anomalies were identified within the project area. All established anomalies were ground checked with respect to intensity and surface extent, apparent geological control and the nature of the surrounding rocks. Rock chip samples were taken over the anomalies, returning non significant values, the greatest being 570ppm U₃O₈. All anomalies defined by the airborne survey were checked and consequently downgraded by Esso, which lead to Esso relinquishing the tenement.

Between 1979 and 1981 Esso carried out geological mapping and a ground spectrometer/magnetometer program over EL 1319 with Terradex Corporation being the geophysics contractors. The program comprised a 69 cup Track Etch survey over 'Anomaly 4901' with readings ranging from 51.8T/sq.mm. to 1154.3T/sq.mm, (the mean background value was 228.2T/sq.mm). Four points from the survey were described as having "a very low probability of belonging to background distribution and hence are anomalous" and were further described as having "a good potential for mineralisation". Due to the high magnitude of the readings, the four points were considered "encouraging, more so if the mineralised horizon is quite deep or beneath relatively gas-impermeable overburden". Due to the uranium potential within the area not being significant and not conforming with the Arnhem Land deposit models, Esso relinquished the EL.

Between 1983 and 1989 Stockdale Prospecting Ltd (Stockdale) carried out an exploration program over EL 4392, which covers the area which is now EL 9414, and surrounding tenements with the primary target commodity being diamonds. Stockdale started a reconnaissance stream sampling program in 1983 and collected four samples from major rivers draining the EL. In 1985 fill-in stream sampling was carried and a further 5 samples were collected to bring the sample density up to one sample per 50km². Results “proved encouraging”, with 2 diamonds (0.0034ct and 0.0017ct) being recovered. Follow-up was completed in 1986 comprising 64 stream samples, eight rock samples were collected, but all proved negative for kimberlite indicator minerals.

In 1986, Stockdale commissioned a fixed winged, magnetic survey to be flown to the north of EL 4392, with a follow-up helicopter supported magnetic survey in 1987. These surveys delineated a number of magnetic anomalies to the north and east of EL 4392. Further investigations into these anomalies in 1987 and 1988 found them to be of no further interest. No diamonds or significant kimberlite indicator minerals were found during reconnaissance. It was concluded that the area covering the eastern half of EL 4392, (directly east of EL 9414), is of low priority and was relinquished. The remaining western area of EL 4392, covered the entire area of what is now EL 9414.

Midway through 1988, Stockdale re-assessed the spread of chromites and diamonds recovered from earlier sampling exercises indicated that the Collins Creek area (in the north-east of what is now EL 9414) still held potential for diamond source rocks of a primary nature. In September-October 1988, two helicopter supported teams completed a sampling program comprising 140 stream samples and 19 loam samples. Many chromites were recovered and a diamond was also recovered. In addition, rock and loam sampling over a magnetic anomaly which was previously highlighted recovered one chromite, all other samples proved negative.

In Stockdale’s final report of EL 4392, it was stated that the incidence of diamonds in the area now covered by EL 9414 was high, but kimberlitic indicators other than chromite are scarce. It was concluded at the time that without further evidence, the diamonds are from a secondary source whilst the chromites are from local basic intrusives. It was further concluded that the Westmorland Conglomerate provides a secondary source horizon for diamonds in the area, whilst as yet undefined basic intrusives within the Murphy Inlier are shedding the chromites which appear in many Stockdales samples.

Open File Company Reports:

CR 1968/0059 United Uranium N.L., AP 1738, Geology and Uranium mineralisation of Eva Mine.

CR 1968/0060 United Uranium N.L., AP 1738, Report on B.M.R. Airborne Radiometric Anomalies, Pandanus Creek.

CR 1973/0087 Noranda Australia Ltd. EL 122, Report on Prospecting

CR 1979/0127 Esso Exploration, Nicholson Minad EL 1234, Annual Report

CR 1979/0172 Esso Exploration. Nicholson River EL 1319, Annual Report

CR 1980/0189 Nicholson Minad, EL 1234, Final Report.

CR 1981/0227 Esso Exploration. Nicholson River EL 1319, Annual and Final Report

CR 1984/0239 Stockdale Prospecting Ltd., Nicholson River ELs 4384, 4385, 4386, 4390, 4392, Annual Report

CR 1985/0276 Stockdale Prospecting Ltd., Nicholson River ELs 4384, 4385, 4386, 4390, 4392, 4438, 4439, 4491 Annual Report

CR 1987/0154 Stockdale Prospecting Ltd., Nicholson River ELs 4385, 4386, 4390, 4392, 4438, 4439, Annual Report

CR 1987/0260 Stockdale Prospecting Ltd., Nicholson River ELs 4392, 4438, 4439, Annual Report

CR 1988/0411 Stockdale Prospecting Ltd., Nicholson River ELs 4392, 4438, Annual Report

CR 1989/0013 Stockdale Prospecting Ltd., Nicholson River EL 4392, Partial Relinquishment Report

CR 1990/0202 Stockdale Prospecting Ltd., Nicholson River ELs 4392, 4438 Final Report

Exploration Year 1: November 2011 – November 2012

During 2011 and 2012 LCR geologists undertook a desktop study of the Murphy Project Area including EL 9414. In addition to the geological maps, explanatory notes and regional geophysical datasets, the study incorporated open-file data provided by the NTGS; this included historical stream sediment and whole rock sample data, together with historical company reports.

A search by the Aboriginal Areas Protection Authority (AAPA) for culturally significant areas was carried out in March 2012.

LCR's proposed work program was sent to the NLC in March 2012. The initial meeting to discuss this program was scheduled for 13th September; however, this was postponed and rescheduled for 30th October. This meeting was postponed and rescheduled again for 13th November. Without the work program for the tenement being approved by the NLC and Traditional Owners before 3rd November, both airborne and on-ground exploration could not be undertaken.

Target Selection

LCR has selected preliminary target areas from data collated in the 2011-2012 desktop study. Refer to **Appendix 3**.

- Target 1** Majority of the area comprises the Nicholson Granite Complex unconformably overlying Murphy Metamorphics with north-east and east trending faults (?horst). In addition, there are two known uranium mineral occurrences present within this target area.
- Target 2** An intensely faulted area of Westmoreland Conglomerate (Ptw₂) with adjacent Murphy Metamorphics geological boundary.
- Target 3** The unconformable contact/boundary between the Westmoreland Conglomerate (Ptw₁) and Nicholson Granite Complex.

Exploration Year 2: November 2012 – November 2013

On 13th November 2012 LCR had an initial meeting with the NLC and Traditional Owners to discuss LCR's proposed work program. The work program was approved as presented. A liaison committee meeting will be held before any ground work commences to discuss Cultural Monitors accompanying the LCR field team.

LCR planned to fly a high resolution radiometric and magnetic airborne survey to facilitate targeting over the 386.78km² tenement area. Quotes obtained by LCR were approximately \$150,000 to survey the whole Murphy Project area.

LCR experienced exploration delays on EL 9414 as the proposed \$8.5 million ASX listing only attracted \$1.8 million due to poor investor appetite for uranium stocks. With this in mind LCR reviewed quotes for the airborne survey. Once this survey has been completed, LCR will then be able to assess and interrogate the data, develop an exploration plan, and due to the remoteness develop an access plan, over the wet season.

CONCLUSION

During Year 1, airborne and on-ground exploration on EL 9414 was postponed due to Land Access meetings with the NLC and Traditional Owners, however, the AAPA carried out a search for culturally significant areas within the tenement and LCR completed a thorough desktop study of the area.

During Year 2, LCR's initial work program was approved as presented by the NLC and Traditional Owners. Exploration was delayed on EL 9414 due to Laramide Resources ASX listing attracting limited investors; however, LCR did complete a review of quotes for the airborne geophysics survey.

Proposed Work Program for Year 3: November 2013 – November 2014

It is anticipated that an initial radiometric and magnetic airborne geophysical survey will be carried out using a fixed winged aircraft. This would likely comprise approximately 15,898 line kilometres at 100m spacing, and use a flight line to tie line ratio of 10:1, at an approximate flying height of 40m.

In light of the airborne survey, LCR will analyse the data collected and review preliminary targets and historical data from the desktop study carried out in Year 1 to aid initial targeting.

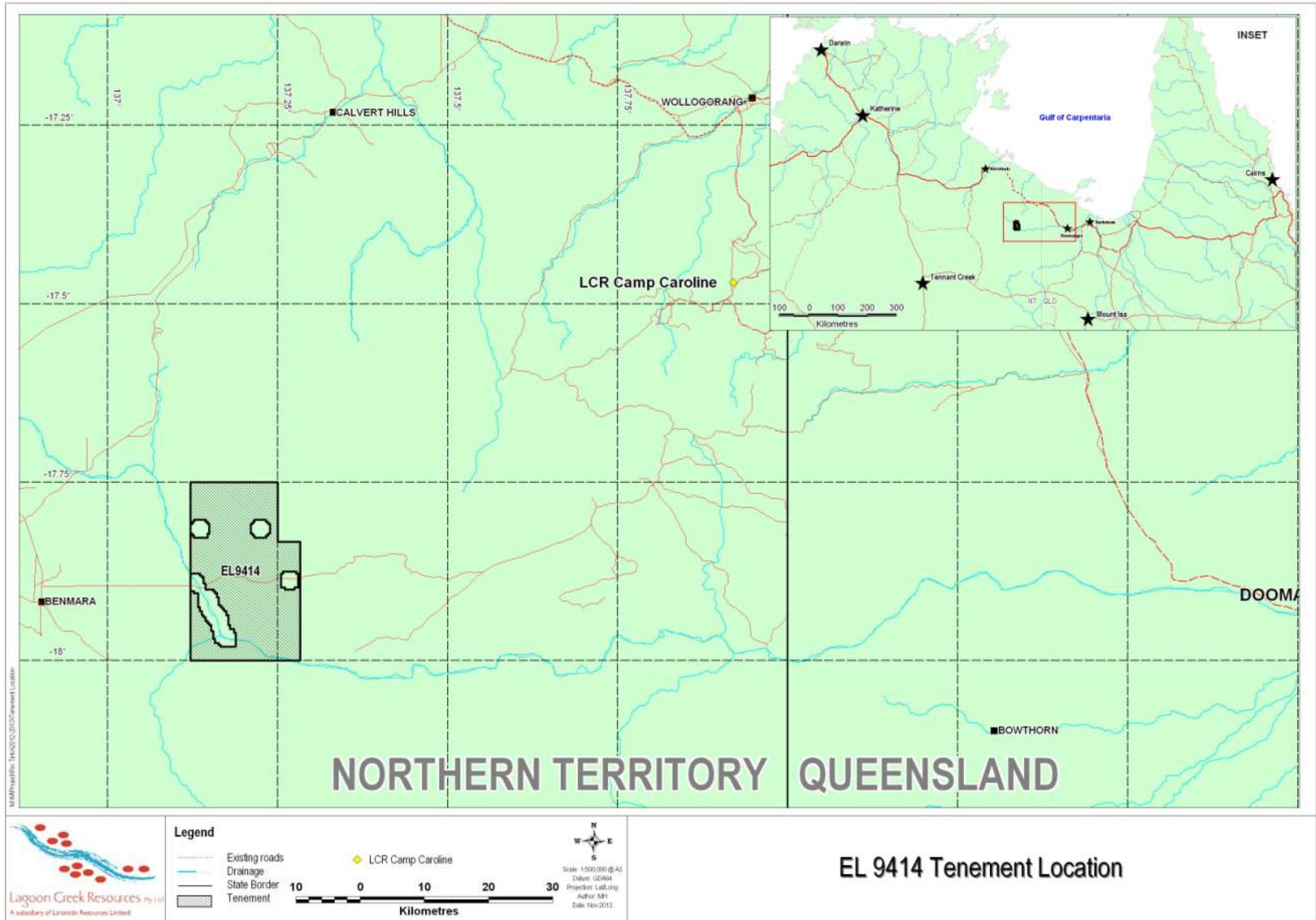
Ground work on initial target areas may comprise a combination of stream sediment sampling, soil sampling with spectrometer/scintillometer surveys, together with geological mapping and rock chip sampling.

If warranted, a Versatile Time-Domain Electromagnetic (VTEM) survey may be undertaken.

REFERENCES

- Ahmad, M and Wygralak, A S, 1989: Geological map: 1: 250,000 Sheet (SE53-08 Calvert Hills)
- Plumb, K.A., Derrick, G.M., 1975 – Geology of the Proterozoic Rocks of the Kimberly to Mt Isa region *in* Knight, C.L., (Editor) Economic Geology of Australia and Papua New Guinea. *Australian Institute of Mining and Metallurgy, Monograph Series, 5*, 217-252.
- 2011 NTGS Dataset: Seigal GIS Data Package incorporating “MODAT”, the Northern Territory’s Mineral Occurrence Database.
- Northern Territory Natural Resource Management (NRM) InfoCentre
<http://www.ntinfolnet.org.au/reports/>

APPENDIX 1



APPENDIX 2

APPENDIX 3

