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EL 5871

UMBERATANA

COMBINED FIRST ANNUAL/FINAL REPORT TO LICENCE EXPIRY/FULL SURRENDER, FOR THE PERIOD 2/11/2016 TO 1/11/2017

Submitted by
Jodama Pty Ltd
2017

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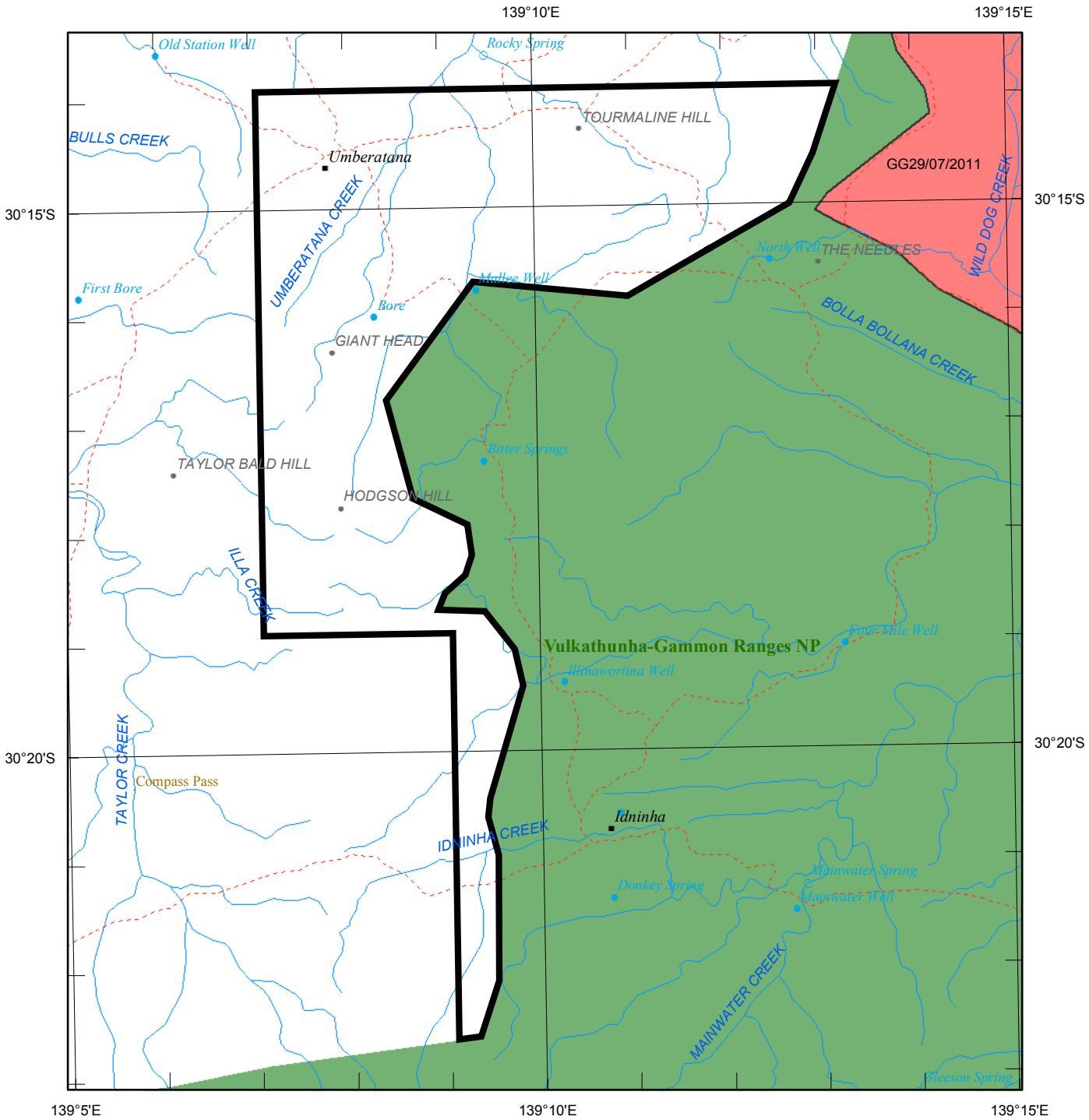
Government of South Australia
Department of the Premier and Cabinet

SCHEDULE A



SCALE 1 : 100 000

2 0 2 4 6 8 10

Kilometres

GDA GEOCENTRIC DATUM OF AUSTRALIA

LICENCE BOUNDARIES IN : DATUM AGD66

LOCALITY

APPLICANT : **JODAMA PTY LTD**

FILE REF : **2016/00065** TYPE : **MINERAL ONLY**

AREA : **52** sq km (approx)

1 : 250 000 MAPSHEETS : **COPLEY**

LOCALITY : **UMBERATANA AREA -**
Approximately 80 km northeast of Leigh Creek

DATE GRANTED: **02-Nov-2016** DATE EXPIRED: **01-Nov-2017** EL NO: **5871**

JODAMA PTY LTD

TITLE:	Final Technical Report for EL 5871 "Umberatana" for the period ending 1 November 2017
TYPE OF REPORT	Final Report
REPORTING PERIOD	2nd November 2016 to 1 November 2017
TENEMENT NUMBER:	EL 5871
PROJECT NAME:	Umberatana
HOLDER:	Jodama Pty Ltd
OPERATOR:	Jodama Pty Ltd
AUTHOR:	Mark Arundell
DATE:	4th October 2017
1:250,000 SHEET:	Copley SH 54-09
1:100,000 SHEET:	Umberatana 6737
SUBMITTED BY:	
DISTRIBUTION:	1. Jodama Pty Ltd, Orange Office 2. SA Mineral Resources Division, Department of the Premier and Cabinet

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EL5871_201710_F_02_geochem.txt	8Kb	Rock chip sample data

SUMMARY

The Umberatana tenement (EL 5871) was considered prospective for pegmatite hosted lithium mineralisation hosted by (?)Cambrian granites. Previous sampling in the area by the GSSA had recorded anomalous lithium values.

Jodama Pty Ltd (Jodama) believed there was considerable potential for the discovery of significant mineralisation in the area.

In its first and final year of exploration at Umberatana, Jodama undertook the following work:

- Literature search
- Field reconnaissance and rock chip sampling

The literature review of the Umberatana tenement indicated that the lithium potential of the area had not been assessed. In fact, the lithium potential of the area has not previously been assessed as a primary target.

Rock sampling at Tourmaline Hill and Giant Head produced negative results and the decision was made to relinquish the area.

EL 5871	Type of sampling	Number of samples	Elements analysed	Key results
	Rock chip	14	Ag, Al, As, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cu, Cs, Fe, Ga, Ge, Hf, In, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Rb, Re, S, Sb, Sc, Se, Sn, Sr, Ta, Te, Th, Ti, Tl, U, V, W, Y, Zn, Zr.	Maximum Li value 4ppm indicating pegmatites not enriched in targeted commodity

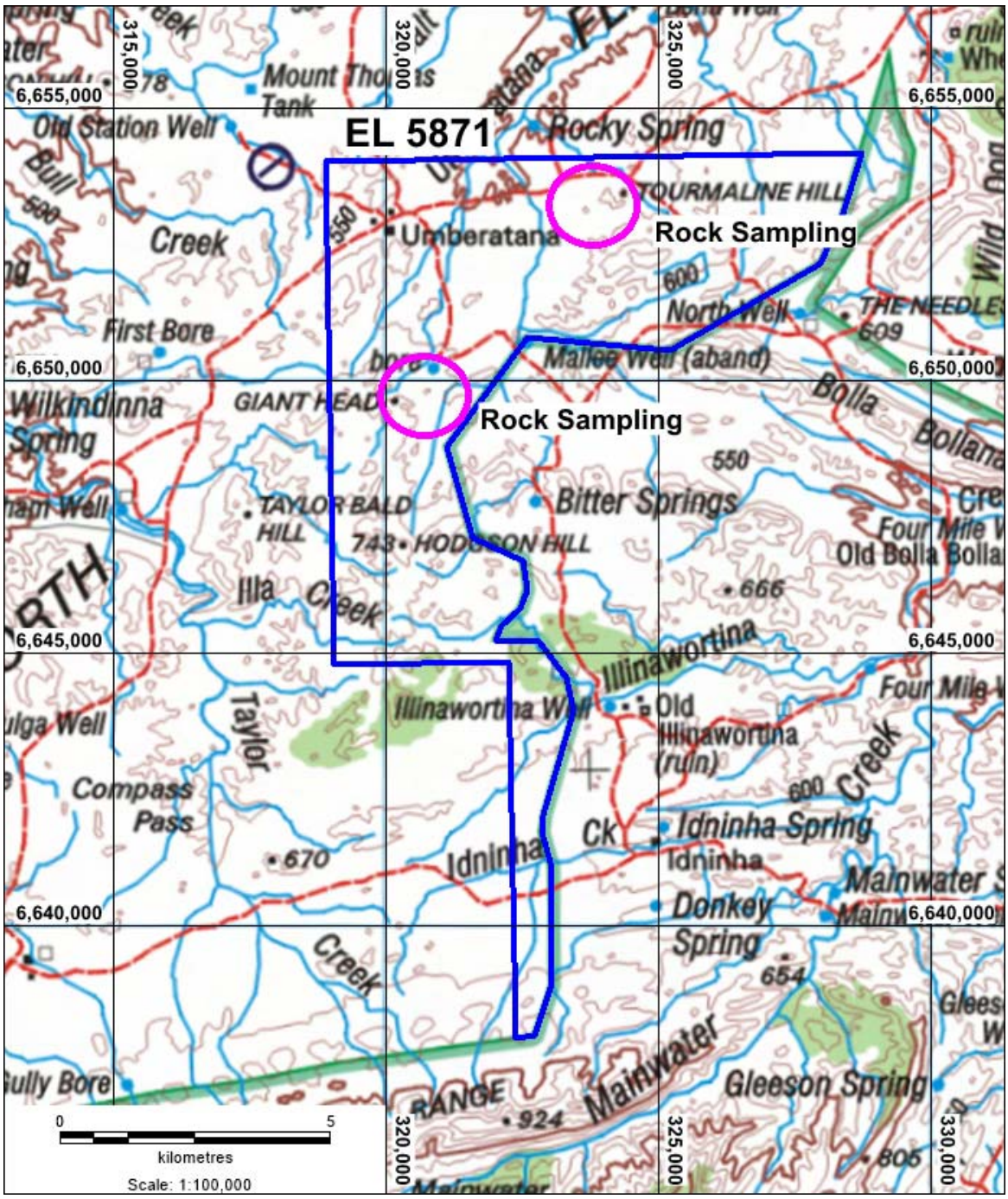

Figure 1 – Exploration Index Map of EL 5871

Keywords

Copley SH5409 1:250,000 map sheet, Umberatana 6737 1:100,000 map sheet, Umberatana, Tourmaline Hill, Giant Head, Lithium, pegmatite, Cambrian

1. INTRODUCTION

1.1. Tenure Details

The Umberatana tenement (EL 5471) was applied for by Jodama as Exploration Licence Application ELA 2006/65 (52 square kilometres) under the Mining Act (1971). Jodama manages and operates the tenement.

Tenement details are summarised in Table_1.

Tenement number	Application Date	Date granted	Expiry date	Project name	Licensee and operator	Locality	Area km²
EL 5471	19/05/16	02/11/16	2/11/17	Umberatana	Jodama Pty Ltd	80km E of Leigh Creek	52.21

Table 1 Summary of tenement details

1.2. Location and Access

The Umberatana tenement (EL 5871) is situated ~80km east of Leigh Creek (Figure 2). Good access is provided by the unsealed Copley – Balcanoona Road and a number of unsealed farm tracks that occur in the area.

Figure 2 - Location of EL 5871

1.3. Previous Exploration

Reports of previous exploration of the Umberatana area were downloaded from the SARIG website of the SA Department of State Development. Work done by the previous explorers is summarised below.

Blissett GSSA (1965-1966)

Rock sampling in the Mt Painter province recorded values of 500ppm and 800pmm Lithium (Li) from “Country Rock” and granite in the Tourmaline Hill area.

Bridge Minerals (1975)

Copper mineralisation was targeted. They drilled one 50 metre hole which, whilst intersecting sulphides, failed to intersect any economic mineralisation.

CRAE (1980-1981)

Gold (Au), Niobium (Nb), Tantalum (Ta) and Tungsten (W) was targeted. Main target lithology was the diapiric units in the Giant's Head and Tourmaline Hill areas. They completed mapping, rock chip, stream sediment & panned concentrate sampling, ground geophysics and RAB & percussion drilling. Apart from W, no other commodities were actively pursued.

Greenbushes Tin Ltd & Union Oil Ltd (1983-1985)

Niobium (Nb) and Tantalum (Ta) targeted at Tourmaline Hill, The Needles & Giants Head. Limited exploration for Beryllium (Be) was also conducted. They completed a detailed aeromagnetic/radiometric survey and detailed mapping of the granite areas but no drilling.

Aberfoyle Exploration (1988-1989)

Beryllium (Be) targeted in altered areas surrounding the granitoids. Rock chip sampling recorded disappointing results.

Lynch Mining EL 1645 (1990-1994)

Beryllium (Be), Rubidium (Rb) and Tantalum (Ta) was targeted. “Numerous” pegmatites noted. At Tourmaline Hill, a brecciated albite-phlogopite metasomatites recorded a rock chip value of Li 490ppm, Caesium (Cs) 760ppm and Ta 135ppm. At Giants Head a pegmatite sample recorded Ta 930ppm. A change of focus to vermiculite exploration meant no follow up was conducted.

Lynch Mining EL 2032 (1994-1999)

Beryllium (Be), Tantalum (Ta), Niobium (Nb), Lithium (Li) and Caesium (Cs) was targeted. A single RC percussion hole was drilled (THRC001) but no Li analysis was conducted.

Tantalum Australia EL 3047 (2002-2004)

Tantalum (Ta), Niobium (Nb), and Tin (Sn) was targeted. Rock chip sampling produced low results and no Li analysis was conducted.

Scimitar Resources & Cauldron Energy EL 3502/4793 (2006-2013)

Uranium (U) was targeted. Field mapping defined more pegmatite granites in the Tourmaline Hill area

1.4. Exploration Rationale

The Umberatana tenement (EL 5871) was considered prospective for pegmatite hosted lithium mineralisation hosted by (?)Cambrian granites. Previous sampling in the area by the GSSA (Blissett, 1967) had recorded anomalous lithium values as noted above.

2. REGIONAL GEOLOGY

The following section is a distillation from Lynch Mining (2000).

The licence area has been mapped by GSSA at 1:63,000, 1:125,000 and 1:250,000 scales. Within the licence is a large diapiric structure which intrudes Adelaidean sediments of the Burra Group (Pbk, Pbm, Pbt, Pbi) and Umberatana Group (Pft, Pfd, Pfa, Pyi) (Figure 2). The diapir is located on, or close to, the hinge line of a regional anticlinal structure called the Yankaninna Anticline. It consists of poorly exposed calc-silicate lithologies which resemble

the Wywyana Formation of the Lower Callana Beds. The contacts of the diapiric structures with the enclosing sediments are not exposed and breccia zones are uncommon.

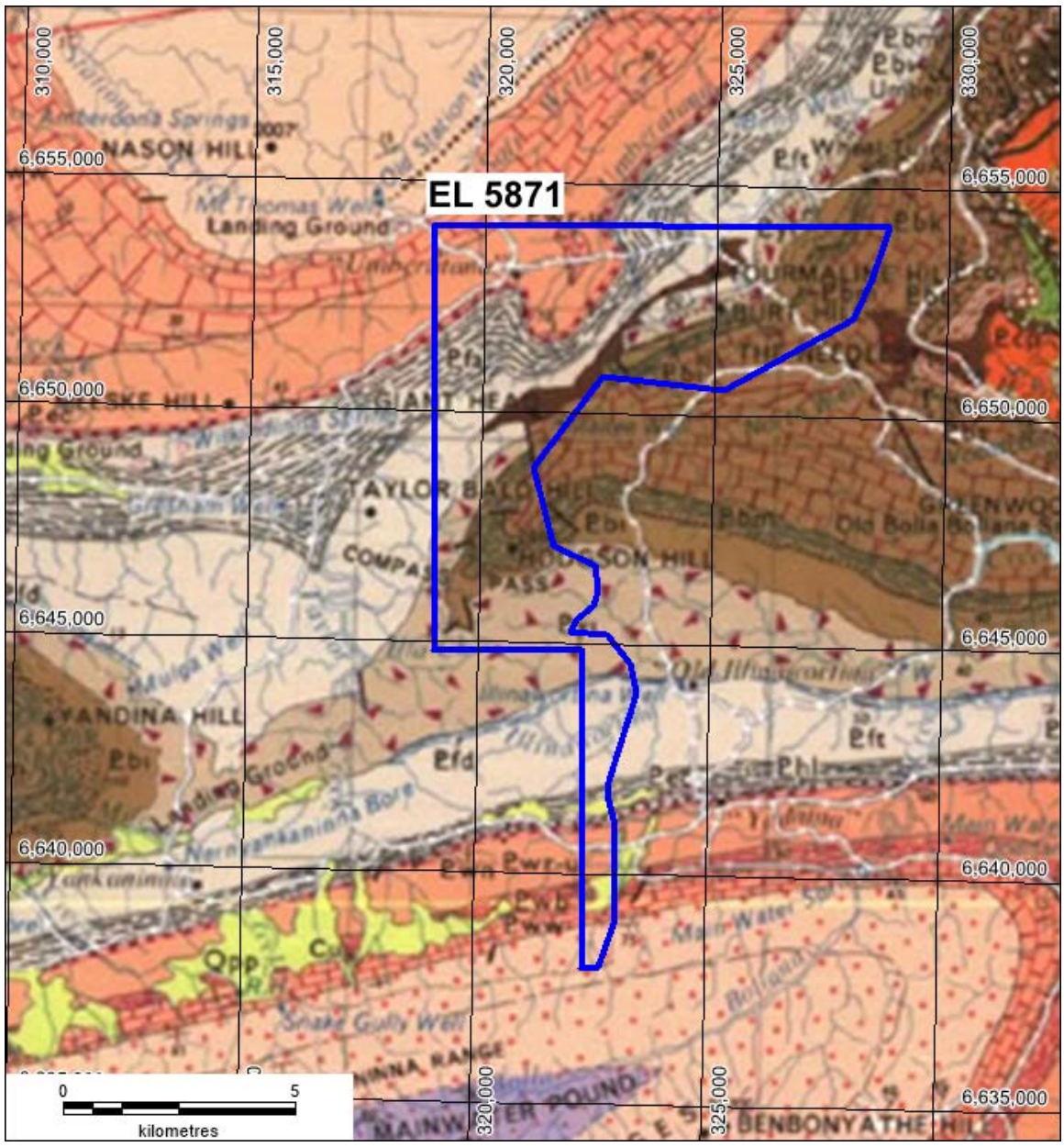

Figure 3 - Umberatana – Regional Geology (Copley 1:250 000)

The Tourmaline Hill-Giants Head diapir is an elongate body parallel to the strike of the enclosing Umberatana Group sediments. Lithologies within the diapir form continuous horizons which are generally conformable with surrounding sediments.

The diapir is intruded by small plug like bodies of sodic leucogranite and tourmaline pegmatite which have been dated as Ordovician. In outcrop, the bodies are circular or ellipsoid, with the long axis parallel to the local strike direction. The contacts are often brecciated, and xenoliths of country rock are sometimes preserved within the granite. The mineralogy of the soda leucogranite in order of abundance is albite, quartz, Kfeldspar, minor muscovite and accessory tourmaline, garnet, sphene and apatite. Traces of beryl and monazite have also been recorded.

The diapir consists of a wide variety of calcareous hornfels and marble. At Giants Head, the hornfels. are derived from a shallow water sequence of laminated pyrrhotitic shale and limestone, dolomite, silty shale, siltstone and gypsiferous limestone belonging to the Tapley Hill Formation (Pft). Along the margin of the diapir the sediments are spotted with laths of scapolite, and actinolite is developed in small radiating aggregates. As the intrusions are approached, actinolite predominates over scapolite and becomes coarser grained. A few large pods of massive fibrous actinolite are developed. Large flakes of biotite and tourmaline (both common and rubellite varieties) are sometimes developed as euhedral crystals on bedding planes. Lime rich horizons are recrystallised to coarse grained calcite spar. There is an increasing abundance of magnetite, ilmenite and pyrite towards the intrusion. Massive phlogopite is developed at the granite contact. Other minerals which have been recorded from the metamorphic aureoles are andradite, rutile, fluorite, apatite, sericite, zinnwaldite, monazite and epidote.

The mineralogy of the diapir reflects metasomatic addition of several elements (e.g. boron, sodium, lithium and chlorine). Scheelite has only been found as euhedral crystals intergrown with metamorphic minerals around the granite intrusions, suggesting that tungsten was introduced during metamorphism.

3. WORK COMPLETED BY JODAMA

Jodama undertook the following work on EL 5871 during the first reporting period:

- Literature search (as summarised above)
- Rock chip sampling – Tourmaline Hill and Giant Head

3.1. Rock Chip Sampling

Rock chip sampling was completed at both Tourmaline Hill and Giant Head (). A sample of 2-3kg of material was collected from each site.

This work produced negative results for lithium. A maximum of 4ppm Li was recorded from the samples collected. Analytical method for the samples is recorded in Table 2.

Laboratory	Sample Preparation	Analytical Method	Elements analysed
ALS	CRU-21 Crush entire sample >70% -6mm PUL-21 Pulverise entire sample	ME-MS61 – 48 element four acid ICP-MS	Ag, Al, As, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cu, Cs, Fe, Ga, Ge, Hf, In, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Rb, Re, S, Sb, Sc, Se, Sn, Sr, Ta, Te, Th, Ti, Tl, U, V, W, Y, Zn, Zr.

Table 2 Rock chip sample analysis

Pulps from the sampling will be stored at ALS Adelaide for ~6 months and then returned to Jodama Pty Ltd or disposed

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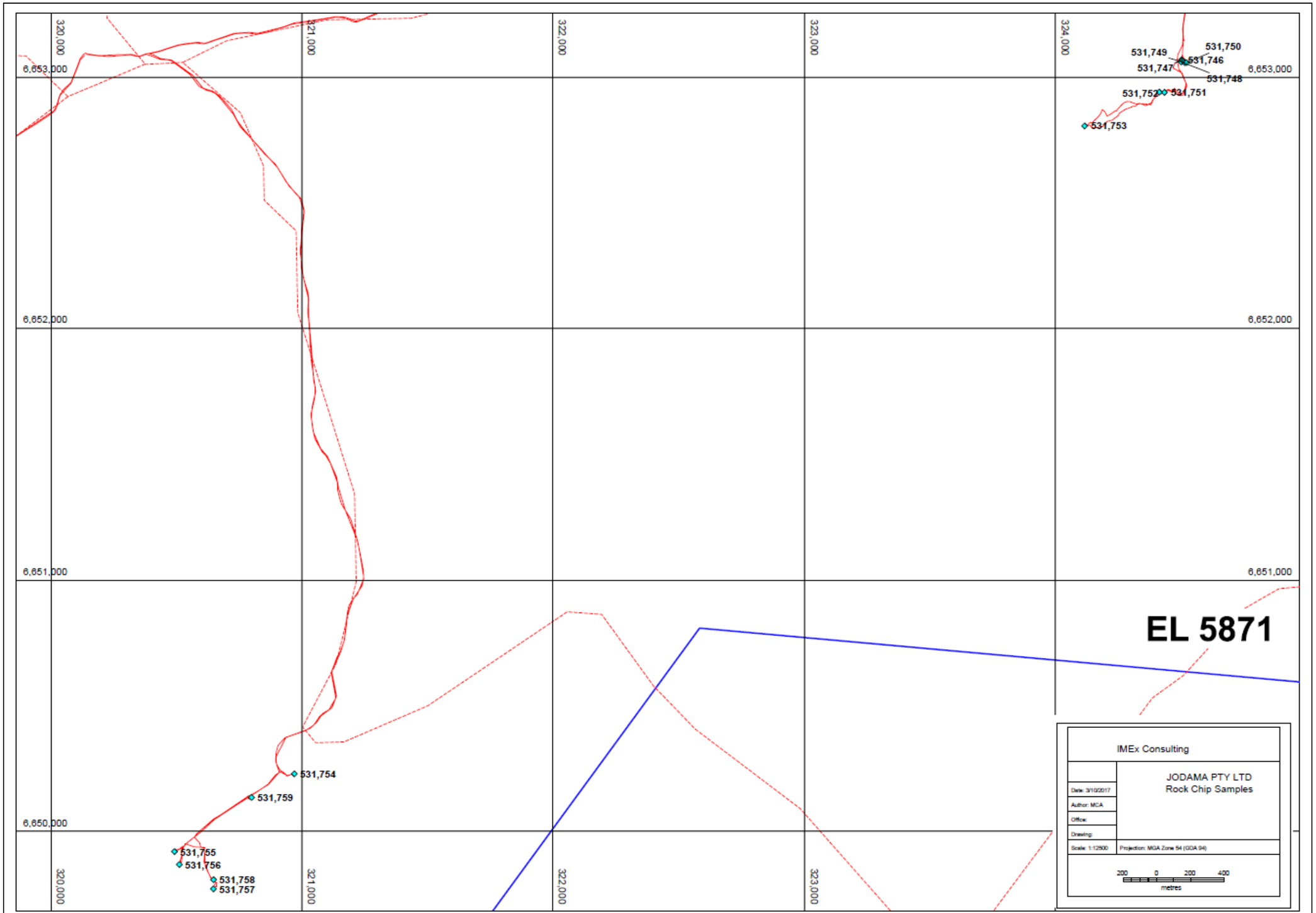

Figure 4 – Rock Chip Sample Locations

4. RESULTS AND DISCUSSION

Rock chip sampling at Tourmaline Hill and Giant Head produced negative results for lithium mineralisation. As a consequence, the decision has been made to relinquish EL 5871.

5. REFERENCES

Aberfoyle Resources Ltd. Report on EL 1492. Open File Envelope No 08054.

Blissett, 1967. Rock Specimens and Samples from the Mount Painter Province, 12 July 1967, Report Book 64/108.

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Greenbushes Tin Ltd, Union Oil Ltd. Report on EL 1088. Open File Envelope No 05017.

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Tantalum Australia Operations Pty Ltd, 2003. EL 3047, Arkaroola, First Annual and Final Report to licence Surrender for the Period 2/12/2002 to 2/2/2004. Open File Envelope No. 10138.

320,000
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6,650,000

531,749
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531,757

EL 5871

IMEx Consulting

JODAMA PTY LTD
Rock Chip Samples

Date: 3/10/2017
Author: MCA
Office:
Drawing:
Scale: 1:12500
Projection: MGA Zone 54 (GDA 94)

200 0 200 400
metres

Government of South Australia
Department of the Premier and Cabinet
Mineral Resources Division

ANNUAL EXPENDITURE REPORT ON MINERAL EXPLORATION

(Separate form for each licence)

Exploration licence no. EL 5871

For 12 months ending 3rd October 2017

Principal mineral sought during reporting period Lithium

(**Nominate ONE only,** e.g. Copper, Copper-Gold, Gypsum)

Operator/manager JODAMA PTY LTD

Prepared by Mark Arundell

Date 3rd October 2017

Telephone 043 8811004

Email mark.arundell@imex.net.au

BRIEF SUMMARY OF OPERATIONS

1. Summarise the type of exploration activities undertaken, including: number and type of samples; line kilometres and type of surveys; number of holes drilled and total metres (**provide drilling statistics in table below**); rehabilitation completed etc.
2. Complete the exploration expenditure table on the following page. Allowable expenditure items are detailed in Earth Resources Information Sheet M05, *Mineral exploration licences – general conditions, procedures and information*, under 'Expenditure requirements')

The Umberatana tenement (EL 5871) was considered prospective for pegmatite hosted lithium mineralisation hosted by (?)Cambrian granites. Previous sampling in the area by the GSSA had recorded anomalous lithium values.

In its first and final year of exploration at Umberatana, Jodama undertook the following work:

- Literature search
- Field reconnaissance and rock chip sampling – 14 rock chip/grab samples

The literature review of the Umbertana tenement indicated that the lithium potential of the area had not been assessed. In fact, the lithium potential of the area has not previously been assessed as a primary target.

Rock sampling at Tourmaline Hill and Giant Head produced negative results and the decision was made to relinquish the area.

TABLE – Drilling statistics*

Cored		Open (RC)		Open (other)	
Number of holes	Total metres	Number of holes	Total metres	Number of holes	Total metres

* If more than one type of drilling occurred for a hole, please add the total metres for each type in the appropriate columns above. In such cases the 'number of holes' should be allocated to the drilling type column accounting for the majority of metres drilled.

EXPENDITURE

Expenditure for period	**$ 24,163.38**
Total expenditure for CURRENT LICENCE	**$ 24,163.38**

Group	Item	Detail	Cost
Management	Tenement mgt and reporting		$ 2,214.80
	Statutory fees		$
Logistics	Food, accommodation and travel	Flights	$ 1,445.10
	Vehicle costs	4WD rental & fuel	$ 799.24
	Salaries	Employees	$
		Consultants and contractors	$ 9,275.00
	Insurance	(pro-rata across all projects)	$
Geological	Data review		$
	Mapping	Geological, structural, etc	$ 7,175.00
	Geochemistry	Rock chip sampling	$ 693.86
		Soil/calcrete sampling	$
		Biogeochemistry	$
		Other:	$
	Geophysics (Where applicable, please indicate if conducted by air or ground)	Magnetic (air/ground)	$
		Radiometric (air/ground)	$
		Gravity (air/ground)	$
		Electromagnetic (air/ground)	$
		Induced polarisation (air/ground)	$
		Magnetotelluric (air/ground)	$
		Seismic	$
		Other:	$
	Drilling	Auger	$
		RAB	$
		Air core	$
		Sonic	$
		Rotary mud	$
		RC	$
		Diamond	$
		Other:	$
	Remote sensing	Landsat	$
		ASTER/multispectral	$
		Aerial photography and DTM	$
		Other:	$
	Technical studies	Hydrogeology	$
		Geotechnical	$
		Petrology	$
	Survey	Downhole (gyro/density/etc.)	$
		Surface locations	$
	Other	Trench/costean	$
		Site preparation	$
		Rehabilitation	$
		Sample assays	$
Land access	Native title negotiations		$
	Aboriginal heritage survey		$
	Environmental survey		$
	Landowner negotiations	Land title & company searches	$ 46.75
	Compensation payments		$
Project studies and research	Project development studies	Scoping study	$
		Prefeasibility study	$
		Feasibility study	$
	University research project		$
Other	(Please justify below)	Item: Sat Phone & telecommunications	$316.96
		Item:	$
Subtotal			**$ 21,966.71**
Administration		**10% of subtotal**	**$ 2,196.67**
Total			**$ 24,163.38**