CROSSLAND

URANIUM MINES LIMITED

GEOPHYSICS AND DRILLING COLLABORATION

FINAL REPORT FOR DRILLING PROGRAMME

BUCHANAN - CHILLING PROJECT

EL 22738

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Table of Contents

List of Figures in Text

List of Photos in Text

List of Tables in Text

List of Appendices

SUMMARY

EL 22738 “Buchanan”, the southernmost EL of the Chilling project, is located 200km south of Darwin and 65km south of Tipperary Station. EL 22738 lies at or is close to a locus of important geological features: it straddles the margin of the Litchfield Province, the Fitzmaurice Mobile Zone, the Pine Creek Geosyncline, the Tolmer Group, the Auvergne Group, and the Daly Basin, and some important bounding structural features intersect close by or within the area.

The principal geological element of the licence is a localised basinal structure infilled with carbonate rocks, cherty breccias and other sediments and ‘surrounded’ by a variety of rock types including a hydrothermally active granite. Base metal and uranium geochemical (and radiometric) anomalies are widespread within the basin, being mainly confined to the margins of the structure. It is a combination of the anomalies, their host rocks, and the geological setting which has attracted the interest of Crossland.

In June 2011 Crossland applied to the Northern Territory government for funding under the ‘Drilling and Geophysics Collaborations Programme’. Funding totalling $100,000 was granted to assist in carrying out a diamond drilling programme on EL 22738. This amount is the maximum that can be applied for under the programme. The principal aims of the programme were:

- To enhance our knowledge of the geological framework, which will lead to firm concepts on the economic potential of the basin and adjacent areas, and the consequent discovery of an orebody.
- To resolve both local and possibly regional geological and stratigraphic questions, which have arisen as a result of the findings to date.

Ten holes were drilled for a total of 2,291.1 metres. A total of 148 drill core samples were collected for geochemistry. Wild Drilling Pty Ltd was contracted out of Tennant Creek, NT to complete the programme. Drilling was conducted from 4 September 2011 to demobilisation on 22 October 2011.

Uranium and Base Metals are the target commodities. Geophysical data has shown a “rim” of elevated U and Th counts around the basins margin within a brecciated ferruginous-silicified chert. Within this rim lies a surface-leached clay horizon with anomalous Cu and Zn amongst other elements. Related stratiform type mineralisation at the base of oxidation toward the centre of the structure was initially thought to be a feature we may intersect in diamond drilling. RAB drilling in conjunction with other exploration activities conducted between 2009 and 2011 were aimed at primarily identifying the chemistry and geology of the sub-basin margins and testing these rocks below the depth of weathering.

Crossland selected four (4) specific drill holes for the collaborations report based primarily on meeting the criteria initially set out. These are: D003, D006, D007 and D009.

Geochemical result highlights summarised in Table 1 below:

HOLE	SAMPLE	From (m)	To (m)	Lithology	Assay Result (ppm)
D003	201986	34.20	35.20	Orange mudstone	71 As, 3.69 Bi
D003	201990	61.20	62.20	Mudstone breccia	1.6 Ag
D003	201999	167.01	168.01	Basalt	1253 Cu, 274 Pb, 403 Zn
D006	153513	12	15	Yellow-orange Limestone	82 Pb
D006	153514	51.8	54	Yw-or fractured "gossanous" zone	1808 Pb, 550 Zn
D006	153515	58	60	Sugary chert	1.6 Ag, 239 Pb
D006	153522	159	160.5	Calcite	225 As
D006	153522	160.5	162	Calcite	119 As
D006	153523	185.6	186	Altered & fractured Granite	248 As
D006	153524	188	189	Altered & fractured Granite	142 As
D006	153525	192.8	195	Altered & fractured Granite	1763 Zn
D006	153526	195	197	Haematite Granite	1618 Zn
D007	153528	9	10	Yellow clay (non-carbonate)	347 Cu
D007	153541	166	167	Haematite alt intrusive	296 Cu,925 Pb
D007	153542	167	168	Haematite alt intrusive	425 Cu, 1643 Pb, 451 Zn
D007	153543	168	169	Haematite alt intrusive	5.6 Ag, 1468 Cu, 63017 Pb, 3319 Zn
D007	153544	169	170	Haematite alt intrusive	278 Pb
D009	153563	51	52	Yw-grey vuggy and fractured Lst	2.6 Ag, 314 Pb
D009	153564	60	62	Purple-pink Mst,	1426 Zn
D009	153586	282	285	Chlorite altered granite	14.42 U

Table 1: Geochemical highlights summarised.

Geologically, confirmation of a basinal structure was found with beds dipping to form a syncline. Antrim Plateau Volcanics (APV) lying at the base of the basin altered all previous ideas of age. It can be deduced that the Buchanan sub-basin is likely a geological “extension” of the Daly River Basin, with a similar Cambrian Antrim Plateau-Mudstone-Carbonate suite of rocks sitting on much older Middle-Proterozoic Soldiers Creek Granite and Depot Creek Sandstone. This is in contrast to the previous “inlier” model that had been proposed, with Lower-Proterozoic sediments within Middle-Proterozoic granites and sandstones.

1. INTRODUCTION

1.1 BACKGROUND

EL 22738 'Buchanan' is the southernmost of the group of tenements collectively termed by Crossland as the 'Chilling Project'. The licence was originally applied for by Buchanan Exploration Pty Ltd, and subsequently purchased by Crossland Mines Pty Ltd, a subsidiary of Crossland Uranium Mines Ltd. The licence was granted on 14 January 2009 and is now into its third year of tenure. Access to the tenement, which is relatively remote, is by station tracks, either via Tipperary Station then south through Fish River or by the old Fish River Station track, which branches off the Wadeye road south of the main Daly River crossing. An alternative route using the Oolloo Crossing of the Daly River could be upgraded as a preferable alternative to these routes.

The licence is situated in relatively higher elevation country on the north eastern edge of the Wingate Mountains at elevations between 130 to nearly 300 metres ASL. The country is open savannah for the most part and is easily traversed; along the eastern side a series of sandstone ridges that trend northwest separates these uplands from the Daly Basin. The main drainage is the Fish River, which flows northwards through the tenement. The Fish River Gorge is just outside the eastern boundary. Several large tributaries have their origin in the Wingate Mountains; one of these creeks has perennial flow.

EL 22738 is contained mostly within the boundary of NT Portion 2700, which was originally part of the Fish River pastoral lease. This Portion recently came under the control of Parks and Wildlife Service NT and has been renamed the 'Fish River Block'. The extreme northeast corner of the licence is in NT Portion 3435, now controlled by the Indigenous Land Corporation. Crossland has an agreement with the Traditional Owners of the land through the Northern Land Council. The Fisher family of Wombungie Station has had access rights to the country and it appears that these rights continue. Crossland has developed worthwhile relationships with all stakeholders and consultations are ongoing.

1.2 TENURE

The tenement is held under the title of Crossland Mines Pty Ltd and the project is operated by Crossland Uranium Mines Ltd (see figure 1). Title details are as follows:

- EL 22738 (Buchanan) was granted on 15 January 2009 and will expire on 14 January 2015. The licence was purchased by Crossland from Buchanan Exploration in 2006. The tenement consists of 162 sub-blocks, an area of 537.2 km^2.

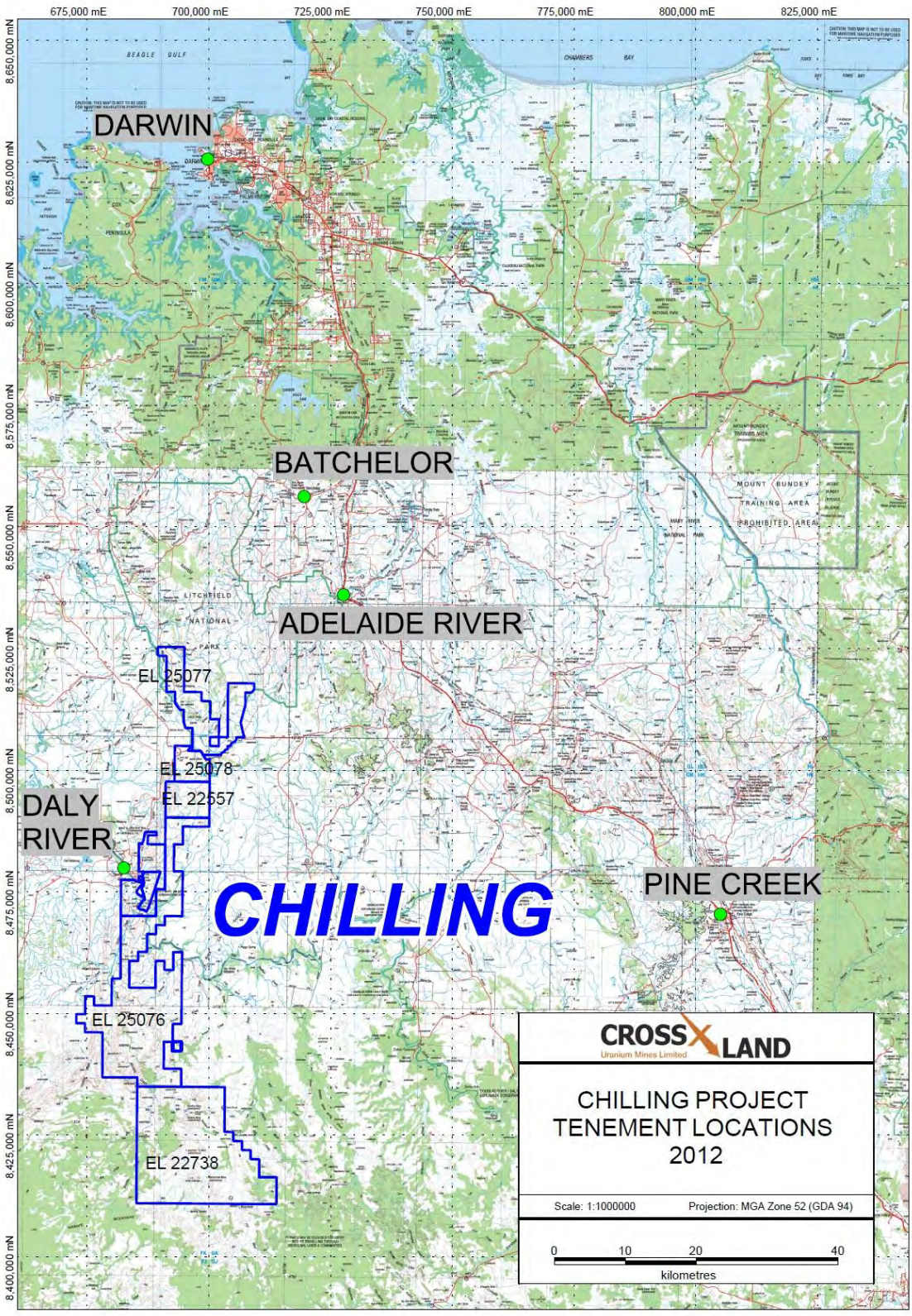

Figure 1: Chilling tenements including Buchanan EL 22738.

2. REGIONAL GEOLOGY

The Exploration License "Buchanan" is covered by the NTGS 1:100,000 Wingate Mountains Sheet, published with explanatory notes, in 1989 (Edgoose et al., 1989).

Geologically the project is located within the western area of the Pine Creek Orogen approximately 30km west of the western margin of the Daly Basin and 25km south east of the Giants Reef Fault. Schist and granite basement are the oldest rocks that outcrop. These are Lower to Upper Lower-Proterozoic in age and part of the Burrell Creek Formation and Soldiers Creek Granite respectively. Middle-Proterozoic Depot Creek sandstone overlies the basement unconformably on the eastern margin of the EL. An elongate sedimentary sub-basin runs NNW-SSE in the centre of the EL, which is approximately 16km long and 2.5km wide with a basal basalt unit overlain by mudstone and carbonate rocks. These are believed to be part of the Daly River Group of Middle to Upper Cambrian age. The sub-basin plunges gently to the north with closure of its limbs to the south. The Fish River Fault strikes northwest-southeast and has right hand movement. Numerous other sub-parallel faults also cut the basin structure, both on its margins and through the centre. This fault zone can be traced for tens of kilometres to the southeast.

The Burrell Creek Formation is aged at approximately 2000 Ma (Edgoose et al., 1989) and contains metamorphosed and deformed turbidites that occur in the north of the area. Faulting and granite intrusion separates this unit and the sequence above. Roof pendants of this unit can be found within the Soldiers Creek granite which frequently occur as carbonaceous shales (Crossland work at EL 25076 has also established this – Melville, P., & Buskas, A. J., 2008).

The Upper Early-Proterozoic Soldier's Creek Granite is relatively rich in potassium, thorium and uranium, as seen in the radiometric surveys. The unit is generally composed of moderately coarse, weakly foliated quartz-orthoclase-plagioclase-muscovite granite. Biotite also occurs in places. Greisen veins forming ridges up to 20m high are a common feature.

A body of Wangi Basics (Lilyarba Mafics) occurs to the west of the area. These fresh to metamorphosed basic to intermediate intrusive emplaced between 2000 and 1840 Ma (Edgoose et al., 1989) do not occur within the Buchanan sub-basin.

The Mesoproterozoic Tolmer Group (aged at 1780 +/-80 Ma, Edgoose et al., 1989) contains low contents of radioactive elements, apart from thorium in some zones, and produces dark green areas in the radiometric plots. The lowest 10 to 50m of this unit is very ferruginous with a coarse basal conglomerate seen in D009. D010 drilled 420m of this unit with a true thickness of greater than 400m. Gamma probe results from this hole confirm it to be radiometrically "dead".

The sub-basin contains sediments of Cambrian age. Basal Antrim Plateau volcanic aged at around 510 +/-15 Ma (Glass, 2006) sit on the Soldiers Creek granite with a thick pink-mottled and brecciated mudstone above followed by a sequence of brecciated and stylolitic limestone and karstic limestone. These are part of the Daly Group, with a similar sequence found outcropping 25km to the east in the Daly River Basin (Edgoose et al., 1989).

The Antrim Plateau Volcanics at the base are dominantly composed of a vesicular and amygdaloidal basalt and rest with an angular unconformity on the Soldiers Creek Granite (plus Angallari Siltstone and Uniya formation outside of the EL). The volcanics consist of medium-grained, greenish-grey to reddish-brown basalt. They are somewhat altered with talc common. Outcrops can be coarsely vesicular with prominent infillings of quartz that superficially resemble quartz-pebble conglomerates. They outcrop in the south east sitting above the Soldiers Creek granite and below a mudstone sequence making up part of the escarpment and also along the outer rim of the Cambrian sub-basin.

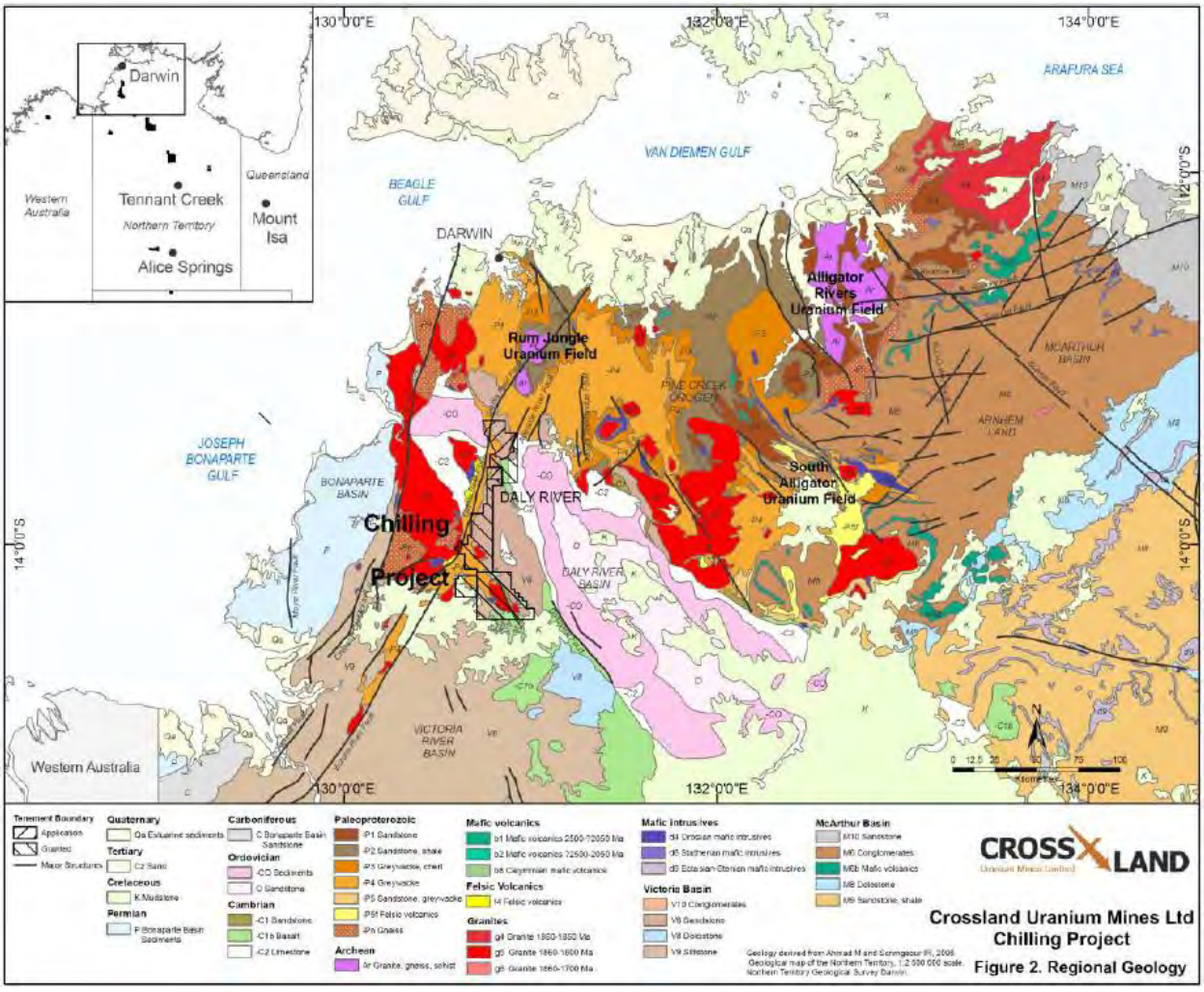

Figure 2: Regional geological map showing the Chilling project areas.

Known alluvial tin has previously been exploited within the area. Collah is situated approximately 2km south of the Buchanan sub-basin's southern closure. Buldiva and Muldiva are located north west of the sub-basin (seen in figure 3).

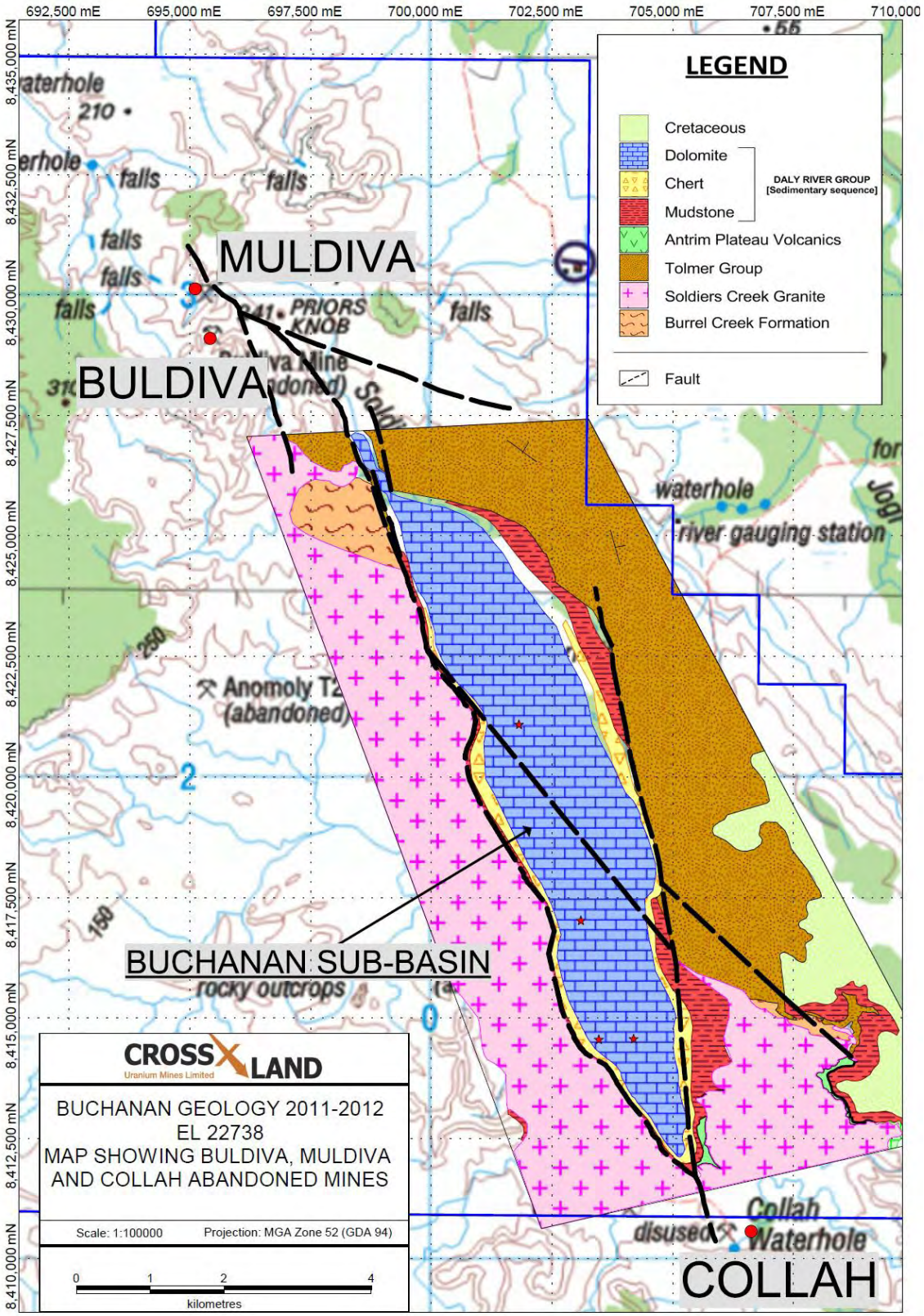

Figure 3: Showing the locations of abandoned mines within EL 22738.

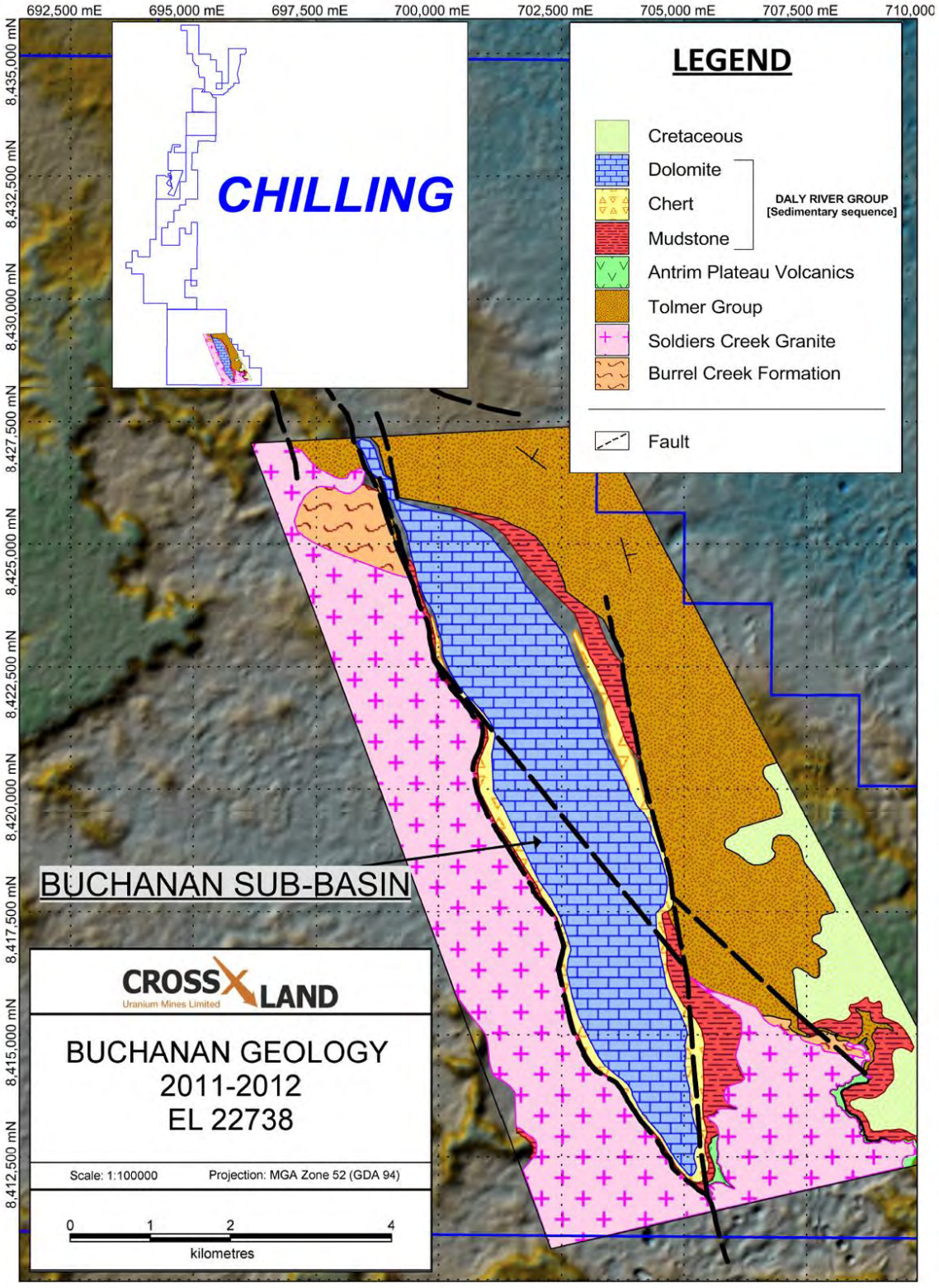

Figure 4: Interpreted geology of the Buchanan sub-basin overlaid onto a DEM topographic image.

3. PREVIOUS EXPLORATION

A search of the Northern Territory Geological Survey's "STRIKE" (Spatial Territory Resource Information Kit for Exploration) data base reveals that 9 historical APs (Authority to Prospect) and 79 historical ELs overlap geographically with the four current ELs of the Chilling Project. Naturally a large number of companies and individuals have explored for a variety of commodities including gold, base metals, barite, cobalt, chromium, diamonds, fluorite, limestone, nickel, PGE's, silver, tin, tantalum and uranium. The "STRIKE" database indicates that there are 234 open file annual reports describing exploration undertaken by lease holders on these historical tenements. To summarize all this work is well beyond the scope of this report. However there were several exploration programmes undertaken within the district that are worth noting.

In the early 1970s Kewanee Australia Pty Ltd undertook an extensive exploration programme primarily for base metals, their tenement holdings overlapping with the northern part of the project area. Towards the end of their programme Kewanee conducted an airborne radiometric survey during which they discovered two weak radiometric anomalies, one (A2) was flagged for follow up work with 8 soil samples collected the best result being 12 ppm U_3O_8. In the mid-seventies Le Nickel Exploration Pty. Ltd. was engaged in exploration for base metals to the west of the northern part of the project area.

In the 1980s Sutton's Motors acquired a substantial ground holding within the district and engaged in joint ventures with other companies to explore for a variety of commodities including diamonds, gold, tin and uranium. The Sutton's Motors / Mobile Energy Minerals Australia joint venture explored for gold tin and uranium to the north of Fletcher's Gully within EL 25076. This work identified the presence of alluvial gold and tin as well as identifying an uraniferous showing referred to as Binn's Shear. Within this report Binn's Shear is referred to as the MEMA Prospect or Showing.

The eastern edge of the current licence, which is covered by the Tolmer Group, was the focus of exploration for unconformity-style uranium deposits by the Total Mining Australia Pty Ltd / PNC 'Pine Creek West Joint Venture' between 1986 and 1991.

For EL 22738, the most recent exploration activities carried out within the confines of the current tenement involved PNC Exploration Australia Pty Ltd 1994-1996. Their EL covered the Soldiers Creek Granite (and country to the west) where exploration was targeting a modified IOCG model. PNC Exploration undertook an extensive examination on and around an earlier discovery of minor secondary uranium mineralisation by Planet Management and Research Pty Ltd in the late 1960s. This is associated with alteration zones in the Soldier's Creek Granite, which forms a batholith several km to the south of the southern boundary of EL 25076, within EL 22738. This granite is heavily greisenised and contains the numerous small tin showings at Collah near the southern extremity of EL 22738. PNC Exploration Pty Ltd (PNC) carried out a 200m spaced aerial radiometric and magnetic survey and collected wide spaced stream sediment samples. Later work included a grid gravity survey and the mapping, radiometric prospecting and rock chip sampling of a number of quartz-haematite-uranium veins hosted by the Soldier's Creek Granite. The window of sedimentary rocks was, at a later date, covered by a PNC licence application, but this was cancelled prior to any work being carried out. PNC geologists made mention of

gossanous ironstone outcrops along the eastern boundary of their licence and these were sampled. The presence of anomalous uranium and base metals were reported but no further work was done.

The results of the literature research indicate that within the project area exploration has been carried out to varying degrees, with some areas more highly explored than others. This is due in part to differences in the prospectivity over the area but it also reflects the difficulty of gaining access to certain areas, particularly EL 23682 (now relinquished but adjacent to the west of EL 22738). Furthermore, with regard to EL 23682, the presence of a thin layer of cover rocks and the swampy conditions present over most of the EL including some of the major drainages has resulted in adequate sample sites being few in number and thus only allowing for limited exploration.

Previous mining within the district was mainly directed at tin: mines within EL 22738 being Collah to the south plus Muldiva and Buldiva to the north west of the Buchanan sub-basin (Figure 3). Mining was focused on alluvial and eluvial deposits derived from granite/griesen pegmatites hosting Sn.

4. EXPLORATION CONCEPT

4.1 CONCEPT DESCRIPTION

The region is considered to be highly prospective for the classic unconformity-related uranium deposit style and also structurally controlled deposits within or adjacent to granites. At Buchanan the principal focus has been on the Palaeoproterozoic basement and the unconformably overlying Mesoproterozoic platform cover, a combination which extends throughout the project area covering a considerable strike length and includes a basement zone up to 10 kilometres in width.

Uranium mineralisation within the greater project area is hosted by the granites present in ELs 22738 and 25076 and within Burrell Creek metasediments as at the March Fly (EL 24557) and Eccles (EL 25077) prospects. The mineralisation at the latter two locations are structurally/stratigraphically controlled and have a spatial relationship to quartz-pegmatite veining, graphitic meta-sediments and the Middle-Proterozoic unconformity. Elsewhere within the project licences, uranium anomalies have been located in most rock types although no defined mineralisation has been observed.

The discovery of the carbonate/mudstone sequence in EL 22738 was considered to increase the prospectivity for unconformity-related uranium deposits, which are often hosted by similar lithologies near unconformities with Mesoproterozoic sandstone.

Areas of focus for drilling fall around the margins of the main Buchanan structure where outcropping chert breccias occur with elevated Cu-U-Co-Pb-Zn-Ag-Bi-As-Mo-Ni-Ba levels in a stratigraphic interval located on the inside margins of the “chert”. These chert breccias are similar in appearance to those associated with uranium mineralisation at Ranger, as well as the HQB around Rum Jungle. Accordingly, these were associated along strike with outcrops of carbonate lithology, but all other rock types were at surface weathered beyond real recognition of the primary nature of the lithology, and much of the structure was covered in sand outwashed from the Tolmer Group arenites. There seemed a reasonable chance that the structure represented stratigraphy analogous to the Rum Jungle succession. These rocks host several important uranium and base metal districts and it was important to determine if the Buchanan Structure was analogous to these. Additionally holes were to be located in the centre of the structure to provide a good overall picture of the geological setting and lithologies enhancing the ideas previously conceived.

4.2 REGIONAL MINERALISATION OCCURRENCES/STYLES & COMPARISONS

The unconformity deposit type ranges in size from large, relatively low grade occurrences as in the Alligator Rivers Uranium Field (ARUF) in the Northern Territory to smaller but exceptionally high grade deposits such as McArthur River and Cigar Lake in the Athabasca Basin, Saskatchewan, Canada.

Territory Uranium Limited (TUC) have been investigating uranium occurrences along a northwest trending fault zone within the mid-upper Tolmer Group immediately east of EL 22738. These occurrences were stated in company releases to be stratabound -"unconformity style," however nothing more is known about them. On a grander regional scale, the Adelaide River Uranium Mine and George Creek Prospect, further north near the Adelaide River community, have an almost identical geological setting to March Fly, being hosted by Burrell Creek rocks with outliers of basal Tolmer Group (Depot Creek sandstone) close by. The variety of occurrences illustrates that both source rocks and suitable structurally prepared lithological hosts are present in the region.

The Burrell Creek Formation is also known to be receptive to base metal (Cu-Zn) and gold mineralisation. Immediately north of Daly River, there are several base metal deposits considered to be related to a volcanic event, which produced lavas and tuffaceous rocks belonging to Warrs Volcanic Member, mapped as part of the basal Burrell Creek stratigraphy. It is not clear whether the mineralisation is confined solely to the volcanics or is also hosted by the metasediments. In any case, the mineralisation has been variously described as shear controlled to stratabound and consisting of massive sulphides.

Several localised gold deposits/prospects occur well south and southwest of the Daly River community, including the Fletchers Gully Mine on Crossland's EL 25076.

Approximately 150 kilometres to the north is the Rum Jungle Mineral Field, consisting of two Archaean aged domes surrounded by lower Proterozoic sediments of the Manton and Mount Partridge Groups. Uranium-base metal mineralisation is hosted principally by Whites Formation, variously reported as a chloritic-carbonaceous mudstone/siltstone, a "black slate", or carbonaceous/graphitic-pyritic schist. Silty dolomites are also present. Proximity to the faulted contact with the Coomalie Dolostone appears to be the controlling factor. Breccias of the Geolsec Formation preferentially overlie the Coomalie Dolostone; these breccias are referred to as HQB and are spatially related to the mineralisation.

5. DETAILS OF THE COLLBORATIVE PROGRAMME

Drilling was conducted between dates 4 September 2011 and demobilised on 22 October 2011. Upon completion of D001 Crossland changed the location of subsequent holes. As outlined under the agreement between Crossland and the Northern Territory Government; Crossland has selected the drillholes it considers the most important in providing data in assisting the understanding of the geology of the project area and what the anomalous geochemical data represents in the subsurface context.

The details for the 4 holes drilled are as follows:

Hole_ID	Depth	Easting	Northing	Zcoordinate	Inclination	Azimuth	Started	Completed
	Metres	AGD66	AGD66	Elevation	Degrees	Degrees	Date:	Date:
D003	206.2	703337	8414395	165	-60	40	13/9/2011	16/9/2011
D006	222.0	704060	8414408	141	-90	0	25/9/2011	29/9/2011
D007	210.0	702966	8416864	128	-90	0	29/9/2011	2/10/2011
D009	288.0	701683	8420934	126	-90	0	4/10/2011	11/10/2011
TOTAL	926.2							

Table 2: Collaboration drill hole details.

Work carried out was done using the following equipment:

- Rig One

2010 Atlas Copco Diamond Drill
Track Mounted
Capacities:
NQ to 650m
HQ to 400m
PQ to 200m

- Support Truck

2010 8x8 Mercedes tray truck
Rated to 90T, pulls 45ft trailer
Used to move rig, workshop,
Jack up rod sloop
Water carting where required

Their support vehicle was too large, lacking mobility which required pads to be of greater size than normally required.

Details on drill methods and core sizes used during drilling are as follows:

HOLE_ID	Drill type	Depths (metres)		
		From	To	Total
D003	HQ	0	206.2	206.2
D006	HQ	0	189	189
	NQ	189	222	33
D007	HQ	0	93	93
	NQ	93	210	117
D009	Mud	0	4	4
	HQ	4	108	104
	NQ	108	288	180
TOTAL	Mud			4
	HQ			592.2
	NQ			330

Table 3: Drilling method summary.

All drillholes were probed using a Mount Sopris 2PGA-1000 Poly-Gamma Probe. Each hole was then plugged with a cement plug. A total of 148 samples were selectively collected from the core.

During the programme Crossland changed laboratory to NTEL; which had promised quick turn around on results. Crossland's dealings with NTEL were unfavourable. Assay results were obtained more than four months after submission; with NTEL performing incorrect analysis on the submitted samples. Samples then had to be reanalysed. In most cases the initial and final assay results were similar; except for one sample which had greatly reduced metal values in the second analysis.

The sampling process involved cutting the core in half with a core saw; one half remained in the tray, the other half was sent to NTEL in Darwin and analysed using method 4AB/MS and 4AB/OM, a four acid near total digestion followed by ICP-MS for 37 elements and ICP-OES for 16 elements.

6. DRILLING RESULTS AND INTERPRETATION

6.1 RESULTS

D003

Located in the Southwest Limb D03 was the 3rd of a 3 hole fence trending NE-SW, spaced approximately 150 m apart with azimuths of 40 degrees and inclined at 60 degrees. The holes were located between previously drilled RAB traverses. They were designed to:

- Test the structure i.e. whether anticlinal or synclinal
- Resolve the local stratigraphy

Each of the three holes intersected stratigraphy consisting of (bottom to top):

- Granite
- Basalt
- Mudstone
- Breccia
- Oxidized mudstone and limestone

Beds were found to be shallowly dipping to the northeast. Each hole intersected the same sequence with the stratigraphic succession getting progressively deeper to the northeast. This proved that the structural framework of the basin to be synclinal, at least in this southern area.

D006

A vertical hole, positioned to intersect the 'gossanous unit' below the base of oxidation within the centre of the basin. Identical stratigraphy to all previous holes was repeated (bottom to top):

- Granite
- Basalt
- Mudstone
- Breccia
- Oxidized mudstone and limestone

This hole had noticeably more sulphide mineralization than previously encountered, but not of the stratiform type mineralisation. Sulphide mineralisation was concentrated within vuggy carbonate veining in altered Soldiers Creek Granite. Galena, pyrite, and chalcopyrite formed sulphidic halos, which are concentrated along the topside of the granite clasts within the veins. The veining has formed a replacement style breccia over several metres. The veining was observed over the following intervals: 185.6-186 m, 188.4-189 m and 192.8-196.5 m. Photo 1 illustrates these features.

Photo 1: D006. Carbonate veining with sulphide mineralization at 188.65m (yellow lighter) to 189m (right edge of image), showing preferential sulphide deposition on the up- side of clasts.

D007

Located approximately 2.7 km NW of D006 & drilled vertically. Identical stratigraphy to D006 was intersected. A feature of this hole is carbonate veining within a hematite-altered basaltic rock, which contain massive sulphides (Photo 2). The sulphide-rich veining is present over a 30 cm interval from 168 m. Minerals identified include minor chalcopyrite disseminations to 1 mm diameter, black crystals up to 4 mm diameter of sphalerite and silvery coloured cubic crystals of Galena up to 25 mm in diameter. Haematite is present as radial crystals up to 4 mm in length.

Photo 2: D007 – Haematite altered volcanic – Galena with carbonate vein @ 168 meters

D009

Located approximately 4.34 km NW of D007 & drilled vertically, intersecting much the same sedimentary stratigraphy as in all other cored holes. At 113.4 m well bedded, silicified-haematised quartz-arenite was intersected, continuing for 100 m. The characteristics of this rock suggest that it is the basal unit of the Tolmer Group i.e. the Depot Creek Sandstone and that it is in unconformable contact with the overlying carbonate sediments. The sandstone exhibited coarsening towards the base, grading into a basal conglomerate. Altered granite, presumably the Soldiers Creek, was intersected at 216 m. An unconformity exists between the granite and the sandstone. Alteration in the granite immediately below the contact is most likely a palaeo-weathering zone. Photo 3 below is typical of the haematitic arenite.

Photo 3: Silicified sandstone – cross bedding & liesegang rings @ 155.3 m

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Table 4: Geochemical highlights summary.

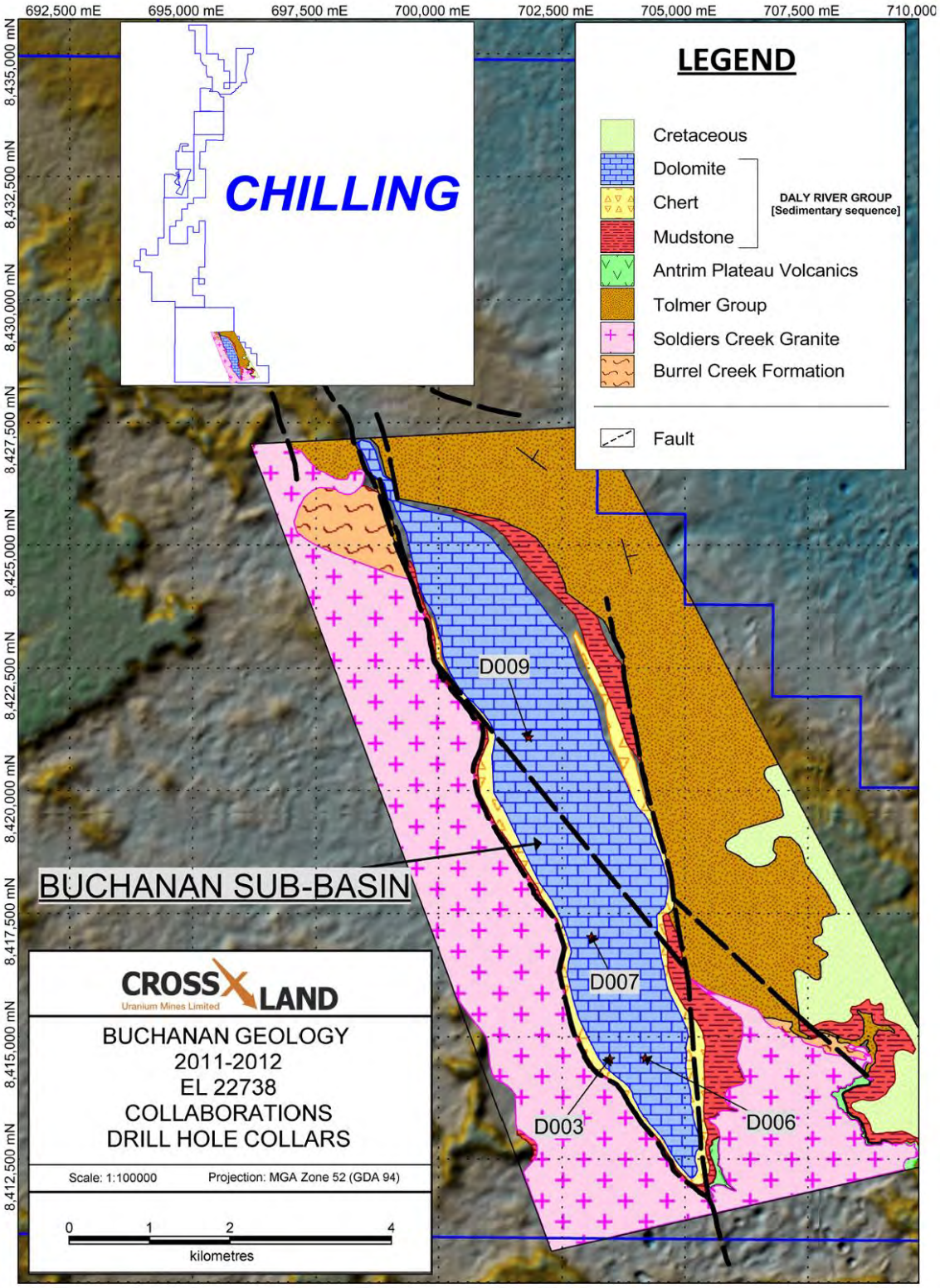


Figure 5: Map layout with the 4 collaborative drill hole locations.

6.2 GEOLOGICAL INTERPRETATIONS

The results from the first set of diamond drill holes have clarified the stratigraphic sequence and illustrated that the basin appears to be of a simple synclinal structure. The stratigraphy is now interpreted as a sequence of predominantly mudstone and carbonate rock overlying volcanics (initially considered to be a sill-like intrusive). This latter unit separates the sediments from the Soldiers Creek Granite, which underlies much of the southern and central sections of the basin. Although there has been some alternative interpretations of the stratigraphic order within and adjacent to the basin, it is now suggested that the most recent mapping by the NTGS was correct, in that the sediments are most likely of Cambrian age and that the unit lying between these sediments and the granite is a basaltic flow belonging to the Antrim Plateau Volcanics. This sequence is described in Bulletin 82: Vol 1; Geology of the Katherine-Darwin Region, Northern Territory (Walpole, B.P. et al., 1968: P97-104), as well as mapped in the NTGS 1:100,000 series of maps on the margins of the Daly River Basin east and north east of the Buchanan sub-basin; Wingate Mountains 5069 (Edgoose, C.J. et al., 1989: P23 & Map appendix), Daly River 5070 (Lundas, D.L. et al., 1987: P20-22 & Map appendix) and Tipperary 5170 (Kruse, P.D. et al., 1990: P15 & Map appendix).

Mapping and drilling have defined the Buchanan structure to consist of a relatively small elongate basinal structure roughly 16 km in length and 2.5 km width at the maximum. It trends approximately 340 degrees and is bounded by normal slip faults of a similar trend running along the western and eastern margins. Soldiers Creek Granite and Burrell Creek Formation greywackes and carbonaceous metasediments make up the Lower-Proterozoic basement units in the area. Overlying these units are basaltic flows (with minor interbedded sediments) of the Antrim Plateau Volcanics, which appear to infill depressions and follow the palaeo-surface developed on the granite and other older rock units. Notable outcrops of this can be seen in the SE of the licence, with the volcanics overlying the Soldiers Creek Granite, and also around the southern closure of the Buchanan sub-basin syncline. Erosion has all but removed exposures from where outcropping granite and greywacke occur adjacent to the basin, yet beneath the younger sediments within the basin, the basaltic rocks are preserved as a near conformable layer 50-70 m thick.

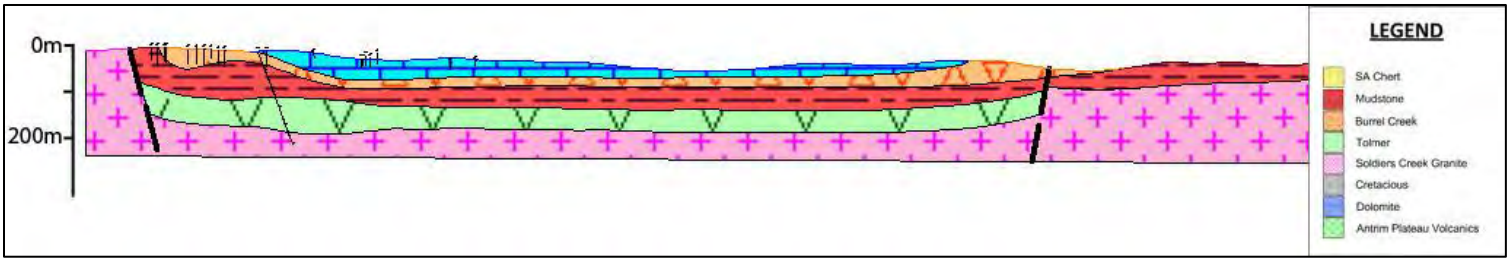
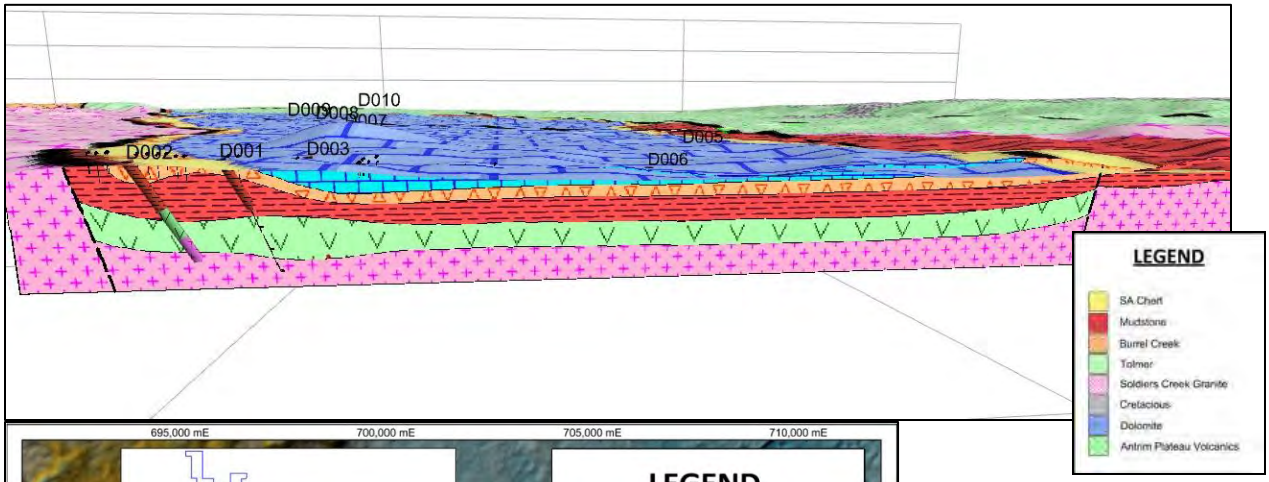


Figure 6: Geological cross-section “4” through the centre of the sub-basin which is 090 trending and cuts closely to D001, D002, D003 and D006 (Looking North).

Study of the drill core shows structures within the basalt, including a chilled margin at its base and vesicular textures at the top. The unit is very consistent and uniform within drill holes located many kilometres apart. The internal features of the flow match up closely from hole to hole suggesting that

there is little variation in RL over numerous kilometres. This would suggest flowing and cooling periods pre-dating basin subsidence with deposition onto a relatively flat palaeo surface.



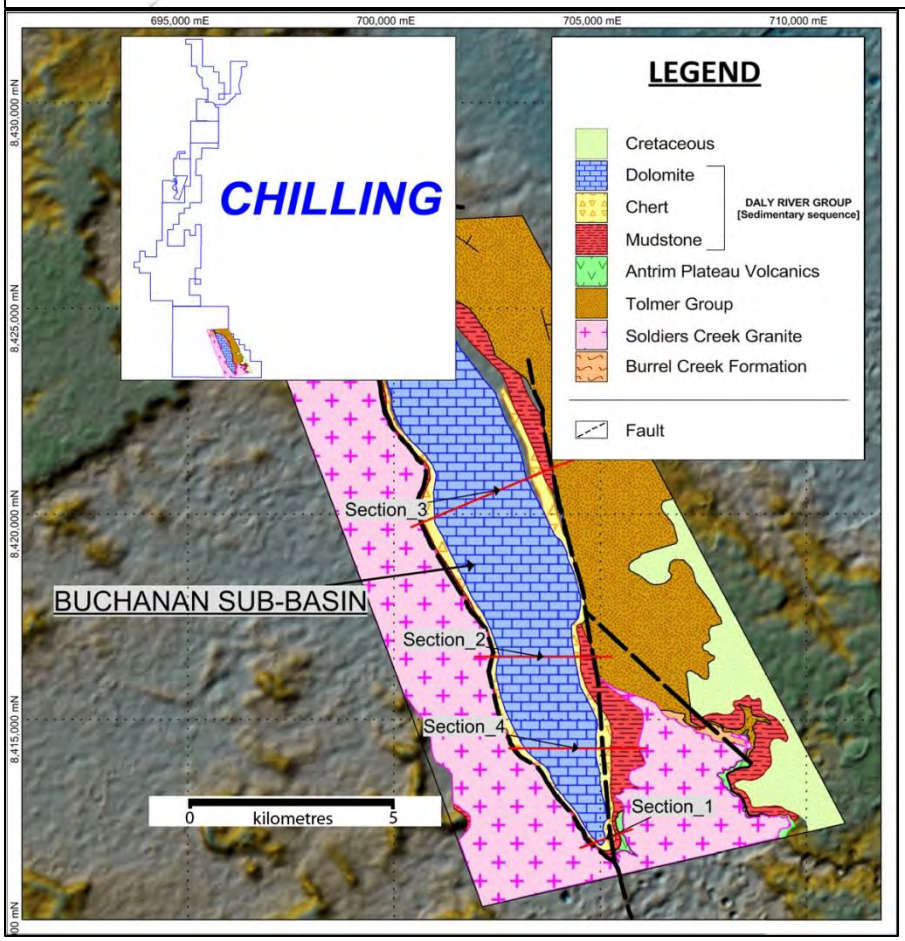


Figure 7:

Above: the same section "4" previously seen placed in 3-dimensions to display the corresponding mapping and drill data (Looking North).

Left: A location map of cross sections placed on a geological map. The sections above are "Section 4" on this image, which intersects closely to D003 and D006.

6.3 FLUID MOVEMENT AND GEOCHEMISTRY

Mineralisation processes in sedimentary basins are often related to regional movement of chemically active fluids. These fluids must have a source from which metals can be stripped, in the case of Buchanan:

- Basement granite for Uranium (airborne and ground radiometrics),
- Tindall Limestone for Lead and Zinc (e.g. R162 18-20m 3478ppm Pb, 2011 RAB programme),
- A mudstone-siltstone succession for possible sulphide minerals
- Antrim Plateau Volcanics (part of the Kalkarindji Large Igneous Province – Norilsk-type) for Copper (Sweet, 1974) (e.g. R176 21-24m 2436ppm, 2011 RAB programme & D003 167-168m 1280 ppm Cu, 2011 Diamond Drilling programme).

The meteoric waters will penetrate down, initially through a carbonate sequence. This carbonate rich supergenetic fluid has the ideal properties to strip base metals and uranium from a source rock (Figure 9 & 22). Evidence of this is seen in multiple diamond drill holes with extensive carbonate veining seen within the mudstone-siltstone, volcanics and granite deeper within the sub-basin. Some of these intersections contain a large amount of sulphide mineralisation, derived from these metalliferous fluids.

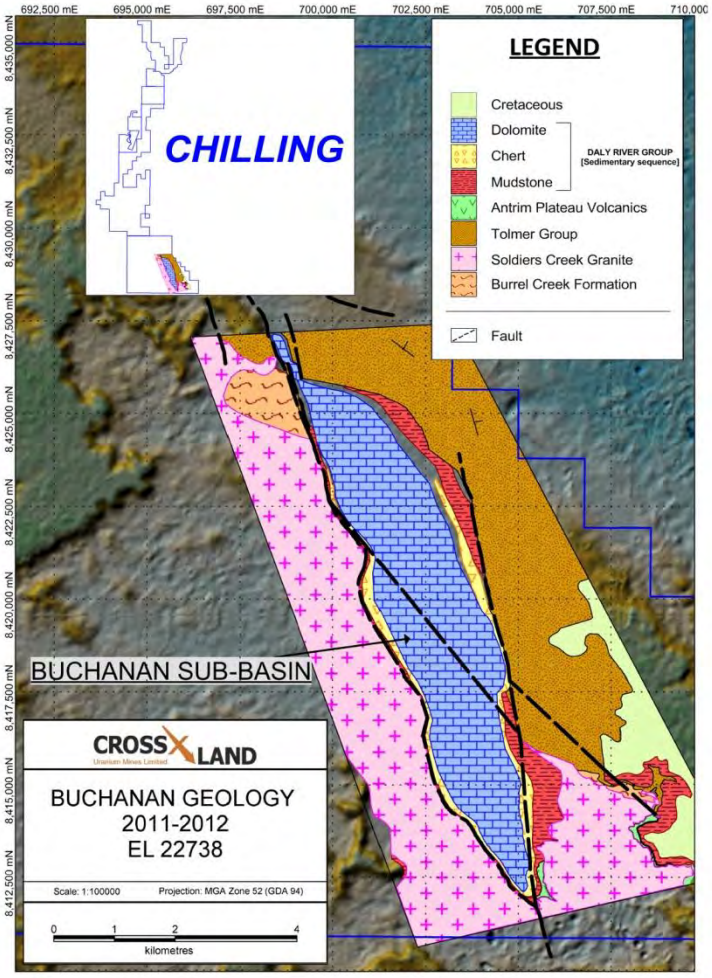


Figure 8: Geological overview map of the Buchanan sub-basin.

Pathways are a crucial feature to aid fluid circulation, for example faults and unconformity surfaces. The sub-basinal structure at Buchanan is characterised by two SSE-NNW trending faults running on the east and west margins along with a SE-NW fault cutting through the basins centre (Figure 8). This is in addition to an unconformity at its base between the Early-Proterozoic granite or Middle-Proterozoic sandstone and the Cambrian Antrim Plateau Volcanics and/or Daly River Group mudstone-siltstone.

The units form a syncline plunging gently to the NNW with shallow dipping limbs of 5-40 degrees.

Furthermore, a structural control plus host rock for metal deposition are vital, an example being the Jabiluka 2 deposit with the unconformity between schist and sandstone and the Uranium being constrained conformably with the host schist (Needham, R.S., 1982). Initially, geophysical airborne data gave indications toward pinpointing possible deposits. Follow up ground-work provided localities, along the margins of the syncline (within the hanging walls of the faults), with outcrops of Haematite Quartz Breccia (HQB) near which U-rich zones could be located. The pathway to link the source to this HQB would be along the basal unconformity and then upward along one of the intersecting faults (Figure 9 below).

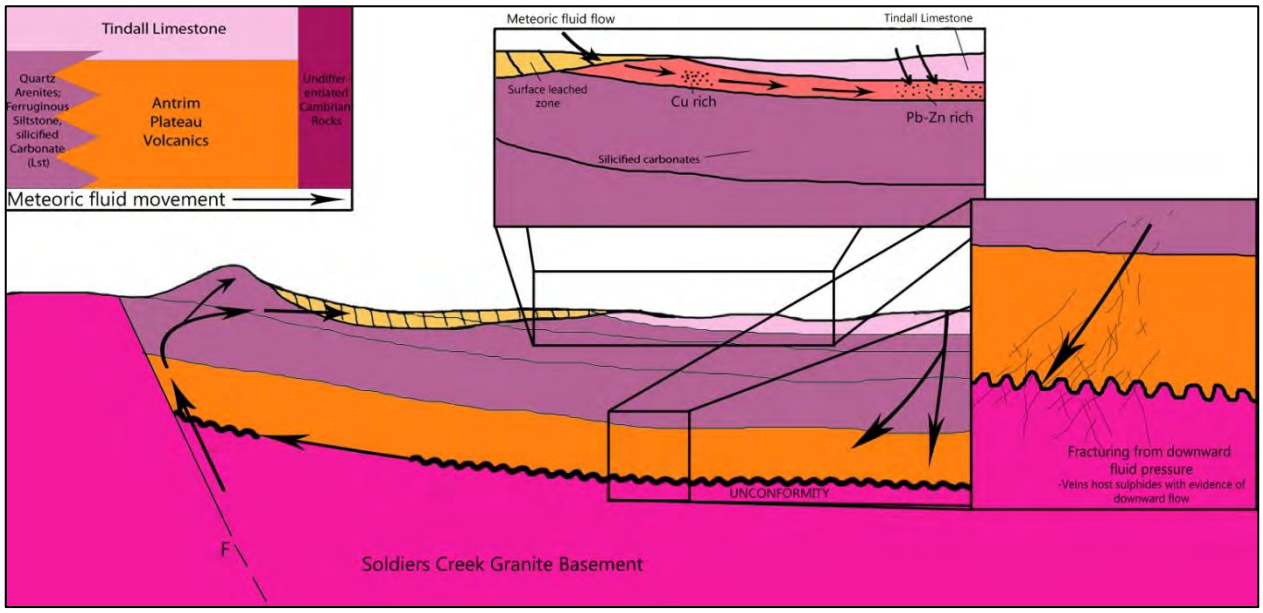


Figure 9: A schematic diagram showing possible meteoric fluid flow systems within the Buchanan sub-basin (as if looking north).

High copper values in and close to the HQB (within an adjacent surficial weathered concentration – light yellow banded area in figure above) also supports this path of fluid movement due to the volcanics above the granite containing elevated copper which is within close vicinity to the uranium source. Additionally, as seen at the East Alligator Uranium deposits, upward migration of U-rich fluid can occur in carbonate rocks, thus potentially forming deposits higher in the succession, such as in the Hinde Dolomite.

6.4 ANTRIM PLATEAU VOLCANICS (APV)

For the purpose of these comparisons, the basalt intersected at Buchanan is named the "Fish River Basalt" (abbr. FR_Basalt). Comparing the APV and FR_Basalt geochemically provides useful comparison to the Kalkarindji flood basalts in the NT. (LB011, ND004 and PP004 are APV samples, from Glass, 2006)

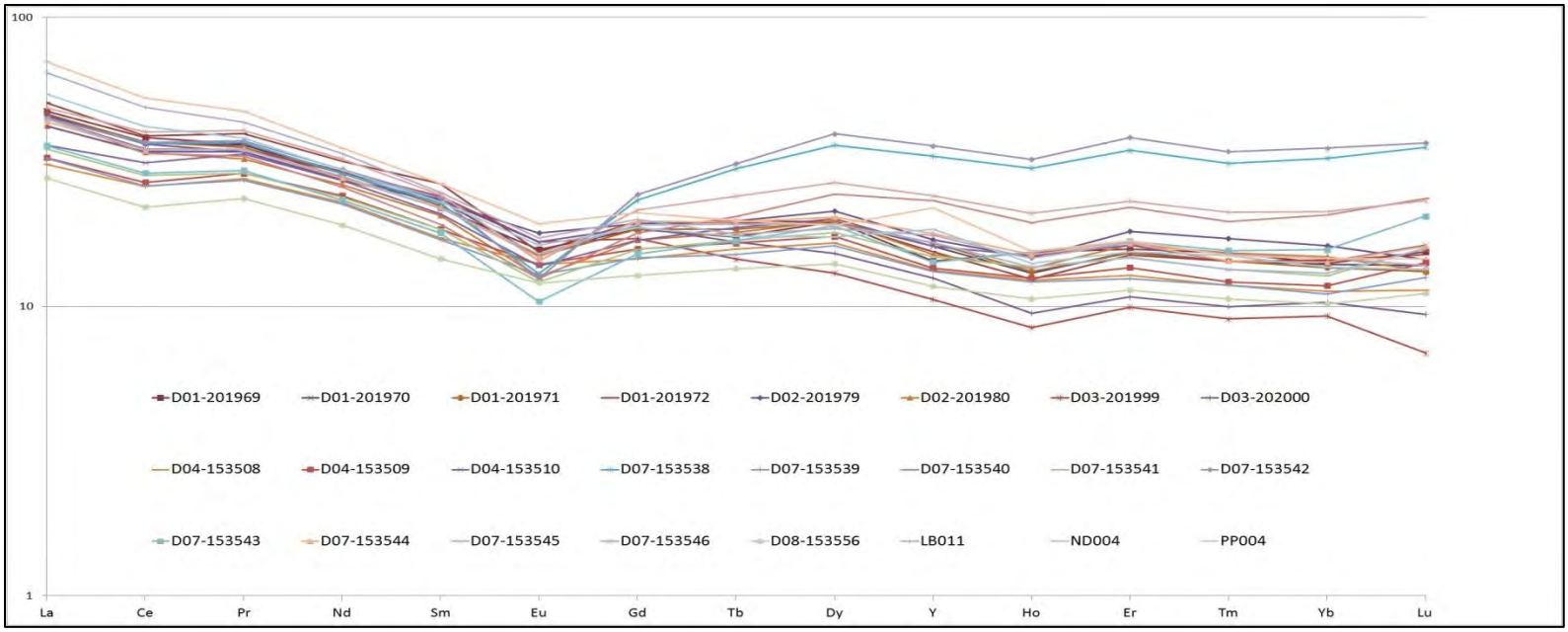


Figure 10: Chondrite normalised plot (values from Reimann & Caritat, 1998).

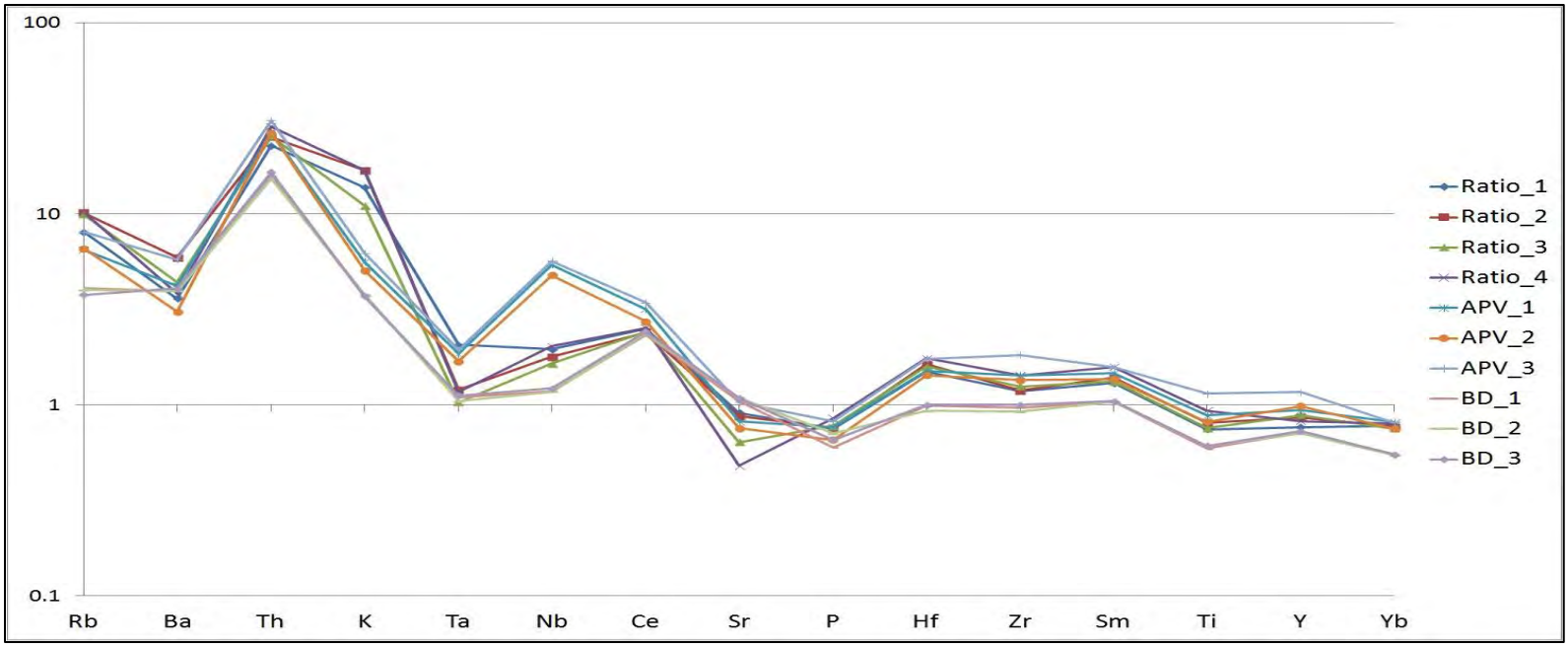
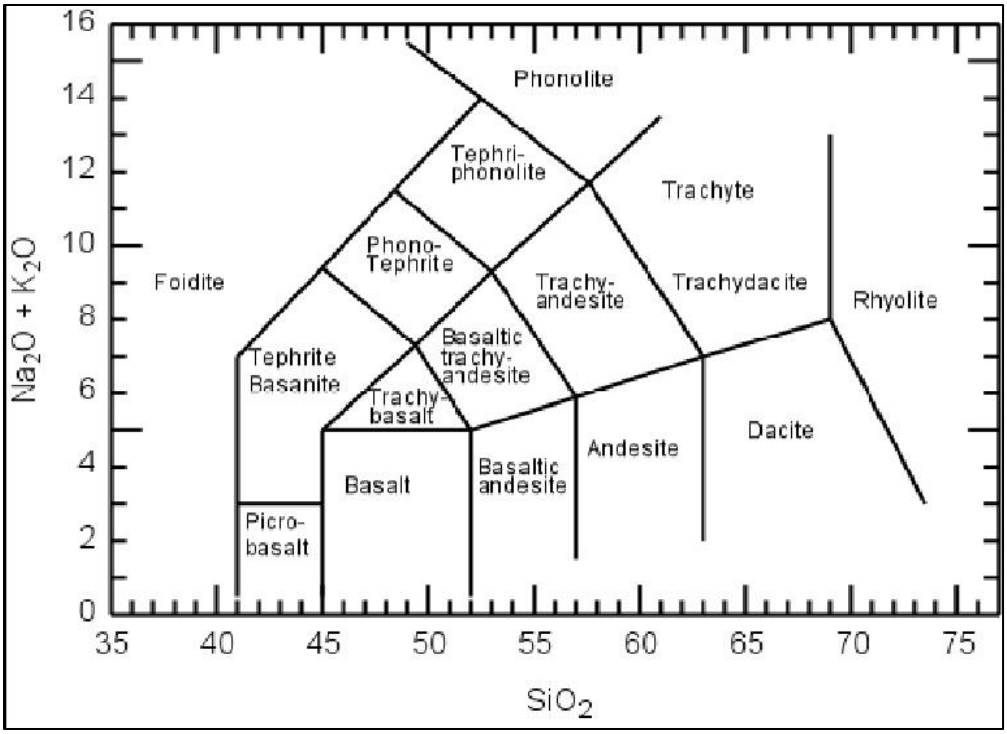
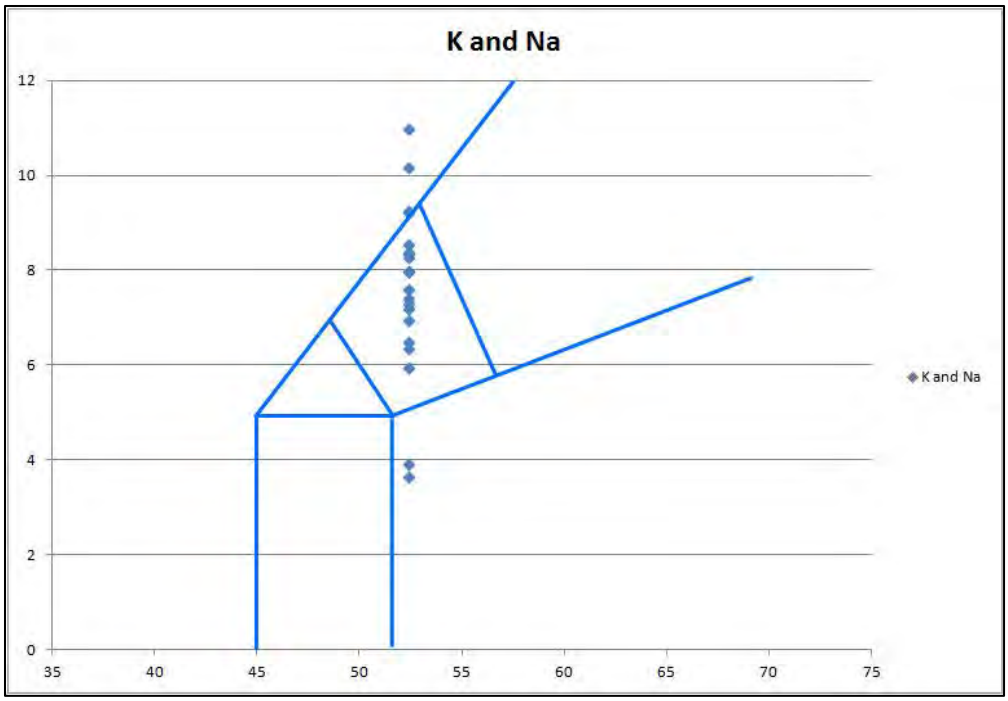


Figure 11: N-MORB normalised plot using D001 – Ratio_1 to 4 (values from Sun & McDonough, 1989. BD = Boondawari Dolerite - Glass, 2006).

K_2O+Na_2O vs SiO_2 plots. Average SiO_2 value for the FR_Basalt is taken from the APV values (Glass, 2006) as this was the most likely basalt drilled. Hand-lens inspection shows approximately 48-55% SiO_2 but an exact value can only be determined using geochemical and petrographic analysis.





K_2O+Na_2O vs SiO_2 plots. Top (Figure 12) is a generic classification diagram, below (Figure 13) are FR drill results plotted up assuming 52.4% SiO_2 (average from APV – Glass, 2006).

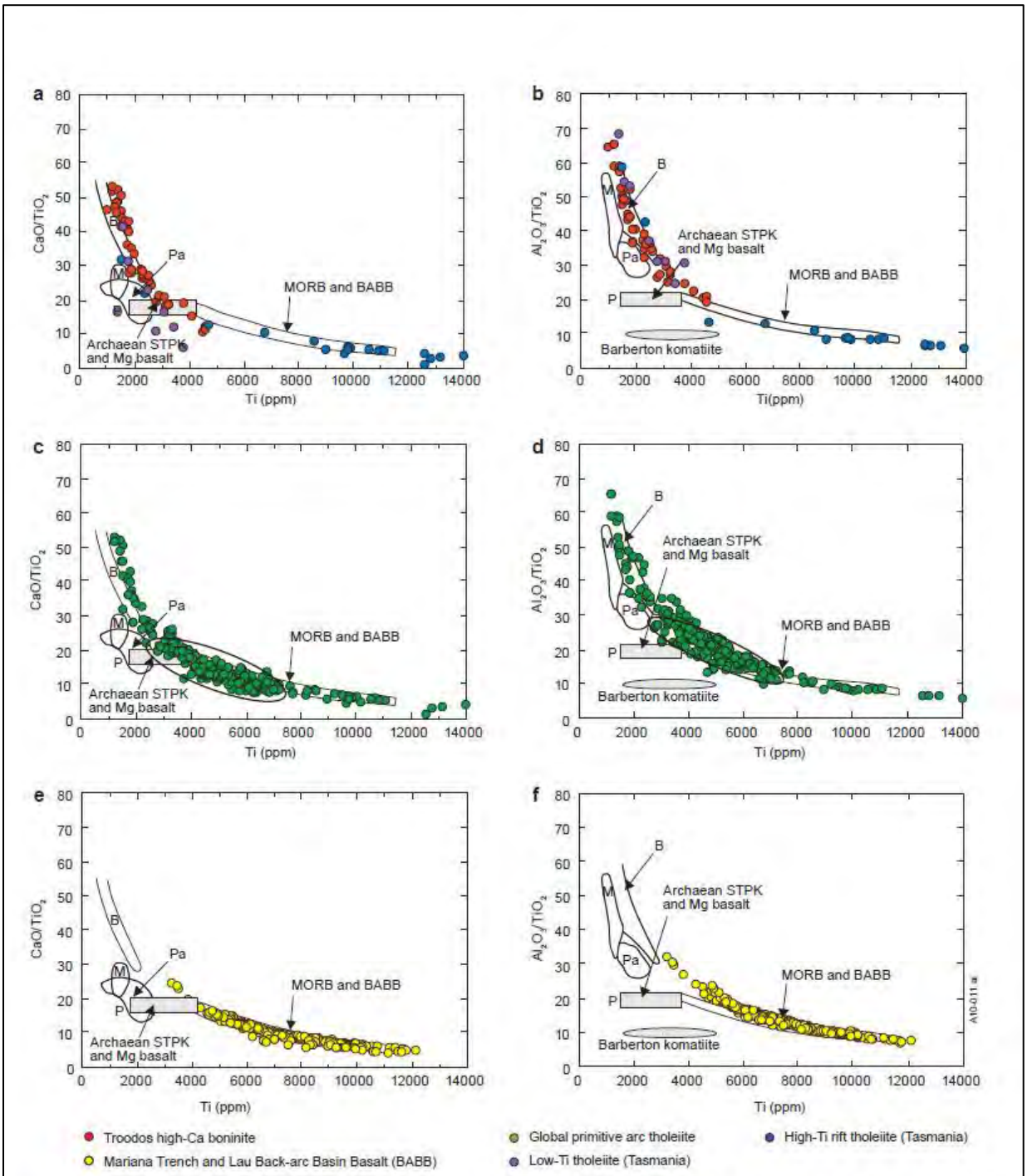
The Chondrite norm and Normal-Mid Ocean Ridge Basalt (N-MORB) norm plots both correlate fairly closely with the Antrim Plateau chemistry (Glass, 2006). D007 has high HREE elements relative to the Antrim. The slight differences can be attributed to chemical removal/addition of these particular elements altering the original abundances during the supergene alteration processes.

The high K and Na values are very uncharacteristic of the Antrim Plateau as well as other Continental Flood Basalts (CFB) situated in the Northern Territory. As seen in the figure above, 6-11% K_2O+Na_2O values are common which would suggest a basaltic trachyte to phonolite composition with 52.4% average SiO_2 (averaged from Glass, 2006). This does not fit with the Antrim values of <4% K_2O+Na_2O from Glass 2006. This suggests that the K and Na values in the volcanic have been enhanced by alteration.

It is likely that the basalt seen at Buchanan has been enriched in K and Na, the granite beneath the basalt being a viable source of K and Na from alteration of Feldspar. Indeed the upper surface of the granites is depleted in K and Na from weathering (a possible pre-APV palaeo-surface or the unconformity acting as a conduit for alteration fluids), with the basalt above being a likely candidate for hosting these depleted elements. Na_2O values increase and K_2O values decrease toward the upper surface of the volcanics.

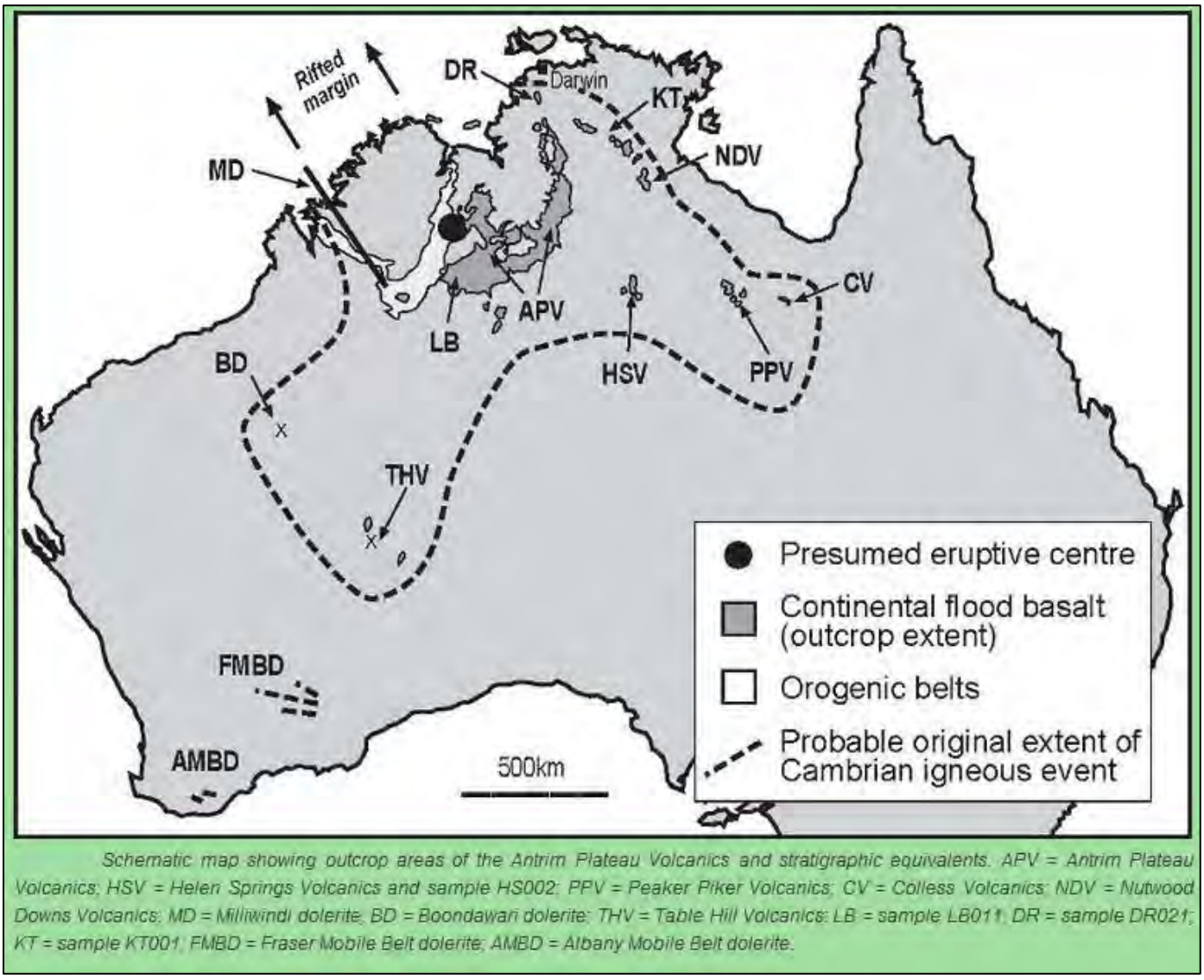
Evins et al., 2009 described evidence of a K_2O enrichment going from older to younger individual flows of APV, suggesting we may have a later phase of the unit.

Geochemical analysis of Fish River Basalt and Antrim Plateau Volcanics, comparing data from Glass, 2006; utilising the NTGS record 2010-005 tectonomagmatic affinity discrimination diagrams.



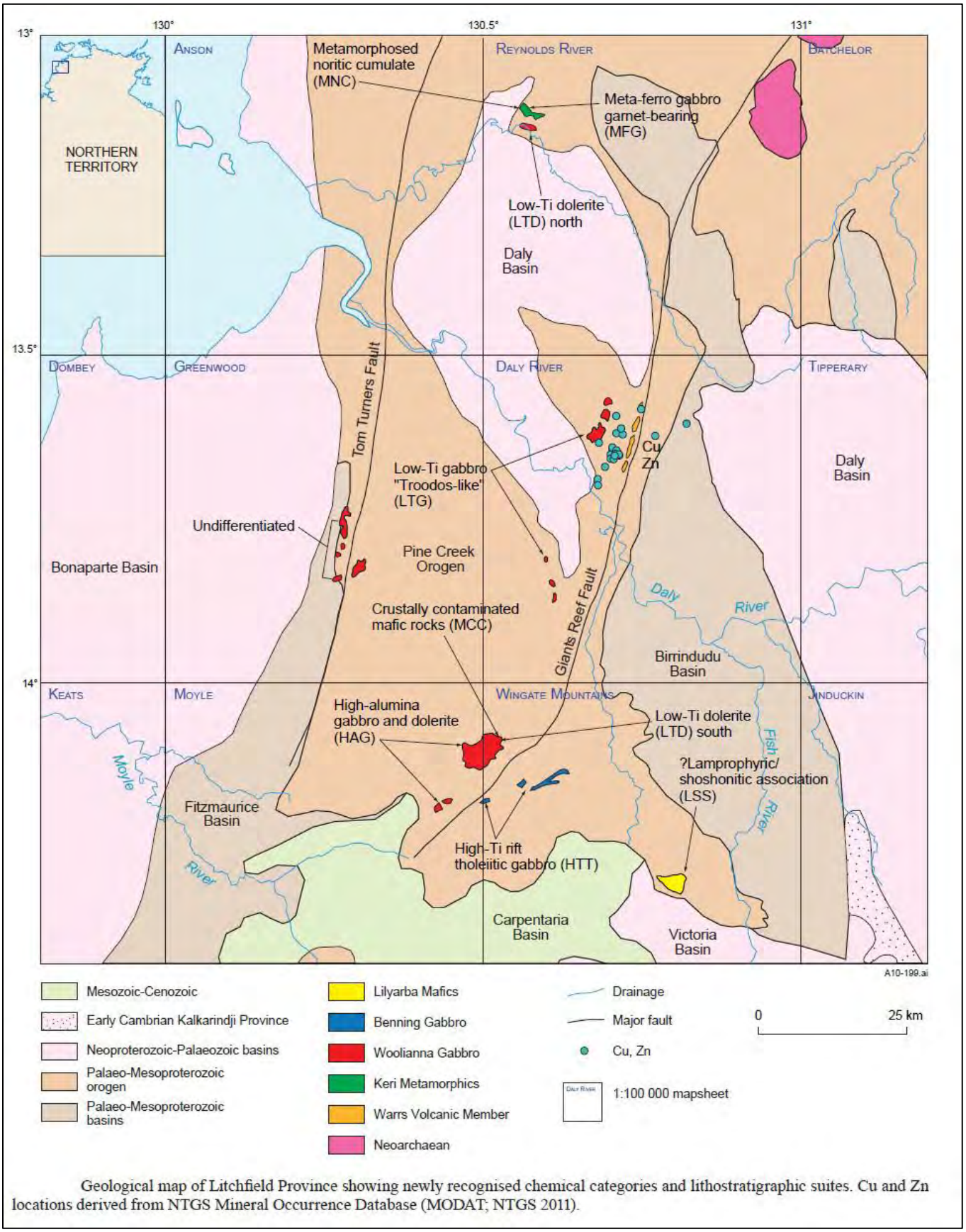
Tectonomagmatic affinity discrimination diagrams with fields defined for MORB and BABB; Archaean spinifex-textured peridotitic komatiite (STPK) and Mg-basalt; Mariana island arc (M); Papua island arc (P); Betts Cove ophiolite (B); pyrolite (P); and Barberton komatiite. Modified after Sun and Nesbitt (1978). Data and references as for **Figure 35**. (a) Ti (ppm) versus CaO/TiO_2 diagram showing data for high-Ca boninite of Troodos ophiolite and Tasmanian high-Ti rift tholeiite. (b) Ti (ppm) versus Al_2O_3/TiO_2 showing data for high-Ca boninite of Troodos ophiolite and Tasmanian high-Ti rift tholeiite. (c) Ti (ppm) versus CaO/TiO_2 showing data for global primitive arc tholeiite. (d) Ti (ppm) versus Al_2O_3/TiO_2 showing data for global primitive arc tholeiite. Ellipsoid in (c–d) highlights dominant spread of data for primitive arc tholeiite. (e) Ti (ppm) versus CaO/TiO_2 showing data for Mariana Trench and Lau BABB. (f) Ti (ppm) versus Al_2O_3/TiO_2 showing data for Mariana Trench and Lau BABB.

Figure 14 **above**: is taken from NTGS record 2010-005 (Glass, 2010) showing ratio plots of CaO/TiO_2 and Al_2O_3/TiO_2 vs Ti ppm for various volcanic rocks.



Schematic map showing outcrop areas of the Antrim Plateau Volcanics and stratigraphic equivalents. APV = Antrim Plateau Volcanics; HSV = Helen Springs Volcanics and sample HS002; PPV = Peaker Piker Volcanics; CV = Colless Volcanics; NDV = Nutwood Downs Volcanics; MD = Milliwindi dolerite; BD = Boondawari dolerite; THV = Table Hill Volcanics; LB = sample LB011; DR = sample DR021; KT = sample KT001; FMBD = Fraser Mobile Belt dolerite; AMBD = Albany Mobile Belt dolerite.

Figure 15 **above**: after Glass, 2006; showing the extent of the Cambrian igneous event and locality of the individual units sampled. The results taken from these units have been used in the plots below to compare with Crossland's 2011 results.



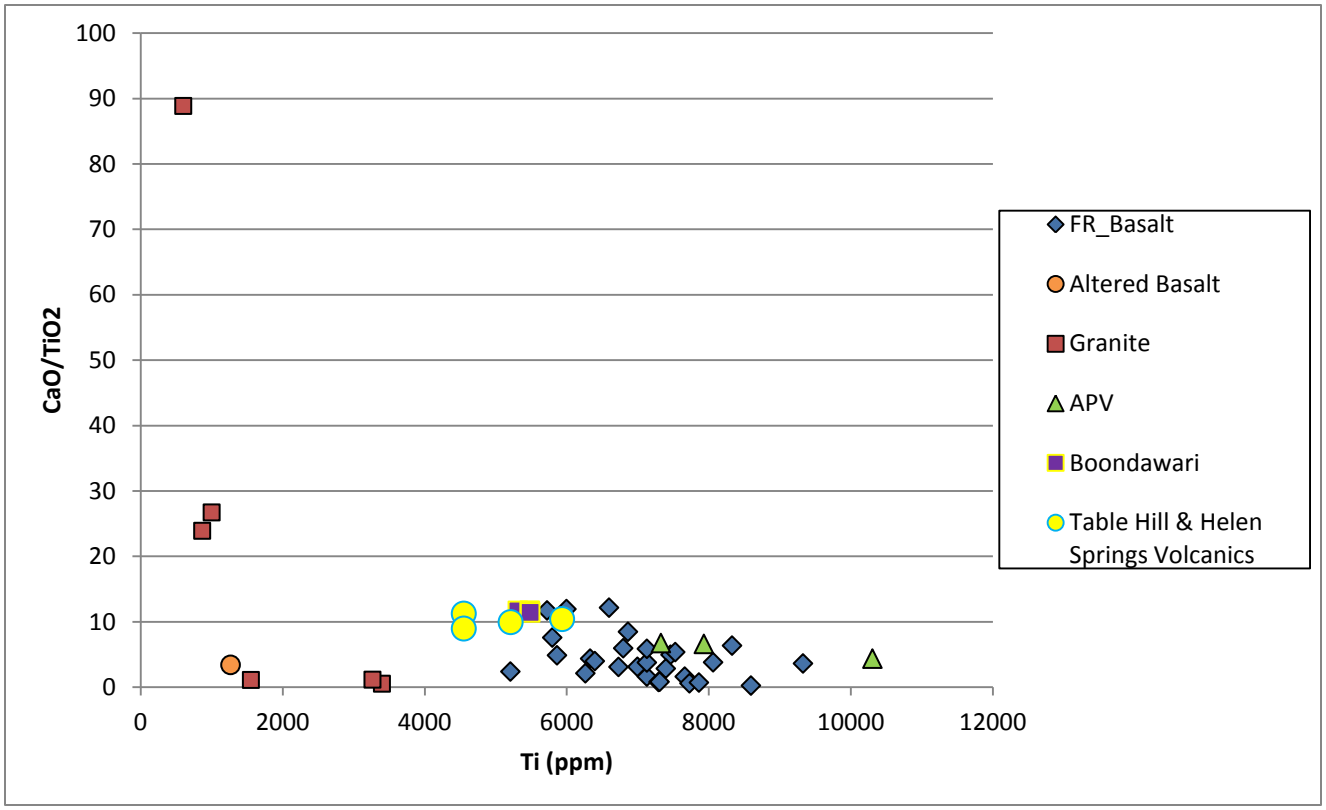
Geological map of Litchfield Province showing newly recognised chemical categories and lithostratigraphic suites. Cu and Zn locations derived from NTGS Mineral Occurrence Database (MODAT; NTGS 2011).

Figure 16 **above**: taken from NTGS record 2010-005 (Glass, 2010) showing a map of the chemically categorised volcanic suites in the Lichfield Province.

Hole	Sample	Ti (ppm)	Ca/Ti	Al/Ti	Cr/FeO	Zr/Y
D01	201965	6329.005	4.378947	15.00505	13.74845	4.336243
D01	201966	6995.216	3.133333	14.00714	12.31394	4.186047
D01	201967	6395.626	4	15.08396	12.5473	4.159453
D01	201968	7661.427	1.626087	12.10939	6.421616	4.287277
D01	201969	7461.563	4.973214	12.33929	5.771886	4.828291
D01	201970	8061.153	3.818182	11.23174	5.779309	4.305959
D01	201971	7528.184	5.380531	12.35071	7.037222	4.419674
D01	201972	9326.954	3.635714	10.30014	6.353448	5.395137
D01	201973	3397.676	0.541176	33.4902	7.359819	5.370216
D02	201979	7728.048	0.603448	10.73267	6.338912	3.926232
D02	201980	7861.29	0.720339	11.81153	7.135787	4.768752
D02	201981	3264.434	1.163265	34.89796	10.04474	2.910999
D03	201999	5862.657	4.886364	12.53068	8.786177	5.191773
D03	202000	6861.973	8.485437	12.15126	7.664363	4.18463
D03	153511	1552.272	1.11588	53.9485	11.42492	6.353992
D04	153508	7128.458	1.626168	14.8429	14.39657	5.439294
D04	153509	7394.942	2.864865	13.38928	14.77615	5.264069
D04	153510	8594.122	0.255814	11.32659	7.484485	5.389658
D05	153512	1265.801	3.421053	68.03263	11.72763	6.666667
D06	153520	5206.439	2.401663	14.82726	23.21451	4.812979
D06	153521	5722.752	11.74878	10.62503	6.482774	4.565747
D06	153522A	7292.346	0.805957	13.14544	10.39376	6.666667
D06	153522B	7307.668	0.83426	13.26174	9.929433	6.635817
D06	153523	599.5899	88.88889	115.87	6.117428	3.089533
D06	153524	999.3165	26.73333	71.718	9.688541	6.846847
D06	153525	866.0743	23.92308	85.01308	6.860078	6.814346
D07	153538	7128.458	3.785047	14.03636	13.63378	2.135389
D07	153539	6728.731	3.108911	14.44455	14.73236	5.188973
D07	153540	5796.036	7.597701	16.30356	12.72448	2.573232
D07	153541	6795.352	5.970588	11.50578	9.261106	4.970414
D07	153542	7128.458	5.878505	11.57047	9.427758	1.959725
D07	153543	6262.383	2.138298	11.41947	7.183519	4.803638
D07	153544	5995.899	11.95556	13.39844	5.60925	3.933618
D07	153545	6595.489	12.17172	11.92303	7.408885	4.275132
D07	153546	8327.638	6.368	11.26904	6.522681	3.609827
D07	153547	2331.739	1.414286	39.17143	4.817916	4.509274
D08	153556	6195.762	4.612903	15.75344	14.00019	5.732866
APV	LB011	7931	6.628788	11.47727	3.033175	4.755245
APV	ND004	7326	6.762295	11.79508	6.003752	4.274373
APV	PP004	10305	4.377907	7.825581	2.090301	4.900698
BD	BD001	5312	11.67416	16.48315	8.80829	4.225905
BD	BD002	5479	11.7033	16.26374	8.761329	4.044894
BD	BD003	5485	11.44565	16.01087	7.833164	4.293688
THV	TH001	4550	11.26316	19.68421	7.071823	3.406953
THV	TH002	4550	8.973684	20.43421	24.01575	3.986904
THV	TH003	5210	9.954023	17.71264	14.85714	3.875583
HSV	HS002	5935	10.42424	14.86869	5.046344	4.088331

Table 5: Ratio data for sample comparison.

Table 5 **above**: contains ratio data for each sample taken in the basalt unit at Buchanan plus data from Glass, 2006. The 7 red samples are taken from the basement granite for comparison. The orange sample was taken at the base of the volcanics, which shows a similar trend to that of the granite but not to the same extent (see figures below). Blue are the Fish River Basalt (FR_Basalt), green are the Antrim Plateau Volcanics (APV), purple are the Boondawari Dolerite (BD) and yellow are the Table Hill Volcanics (THV) and Helen Springs Volcanics (HSV) (data for the latter 3 is from Glass, 2006).



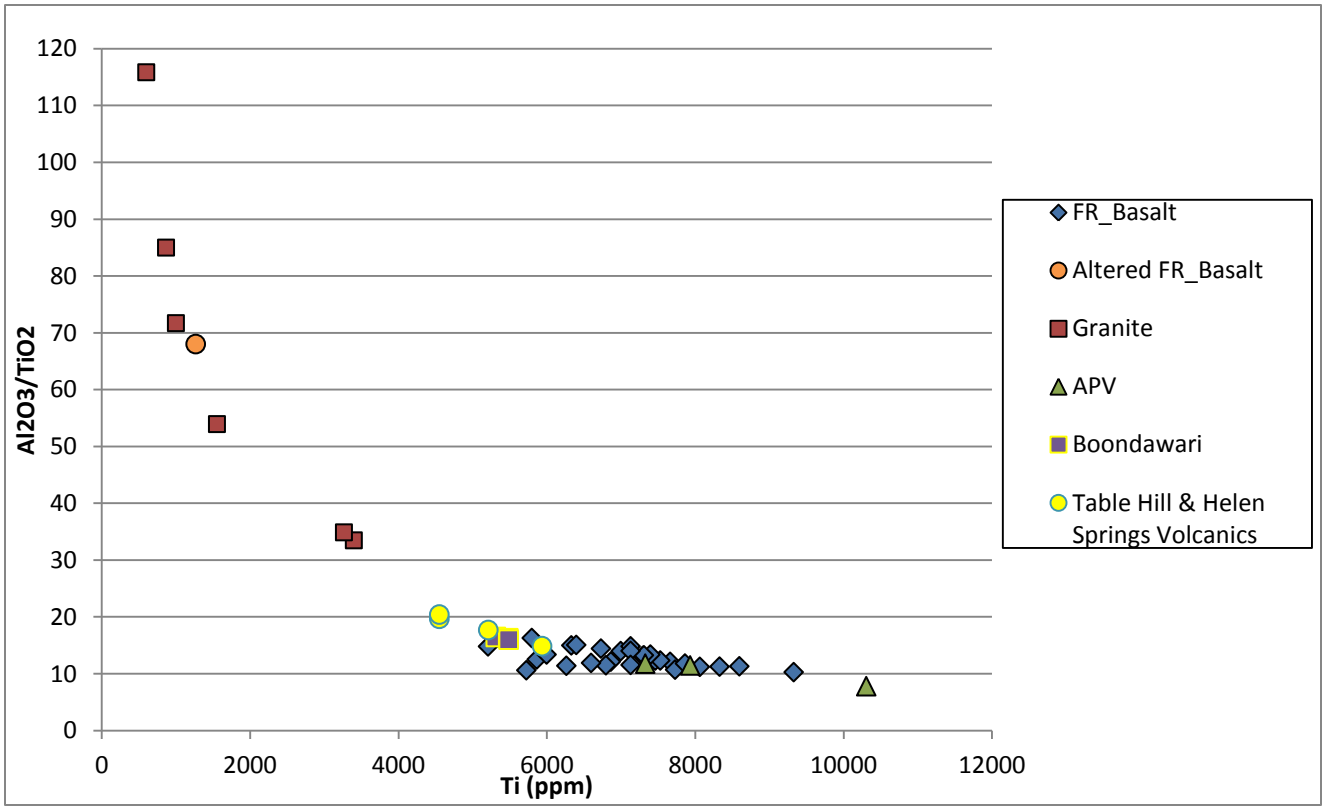
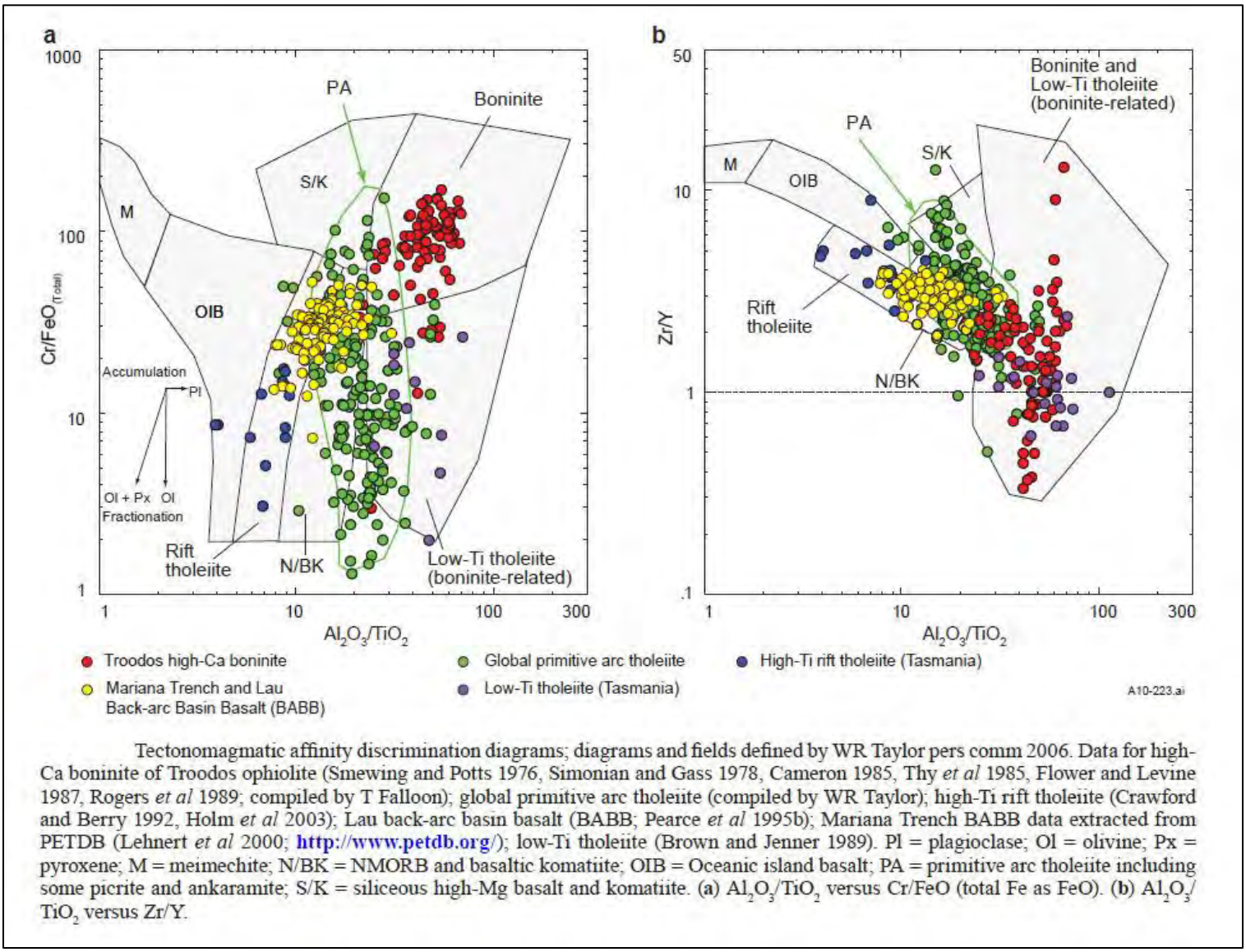


Figure 17 & 18: **Top**: compares the ratio of CaO/TiO_2 on the vertical axis against total Ti ppm on the horizontal axis. **Bottom**: compares the ratio of Al_2O_3/TiO_2 on the vertical axis against total Ti ppm on the horizontal axis.

These both show that the majority of the samples plot up in a similar region to the Mid Ocean Ridge Basalt (MORB) and Back Arc Basin Basalt (BABB) when compared to the same plots in the NTGS record 2010-005 (Figures 17 & 18 above). CaO/TiO2 ratios appear to be lower (<10) at 5000-9000ppm Ti compared with the NTGS which show ratios on average about 5-15 falling between 5000-9000ppm Ti.

The FR_Basalt, APV, Boondawari Dolerite, Table Hill Volcanics and Helen Springs Volcanics all plot closely and along a similar trend.

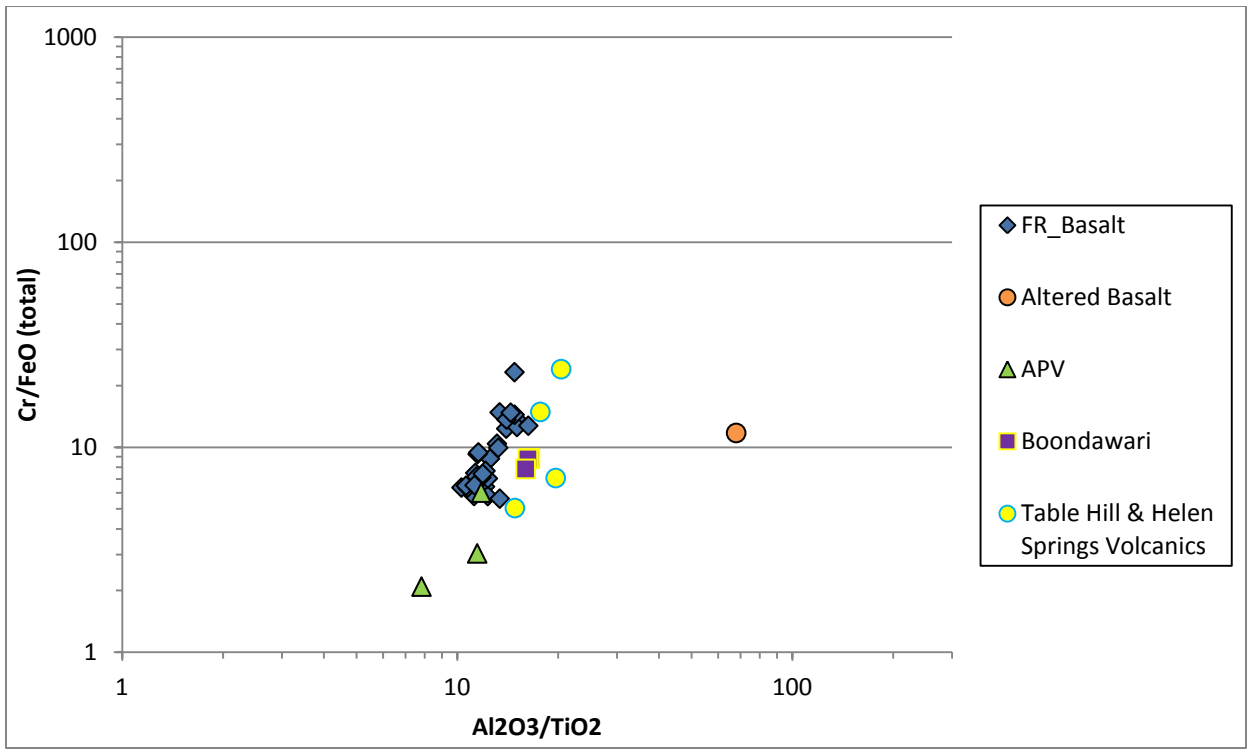
Using different techonomagmatic affinity discrimination diagrams matching those from Glass, 2010: we also see a close resemblance between the Boondawari Dolerite, Table Hill and Helen Springs Volcanics along with the Antrim Plateau Volcanic (all data gathered from Glass, 2006).

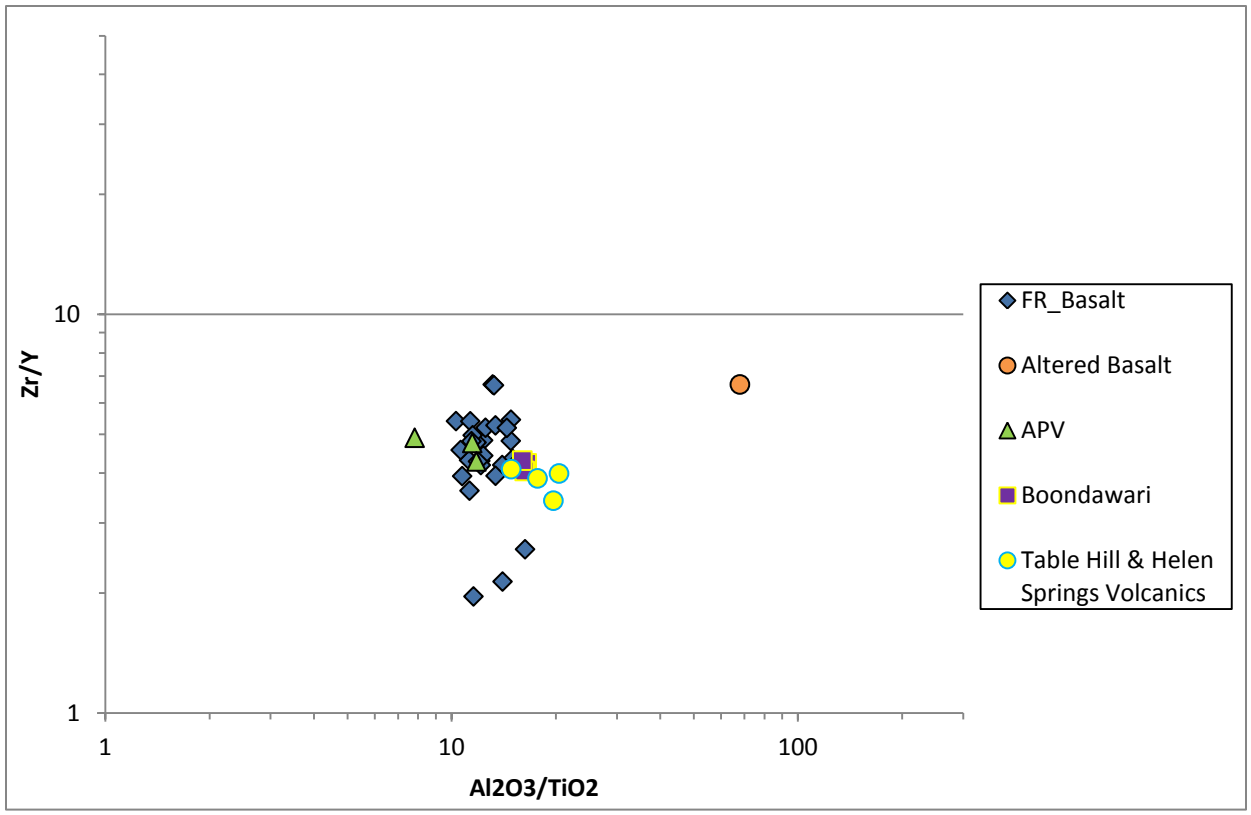


Tectonomagmatic affinity discrimination diagrams; diagrams and fields defined by WR Taylor pers comm 2006. Data for high-Ca boninite of Troodos ophiolite (Smewing and Potts 1976, Simonian and Gass 1978, Cameron 1985, Thy *et al* 1985, Flower and Levine 1987, Rogers *et al* 1989; compiled by T Falloon); global primitive arc tholeiite (compiled by WR Taylor); high-Ti rift tholeiite (Crawford and Berry 1992, Holm *et al* 2003); Lau back-arc basin basalt (BABB; Pearce *et al* 1995b); Mariana Trench BABB data extracted from PETDB (Lehnert *et al* 2000; http://www.petdb.org/); low-Ti tholeiite (Brown and Jenner 1989). Pl = plagioclase; Ol = olivine; Px = pyroxene; M = meimechite; N/BK = NMORB and basaltic komatiite; OIB = Oceanic island basalt; PA = primitive arc tholeiite including some picrite and ankaramite; S/K = siliceous high-Mg basalt and komatiite. (**a**) Al_2O_3/TiO_2 versus Cr/FeO (total Fe as FeO). (**b**) Al_2O_3/TiO_2 versus Zr/Y.

Figure 19 **above**: after Glass, 2010; for direct comparison to Crossland's results.

Figure 20 & 21 **below**: ratio plots using the same criteria as Figure 19. Inspection shows that the Fish River Basalt, along with APV and associates, fall close to the BABB, similarly to the previous ratio plots.





As seen with the previous Al_2O_3 and CaO over TiO_2 plots, the FR_Basalt, APV, Boondawari Dolerite, Table Hill and Helen Springs Volcanics all plot closely. This is further evidence confirming that the Fish River Basalt is part of the Kalkarindji Continental Flood Basalt Province, and likely a sequence of Antrim Plateau Volcanics.

The 3 FR_Basalt samples that fall below the rest in the second diagram (Figure 21) contain elevated Yttrium, as previously seen in the Chondrite Normalised plots.

The orange circle, altered basalt (a basal sample), sits away from the other plotted basaltic rocks, if our granites were added to the diagram they would both fall within close proximity.

The basal Fish River Basalt shows a relationship intermediate between underlying Soldiers Creek Granite and APV, which provides evidence that fluids are moving up from the granite along with the evidence that fluids have down from above (carbonate base metal veining).

6.5 ANALOGIES

Unconformity related Uranium deposits occur in both the Pine Creek Orogen (Geosyncline) (Ranger, Jabiluka, Rum Jungle) and the Athabasca Basin. The unconformities at Buchanan that are observed between the granite 'basement' and Tolmer sandstone/Cambrian sediments provide a likely comparison. The classic East Alligator unconformity style is best represented by the Jabiluka 2 U-Au deposit. Jabiluka is hosted by Cahill Formation schists, which are mineralised immediately beneath the unconformable contact with the Kombolgie Formation sandstone (Needham, R.S., 1982). Granitic basement, a source for the uranium, underlies the Cahill Formation throughout the East Alligator region; transport of the uranium at Jabiluka was likely aided by the Heggie Fault, and localised small scale breccias, veinlets and foliation parallel structures in the carbonaceous-chloritic schists provided ideal depositional sites.

Other feasible locations of the unconformity style for economic mineral deposits at Buchanan are below and above the Lower to Middle-Proterozoic unconformity between Soldiers Creek granite and Tolmer sandstone (see Figure 22).

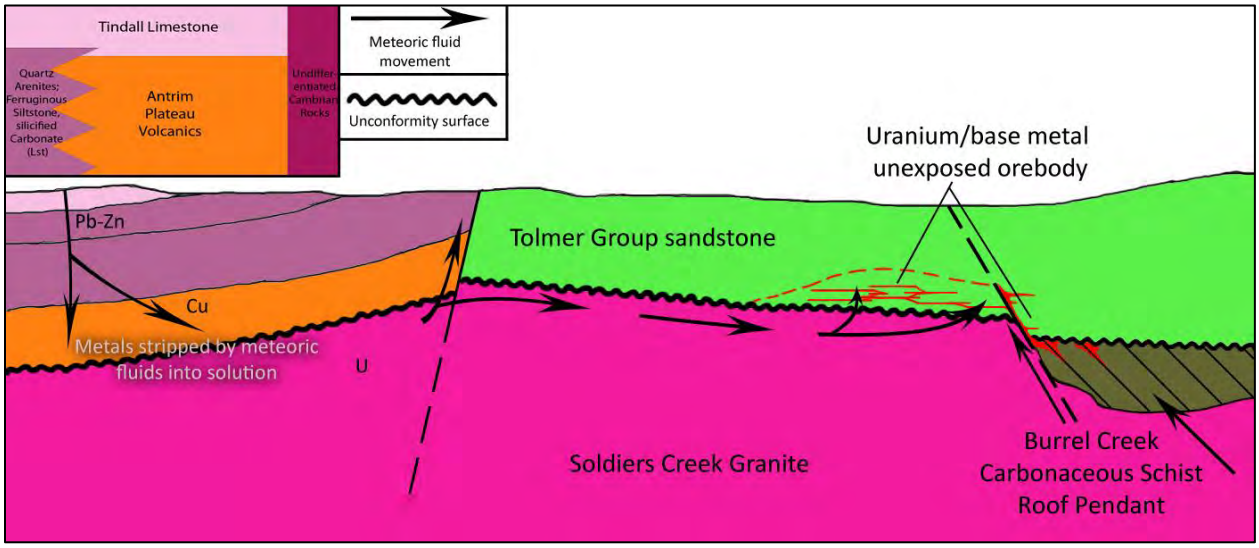


Figure 22: A schematic diagram of the eastern margin of the sub-basin, showing a plausible orebody location for Uranium or Base Metals (as if looking north).

It is known from mapping that there are carbonaceous metasediments within roof pendants and contact rocks of the granite (Burrell Creek Formation) (Melville, P., & Buskas, A. J., 2008) which are ideal for the structural and host properties required for Uranium in solution to accumulate. The March Fly uranium occurrence in EL 24557 is situated within a sequence containing Burrell Creek carbonaceous/graphitic metasediments, along a linear contact between pelitic rocks and quartzite. The host rocks are similar in composition to the roof pendants at Buchanan, enforcing this concept.

The MEMA prospect seen in the adjacent EL 25076, a structurally related, granite-hosted uranium occurrence, is associated with a strong magnetic linear response and high uranium counts, and can be mapped solely from these aspects. A similar outcrop is present within the 'Escarpment Prospect', located in the southeast corner of EL 22738, with over 15000 cps total. The similar historical T-2 anomaly also gave a spectrometer assay at 107.2 ppm U. Outcrop of these linear units containing secondary U could be traced along strike to possible geophysical anomalies beneath unconformably overlying sandstone, where supergene fluid circulation can enhance the grades.

7. CONCLUSIONS

Drilling targets were successfully met; 2291.1m were drilled over 10 diamond drill holes covering the south west limb of the main structure where anomalous RAB and stream sediment samples were collected along with holes in the centre of the structure providing stratigraphic data and a hole drilled into Tolmer sandstone to gain an understanding of its thickness and geometry. Hole D010 was intended to intersect the main Fish River Fault but failed to do so. Geochemical results were highly varied, showing positive potential in some situations along with negative potential in others. This is to be expected with a wide spaced location of drill holes. Further assaying is being undertaken to follow up on the indications of base metals reported herein, and indications of uranium that does not appear to be in radiometric equilibrium in oxidised mudstone in other holes drilled in the programme.

Generation of new ideas and targets to be focused on is still being assessing, a process which is greatly enhanced by the collaboration drill programme and its results.

Unconformity related Uranium and base metal deposits are still highly likely to be discovered at Buchanan with the diverse geology and meteoric fluid systems, including conclusive evidence of metal-bearing fluid migration, encountered during this programme.

Plausible unconformity related orebody locations at Buchanan are likely situated below the Lower to Middle-Proterozoic unconformity between Soldiers Creek granite and Tolmer sandstone.

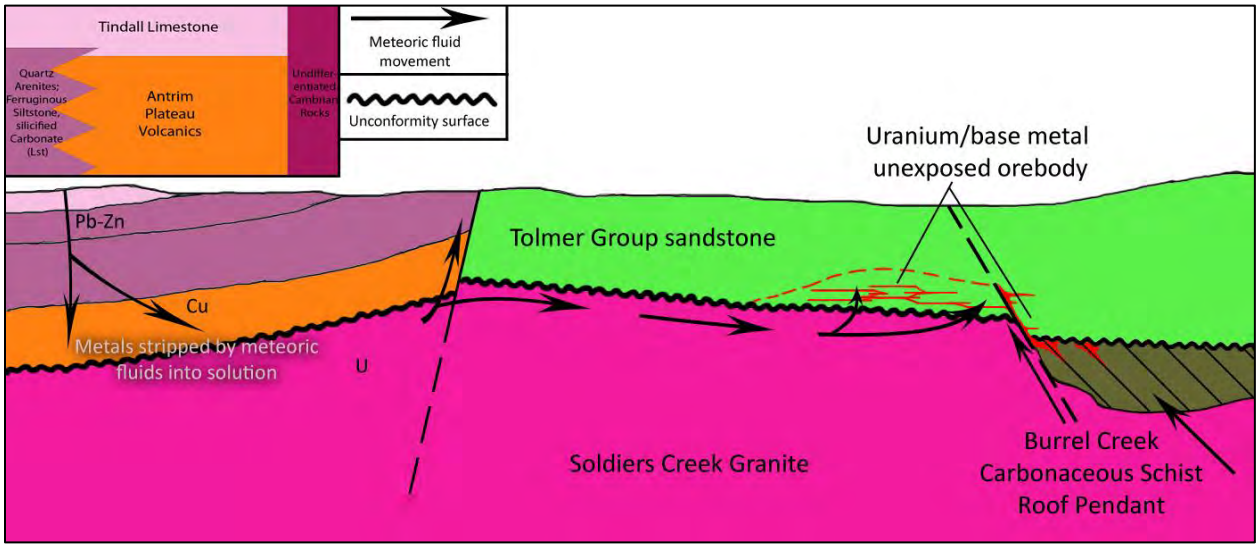


Figure 23: A schematic diagram of the eastern margin of the sub-basin, showing a plausible fluid movement and orebody location for Uranium or Base Metals (as if looking north).

Developing methods to detect deposits like this are being worked on. An analogy for this deposit would be Jabiluka II, a blind stratigraphically controlled deposit beneath radiometrically “dead” sandstone above. Carbonaceous metasediments within roof pendants of the granite are ideal for the structural and

host properties required for uranium in solution to accumulate. Drilling confirmed that geochemical fluid flow is indeed present in the sub-basin, along with multiple sources for which metals can be stripped from.

A large area between the northern ground of EL 22738 and southern EL 25076, some 8 by 8km (Figure 24 below) around 689,600/8,436,200 (GDA94), remains un-sampled. To the SE lie the Buldiva and Muldiva historic tin mine sites, which had alluvial deposits sourced from tabular pegmatites within basement granite unconformably in contact with Chilling sandstone and greywacke, which represent the Burrell Creek Formation. Extensive stream sediment sampling north and west of Muldiva in 2010 yielded high Sn values in other localities with similar geology pointing toward an extension of these deposits. This area is another potential target.

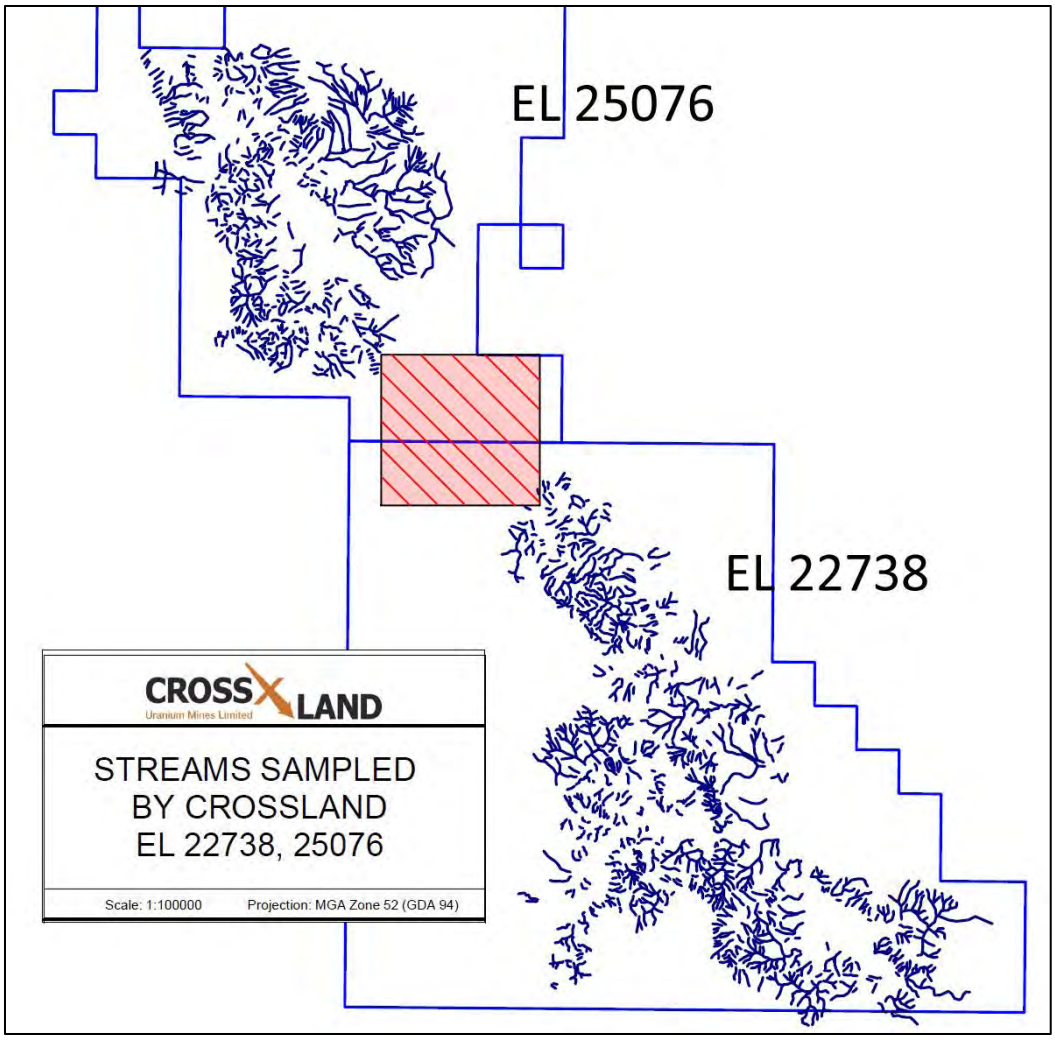


Figure 24: An area un-explored by Crossland (in red). The blue 'worms' are stream polylines that have been sampled for analysis by Crossland.

The main questions concerning the structure and age of the lithology along with answers regarding the potential for discovery of economic mineral deposits are summarised below with the findings.

- What age is the volcanic & sedimentary suite situated within the sub-basin?

(Assuming that we have the Antrim Plateau Volcanics) 510 +/- 15Ma to Upper-Cambrian. Antrim Plateau dates are from Glass, 2006; with sediments above likely to be part of the Middle Upper-Cambrian Daly Group of similar age.

- What are the controlling factors for the geological features seen at Buchanan?

Numerous NW trending faults (likely attributed to the Fish River Fault system) along the sub-basin margins accommodate subsidence along with marking the boundary between the older Lower to Middle-Proterozoic rocks and the younger Cambrian volcanics and sediments. Widespread unconformities between basement rocks and Middle-Proterozoic sandstone or Cambrian volcanics are apparent.

- What evidence for potential mineralisation has been discovered?

Numerous intersections of anomalous metal content have been discovered. A number show similar results to previous RAB work on the SW and SE margins of the sub-basin. These highs in particular are associated with a zone of intense surface leaching. At depth, carbonate veining has contained base-metal sulphides showing evidence of supergene fluid flow within the sub-basin. No orebody was intersected but results show a great potential that needs to be followed up.

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