

1 October, 2009

**Crossland drilling program imminent on N.T. prospect after  
identifying “large and significant mineralised system”**

**Highlights**

- Soil sampling has defined a uranium-base metal anomaly in the Buchanan Window area at the southern end of Crossland’s flagship Chilling Project in the NT.
- The anomaly has a strike length of at least 3km and width of 100 to 200m. Soil values within this zone are generally over 5ppm uranium and 64ppm copper, and are up to 45ppm uranium, 555ppm copper, 517ppm cobalt, 364ppm nickel and 1.8ppm silver. A limited number of rock chip samples of gossanous breccia have been collected. These contain up to 136ppm U and 926ppm Cu.
- A ground spectrometer survey has identified several uranium anomalies. The strongest are coincident with the soil anomaly. Spectrometer readings are up to 70ppm eU.
- The geochemical composition and geological setting of the soil/spectrometer anomalies are very similar to deposits in the Rum Jungle and Alligator Rivers uranium districts.
- A program of 3,000m of aircore drilling will commence in the next few days, with the aim of testing the soil/spectrometer anomalies beneath the zone of surface leaching and metal depletion. Infill drilling may then try to identify the centre of the mineralised system.

Crossland Uranium Mines Limited (ASX: “CUX”) is pleased to provide an update on its progress in the Buchanan Window area around the Fish River at the south end of the Company’s Chilling Project area in the Pine Creek Orogen of the Northern Territory.

The Buchanan Window (“window”) - an area of approximately 35 sq. km - contains lithologies of the lowermost stratigraphy in the Pine Creek Orogen. These lowermost sediments hold almost all of the past uranium producing deposits of the region, at Rum Jungle and The Alligator Rivers Region, as well as most quantified unmined resources. Extensive portions of the window have now been covered by geochemical sampling and spectrometer survey.

Crossland’s Exploration Director, Geoff Eupene, said: “We believe we have identified a large and significant mineralised system in the Buchanan Window.”

“The size of the window - about the same size as the Rum Jungle mineral field – combined with relatively high metal concentrations in surface samples, and close geological analogies with the settings of mineralisation at the Rum Jungle and Alligator Rivers mines, underline the uranium and base metal potential,” Mr Eupene said.

“The drill program that is about to start will test for higher grades beneath the zone of surface depletion.” he said.

**Geology**

Geological mapping and geophysical interpretation has confirmed that the geochemical/radiometric anomalies occur with a Palaeo-Proterozoic sequence. Three lithological units have been mapped within this sequence in the Buchanan area. Structural interpretation suggests the units are, with the oldest first;

- Laminated Dolomite. This unit is at least 50m thick and is marked by moderate aeromagnetic anomalies with high wavelength. This unit may correlate with the Coomalie Dolomite in the Rum Jungle area.

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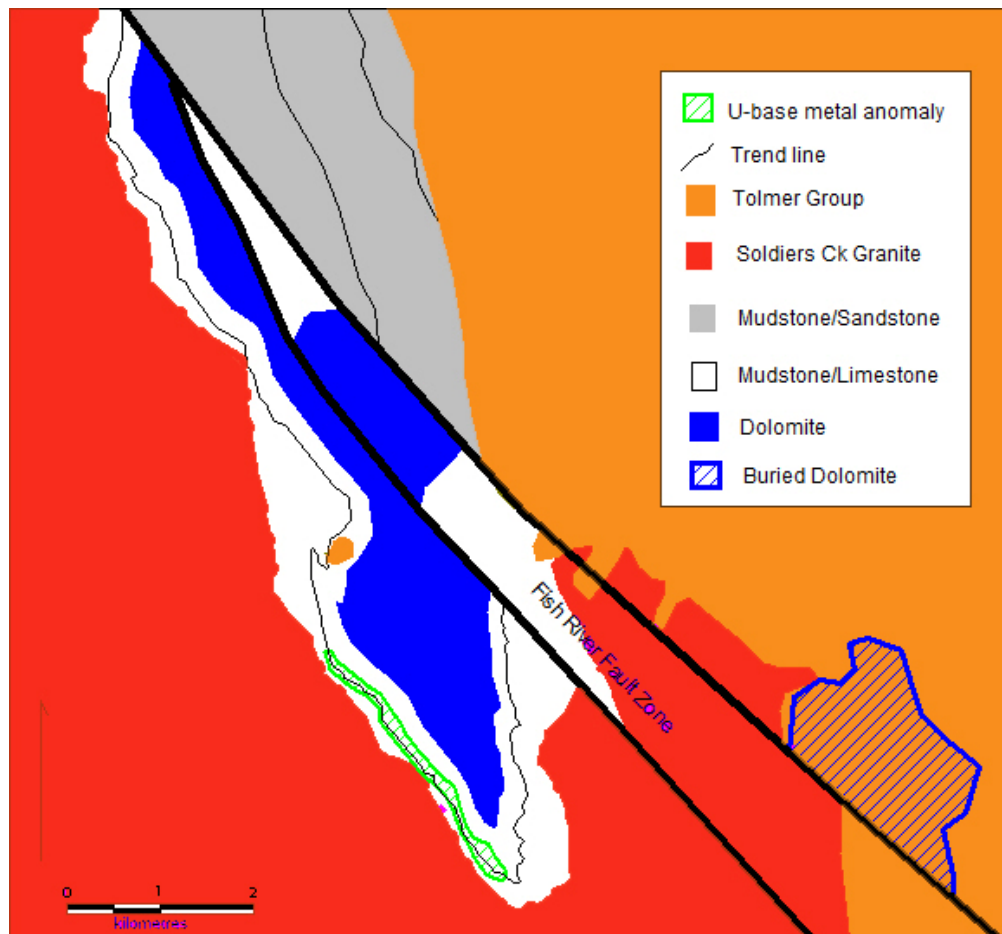
- Interbedded Mudstone and Limestone. Limestone beds are marked by sugary chert breccias on the surface. Discontinuous, high relatively high amplitude aeromagnetic anomalies occur near the contact with the Dolomite. The unit may correlate with the Whites Formation.
- Interbedded Mudstone and Sandstone. This unit may correlate with the Wildman Siltsone.

This sedimentary sequence is intruded by the Soldier's Creek Granite. In places the contact runs parallel to strike of the sediments, 100 to 200m from the Dolomite-Mudstone/Limestone contact. Geochemical and radiometric surveys indicate that this granite contains anomalous uranium. In addition, quartz-hematite-barite-uranium veins are widespread within the Granite.

The Meso- Proterozoic Tolmer Group unconformably overlies the Palaeo-Proterozoic sediments and granite, and consists of coarse, ferruginous sandstone. This unit occurs as scree and scattered outcrops over much of the Palaeo-Proterozoic sequence, particularly in karstic depressions overlying the dolomite.

The Fish River Fault Zone consists of a number of sub-parallel, northwest striking structures which can be traced for tens of kilometres to the southeast. These extensions have been covered by recent tenement applications by Crossland.

Most of the uranium and base metal geochemical and radiometric anomalies are located within the Mudstone/Limestone sequence close to the contact with the Dolomite.



Buchanan Window Geology and strata-bound uranium-base metal anomaly

### Surface Geochemical Surveys

A total of 393 stream sediment, 996 soil and 8 rock chip samples have been collected this year in the Buchanan Window. Stream sediment and soil samples were collected from the surface, with fine,

clay-rich material preferred during collection. Samples were analysed by ALS Laboratories for 48 elements including uranium using their method ME-MS61U and for gold using method Au-TL43....

Most zones draining dolomite outcrops, or zones of buried dolomite interpreted from the aeromagnetic surveys, shed anomalous base metals and uranium. The stream sediments contain samples with high values of up to 10ppm uranium, 73ppm copper, 125ppm nickel and 163ppm cobalt. The strongest of the anomalies have already been followed up with soil sampling. A number of outlying anomalous zones are yet to be re- visited.

Several streams draining from the Soldier's Creek Granite are shedding high uranium (up to 37ppm) and tin (up to 23ppm). These zones will be followed up in future months.

Soil sampling has concentrated along the contact between mudstone/limestone and dolomite sequences. This work as defined several uranium-base metal anomalies. The largest anomaly has a strike length of 3km and width of 100 to 200m, and is shown in the diagram above. Soil values within this zone are generally over 5ppm uranium and 64ppm copper and are up to 45ppm uranium, 555ppm copper, 517ppm cobalt, 364ppm nickel and 1.8ppm silver. A limited number of rock chip samples have been collected and contain up to 136ppm uranium and 926ppm copper in gossanous breccia.

Other soil anomalies along strike are being tested by infill soil sampling, rock chip sampling and ground spectrometer surveys.

### **Ground Spectrometer Survey**

A ground spectrometer survey is being completed in the area of the large soil anomaly. This work is being undertaken with 25m line spacings, and to date an area of around 16sq. km has been completed. Gridded equivalent uranium values of over 25ppm eU on the Pico Envirotec PGIS Spectrometers are considered to be anomalous. Some 15 anomalous areas of over 25ppm eU have now been detected, with individual anomaly peaks of over 70ppm eU. All of these anomalous areas are associated with the south- western limb of the Buchanan Anticline, coincident with many of the geochemical responses, and centred about outcrops of gossanous ironstone breccia. Almost every outcrop of this rock type is anomalous in uranium and the surrounding areas of scree and other barren cover on strike are also of interest. Thin barren cover can easily mute the response of uranium- related radioactivity.

### **Comparison with Other Uranium Districts**

The Rum Jungle Uranium district is situated about 150km north of the Buchanan Window. It has produced 2993 tonnes of uranium. Uranium mineralisation occurs;

- Near a major regional structure, the Giants Reef Fault
- Adjacent to the unconformity with the Meso- Proterozoic Tolmer Group sandstones.
- Along a contact of Palaeo- Proterozoic Mudstone/Limestone and Dolomite
- In association with stratabound concentrations of copper, cobalt and nickel
- Within two kilometres of uranium-rich granite of the Rum Jungle Complex

The Alligator Rivers Uranium Field is located about 300km east of Buchanan. Production and Resources total over 320,000 tonnes of uranium. Controls to mineralisation include;

- Location adjacent to the unconformity with the Meso- Proterozoic Kombolgje Sandstone, and either adjacent to or below outcropping sandstone.
- Situation close to the contacts of Palaeo- Proterozoic dolomite/ magnesite units, particularly where they are silicified, and overlying meta-sediments
- Association with anomalous copper and nickel/ cobalt concentrations
- Close to uranium-rich granites of the Nanambu Complex

In summary, the relatively unexplored Buchanan Window area has many geological components that are believed to be important in localising mineralisation at the proven uranium districts of Rum Jungle and Alligator Rivers.

### **Future plans**

An air core drill program is scheduled to commence within the next few days. Around 3000m of drilling is planned, mainly at the targets outlined above, but also to elucidate the geological setting.

The radiometric surveys, geochemical sampling, and geological mapping are continuing, while further work at March Fly and the area to the north of Buchanan will commence imminently. Work is continuing to define the radiometric anomalies at the Cockroach Dam prospects in the Charley Creek Project in Central Australia.



Geoff Eupene,  
Director and CEO.

*The review of exploration activities and results contained in this report are based on information compiled by **Geoffrey S Eupene**, a Fellow of the Australasian Institute of Mining and Metallurgy. He is a director of the Company and a full time employee of Eupene Exploration Enterprises Pty Ltd. He has sufficient experience which is relevant to the style of mineralisation and types of deposits under consideration, and to the activity which he is undertaking to qualify as a Competent Person as defined in the December 2004 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code). Geoffrey S Eupene has consented to the inclusion in this report of the matters based on his information in the form and context in which it appears*