

**EL 22301**

**ANNUAL TECHNICAL REPORT  
For the period 14/4/2016 to 13/4/2017**

Title holder	Outback Metals Pty Ltd
Operator (if different from above)	Outback Metals Pty Ltd
Titles/Tenement	EL22301
Mine/Project Name	MT WELLS
Report Title including type of report and reporting period including date	EL22301 Annual Technical Report for the period 14/4/2016 to 13/4/2017
Corporate Authors	Outback Metals Pty Ltd
Company Reference No:	EL22301 ATR 2016 - 2017
Target Commodity or Commodities	Sn, Cu, Au, W
Date of Report	April, 2017
Datum/Zone	GDA94/Zone 52
250 000K mapsheet	Pine Creek 5208
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## EXECUTIVE SUMMARY:

During the year the following work was undertaken:

- Lodged renewal.
- Site visit looking for old workings and rock outcrop in the northern half of the EL (particularly in the vicinity of the McKInlay gold mine and also around speargrass area.)
- Due to the decline in tin & copper prices, and other exploration priorities in the NT, field work was limited on the EL 22301 during this period.
- Compiled information on the Speargrass tin/gold occurrence and site visit.
- Update conceptual prefeasibility studies for Mt Wells.
- Negotiation with potential tin/copper concentrate processors/buyers.
- Negotiations with potential project financiers for Mt Wells.

## LOCATION

Mt Wells is located approximately 200km South East of Darwin and 37km North East of Pine Creek, accessible by maintained roads from the Stuart Highway.

## TENEMENT DETAILS

Exploration Licence EL 22301 covers an area of 53.03 square kilometres and contains 16 blocks.

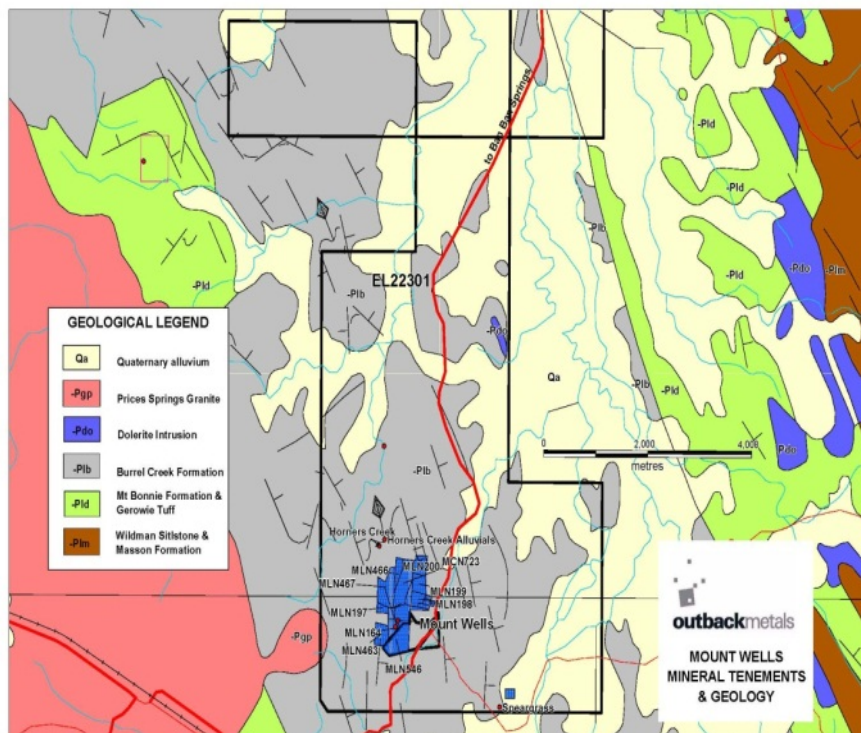


Figure 1: Mt Wells Tenements with underlying geology.

## **WORK DONE:**

A site visit & regional study aimed at providing a better understanding of the EL's geological setting.

The aim of the exploration was to ascertain the likelihood of the discovery of additional mineral deposits within the EL 22301 that might be treated at the Mount Wells battery.

The northern area of EL 22301 contains the McKinlay goldmine, a recorded mineral deposit of length about 200m and width 1m. (The McKinlay goldmine is held under tenure by others).

Grades in the quartz-vein deposit are known to be in the vicinity of 2g of gold per tonne.

Previous work done in the adjoining EL 23824 (in which Outback Metals has an interest) exploring for the potential for gold deposits was inconclusive. The area of EL23824 of interest (ie. south south east of the McKinlay goldmine) is covered by black soil plains with very limited outcrop.

However, interestingly, mineral deposits in the area are generally located in shear zones near the flanks of rocks with elevated magnetic responses, so there may be possibilities for repetitions of gold and base metal deposits under cover within the EL 22301 (and EL23824).

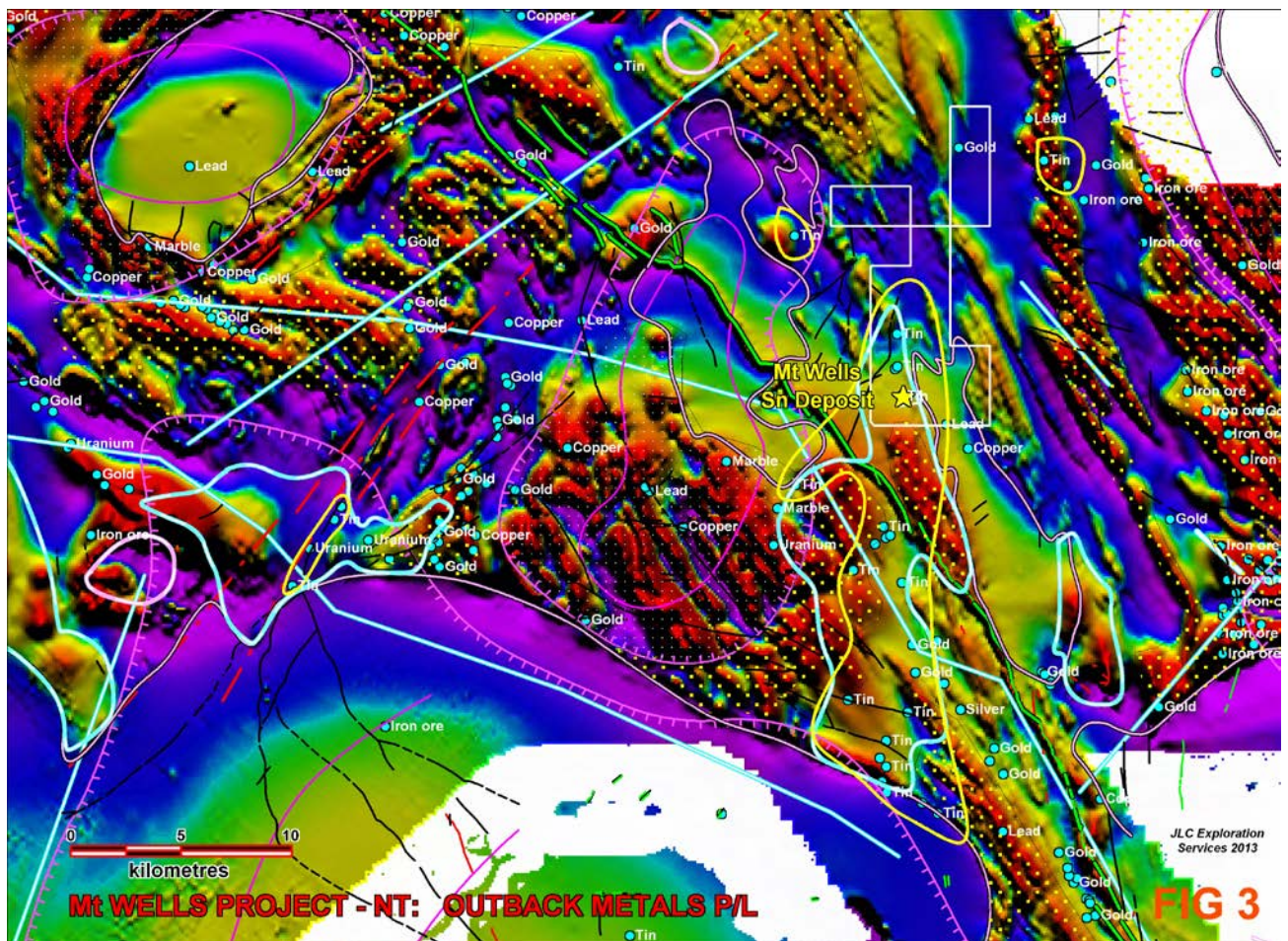
This concept may be reinforced by work recently done on the Speargrass deposit, which is located in the south eastern corner of EL 22301. Although the Speargrass deposit and the McKinlay goldmine a different styles of deposits, it does indicate the potential for additional mineral resources to be found outside of the main Mount Wells mine.

While a relatively concise reconnaissance trip to the northern area of the EL22301 did not find any mineralised outcrops, it is possible that they properly formulated soil sampling program (? MMI) could have some potential in discovering subsurface mineralisation.

Accordingly, work is being progressed to put in place this program later in the 2017 dry season.

## **PREVIOUS WORK :**

The TMI image with the mineral occurrences overlaid.



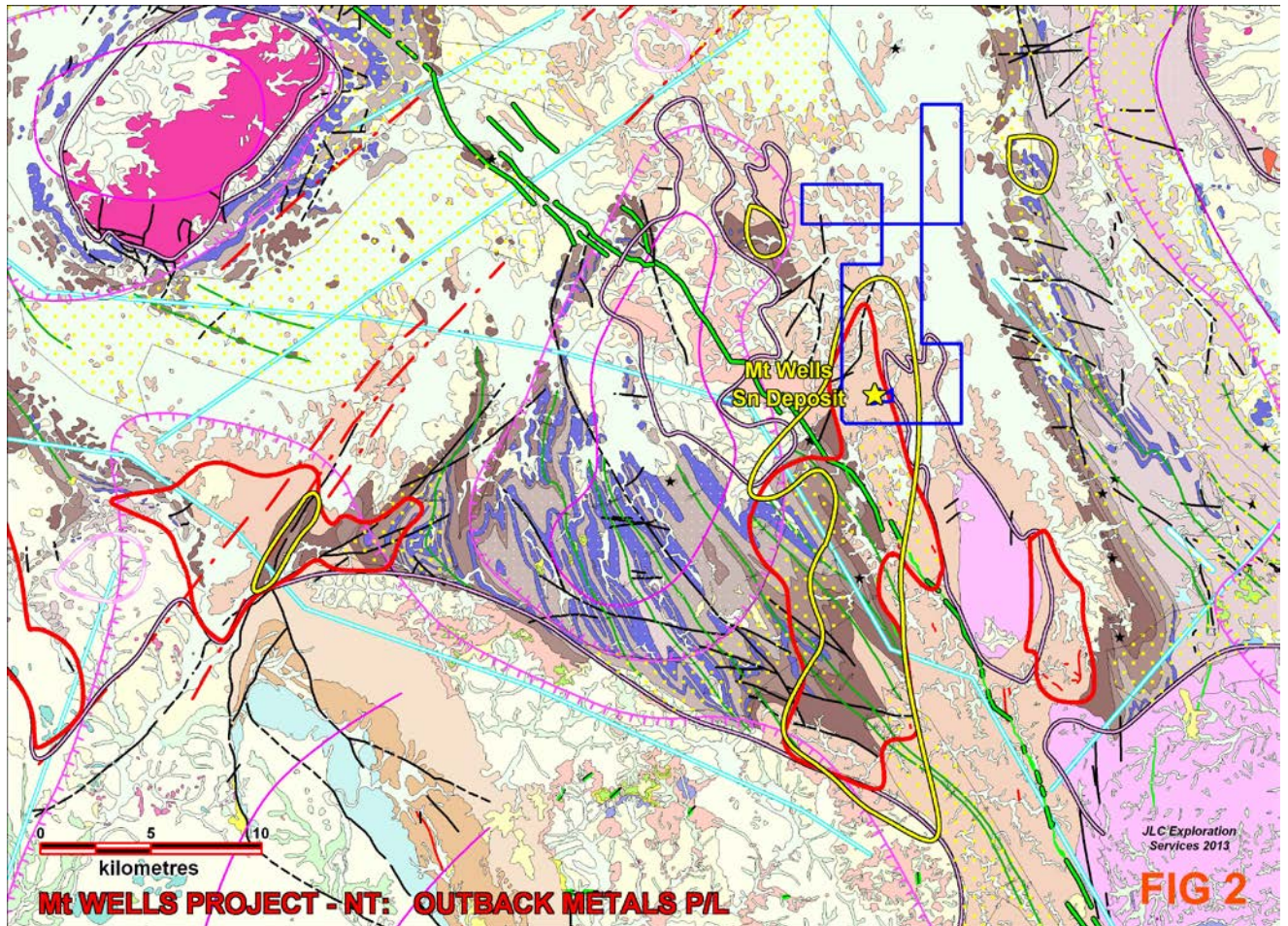
The radiometric image of potassium in vegetation, soils and rocks at the surface overlaid with the outlines of shallow granite and granite exposures (purple lines). The granites being rich in potassium are coloured bright red and have a semi-random texture. The NW striping character elsewhere reflects the layering of sedimentary units which have variable colour intensity from green to dark orange. Blue colours indicate very little potassium is present which is typical of mafic rocks such as dolerite and gabbro.

The potassium rich fluids were probably enriched in other elements, tin, tungsten, gold, copper, lead and zinc. The probably also carried appreciable concentrations of sulphur, calcium, chlorine, and hydrosilicic acid.

The inferred alteration areas identified by potassium enrichment might contain vein systems of sulphide and quartz than elsewhere nearby. Areas impregnated by the fluids are likely to have pervasive enhanced muscovite or feldspar abundance and possibly silicification.

The AEM profiles in the vicinity of Mt Wells were enlarged are presented as cross sections. The profiles reflect a depth of about 600m below the scaled topographic surface. The base of the coloured zone is the effective depth of significant data. (This is because the better the conductivity the shallower the penetration of the triggering magnetic impulse used to measure the conductivity.)

The applied colour processing favours contrast enhancement which has enabled identification of weakly conductive shallow material within 200m of the surface. Importantly this conductive zone can penetrate beneath surface mineralisation and therefore locally might be used to map out the shallow west dipping contact of the greisenised granite found in drill holes below a mineralised vein system.



The investigation thus far shows the following

- The Mt Wells Sn deposit occurs within a Sn mineralised zone with some 19 occurrences of all types.
- The mineralised zone generally correlates to weakened metamorphic magnetisation of iron oxides that is inferred to be an alteration signature.
- These semi-coincident zones are sandwiched between two partly concealed granite intrusives.
- An “anomalous” magnetised zone (Hot Spot) due south of the Mt Wells Sn Deposit could be a granite cupola cap.
- Gold, uranium, and to a lesser extent base metal occurrence suggest hydrothermal mobilization of metals.
- This geological setting is analogous to the NE Tasmania Blue Tier granite related sheeted Sn-W vein systems.
- The sediments of the AGS are not dramatically dissimilar to those that host the pyrrhotite-Sn orebodies of Western Tasmania that are also granite cupola related and so some possibility for this ore type exists.
- Regional conductive units are carbonaceous and sulphidic horizons within the Koolpin Formation, Wildman Siltstone and Mundogie Sandstone. To a variable extent the Zamu Dolerite sills within the Koolpin Formation are also conductive.
- A very weak shallow conductor (<100m) is evident below Mt.Wells. There is no unequivocal explanation for this feature since it is not an isolated example within the EM data set. The same feature appears to extend southward where it merges with the” magnetic hot-spot”. It is possibly caused by the granite cupola detected in drill holes beneath the Mt Wells vein system workings.
- The Burrell Creek Formation is invariably resistive which means any epigenetic mineralized zone which is conductive should be easily detected by EM systems.
- Radiometrics shows potassium alteration is wide spread and co-located with the Mt Wells Sn-Au mineral field.
- A topographic relief rim surrounding the McKinaly Granite has no correlation to either of a magnetic or potassium signature indicating it is probably due to pervasive silicious alteration which has toughened the rocks resistance to weathering.
- There are some anomalous surficial features at Mt Wells that warrant follow up investigation.

