



Cameco Australia Pty Ltd

EL 9452

MANYALLULUK PROJECT

NORTHERN TERRITORY

ANNUAL REPORT

CONFIDENTIAL

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SUMMARY

This report describes exploration work undertaken on the Manyalluluk Project during the third year of tenure. The tenement was granted on 5 May 2004 for an initial period of six years.

Field activities during the reporting period consisted of two helicopter-supported diamond drill holes in the Diamond Creek area. An exploration camp was established in this area to support the drilling activities.

The exploration camp was established on 15 May 2006, with drilling commencing on 19 May 2007. In total, 815.7 m of core was drilled in two holes. No significant mineralisation was intersected in the drilling.

Drill hole MLD001 intersected sandstones and minor volcanics of the Kombolgie Subgroup in faulted contact with the Hindrance Creek Sandstone. Drill hole MLD002 was collared and terminated in interpreted Hindrance Creek Sandstone.

Drilling and mapping in the Diamond Creek area has indicated there are complex stratigraphic and structural relationships between the Kombolgie Subgroup and underlying Hindrance Creek Sandstone, and that much of the NTGS mapping in this area requires re-interpretation.

Total eligible expenditure for the exploration program was \$432,697.99.

Exploration in 2007 will consist of an airborne electromagnetic survey covering the Kombolgie Subgroup sediments in the central to eastern portion of the licence.

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INTRODUCTION

This report describes exploration activities carried out from 5 May 2006 to the anniversary date on EL 9452. The Exploration Licence is located on Aboriginal Land and the exploration program was carried out under the terms of consent documentation agreed with the NLC pursuant to the Aboriginal Land Rights (Northern Territory) Act 1976. Exploration work clearance was given by the NLC on behalf of the Traditional Owners following the Exploration and Liaison Committee Meeting held on 27 April 2006 at Katherine.

The field program for the third year consisted solely of helicopter-supported diamond drilling.

All drilling data can be found in the DATA directory of this report.

Location and Access

Exploration Licence 9452 is located in south western Arnhem Land. The project area is centred about 90 km north east of Katherine and 25 km north east of the aboriginal community of Manyalluluk.

The tenement is traversed in the central area by the access track to the Mann River Camp, established by Cameco Australia in 1998. Various other unmaintained tracks traverse the western portion of the tenement to Mary River Station and other areas and in the eastern portion to Mountain Valley and other outstations beyond the tenement.

Figure 1: Project Location Map

Tenure

EL 9452 was granted on the 5 May 2004 for an initial period of six years. On granting, the total area covered by the licence was 1336 km². Approximately 153.5 km² of EL 9452 is designated as 'no-go' and is excluded from exploration. No reduction of tenement holding has been made to date.

Physiography

The tenement consists of tablelands developed on Cretaceous sedimentary rocks in the south western area, merging into undulating plains and small bouldery hills developed on the Grace Creek Granite covering the central to north western area of the tenement. The central to eastern portion of the tenement is dominated by Kombolgie Subgroup sediments exposed as deeply dissected sandstone, which form local escarpments up to 80m high, and rubbly sandstone hills with deep narrow valleys merging into rubbly clay plains and rubbly ridges, formed on volcanic rocks, to the eastern margin of the tenement.

Vegetation varies with geology and topography but generally consists of eucalyptus woodland and scrubland with remnants of monsoonal forest confined to deep gorges, and grassland dominating the western areas.

Regional Structure and Geological History

The geological history and regional structure is based on the Explanatory Notes, Katherine SD 5309 1:250000 Geological Map Series (Kruse and others 1994). EL 9452 lies close to the southern margin of the Pine Creek Geosyncline to the west and the western portion of the McArthur Basin, of which the Kombolgie Basin is part, in the east of the tenement.

Figure 2: Regional Geology Map

The Finnis River Group rocks form the basement rocks in the area and were deformed and metamorphosed by the Top End Orogeny (1880 to 1780 Ma), which includes the initial Nimbuwah Event or Barramundi Orogeny at about 1870 Ma. This produced prograde regional metamorphism of the sedimentary rocks with associated tight folding and faulting demonstrated within the Tollis Formation.

Intracratonic basin development from extensional block faulting prompted deposition of the Edith River Group with basal clastic sediments overlain by subaerial volcanoclastics of the Plum Tree Volcanics coeval with the intrusion of the Grace Creek Granite at the base of the ignimbrite sheet. The Grace Creek Granite was likely emplaced central to the intersection of major faulting.

The Katherine River Group deposition was initiated on broad epicontinental platforms, with early sedimentation controlled by basins initially developed along marginal faults. The Kombolgie Group depicts a history of mature, fluvial and shallow marine, stable platform sedimentation, dominated by quartz arenites, punctuated by episodes of instability with associated flood basalt extrusions and renewed sedimentation on intraformational erosional surfaces. Extended basin development is demonstrated within the McKay and Cottee Formations with deposition of marine sediments and evaporitic sequences. Later instability led to the deposition of thin less mature lithic and feldspathic sandstone units and later basic and acid volcanism associated with the West Branch Volcanics.

Platform instability in the form of tilting, open folding and erosion took place prior to deposition of the Mount Rigg Group. East of the tectonic high developed on the Grace Creek Granite, the Katherine River Group is warped in a broad 35km wide northeast trending syncline, the Waterhouse Syncline. Bedding dips recorded along the flanks of the syncline are gentle between 5 and 30° with steeper bedding associated with faulting. The synclinal axis is dominantly north east, with a gentle north east plunge in the south, becoming subhorizontal in the north before dying out. The Waterhouse Syncline is not consistent in style or trend to the broad folding of Edith Falls Syncline and Seventeen Mile Anticline to the west of the Grace Creek Granite, and may represent different tectonic phases.

A period of platform stability persisted through deposition of the initial basal fluvial sediments and later marine sediments of the Mount Rigg Group. Further deformation and faulting took place prior to the deposition of the Roper Group. To the east of the Grace Creek Granite, a zone of east to north east trending

faults, with a conjugate system of faults, extends across the Kombolgie Group. The Diamond Creek Fault immediately to the south of EL 9452 is a major fault trending to south east which juxtaposes the Kombolgie Subgroup with Upper Katherine River Group rocks, with a secondary fault to the north which juxtaposes Edith River Group with Upper Katherine River Group rocks.

Sedimentation within the local area ceased until the early Cretaceous with deposition of shallow marine and continental sands and silts capping and obscuring the pre-existing exposed geology during periods of elevated sea levels.

Tenement Geology

Based on the NTGS mapping of the Katherine 1:250000 geological series (Kruse and others 1994), outcropping rocks within the tenement consists of a compressed stratigraphic sequence of Palaeoproterozoic Kombolgie Subgroup sedimentary and volcanic rocks, Kombolgie Group sediments and volcanics unconformably overlying Edith River Group sediments and volcanoclastics which has been intruded by the Grace Creek Granite. Metamorphosed sediments of the Finniss Group, while not exposed on the tenement, may underlie Cretaceous sediments in the south western portion of the tenement. The Maud Dolerite, prior to the emplacement of the Grace Creek Granite, intrudes the Edith River Group. All of the above rocks are overlain in part by Cretaceous marine sediments.

Figure 3: Tenement Geology Map

The Edith River Group is comprised of the Hindrance Creek Sandstone and the conformably overlying Plum Tree Creek Volcanics. The Hindrance Creek Sandstone is characterised by a coarse cobble conglomerate, at the base grading to massive to thickly bedded lithic to feldspathic quartz sandstone and arkose. The basal conglomerate is comprised of rounded quartz pebbles, and subangular clasts of volcanics and chert. The formation is interpreted to represent alluvial fan deposits flanking active marginal fault scarps to the north (Kruse and others, 1994). The Plum Tree Creek Volcanics consists of dominantly subaerial rhyodacitic ignimbrite conformably overlying the Hindrance Creek Sandstone. The ignimbrite commonly contains feldspar and quartz phenocrysts, with rare hornblende in a finely crystalline groundmass.

The chemically and petrologically similar Grace Creek Granite intrudes the Plum Tree Creek Volcanics. The Grace Creek Granite is interpreted as the intrusive magma chamber from which the subaerial ignimbrite sheet of the Plum Tree Creek Volcanics was derived, and is located at the intersection of major faults. The granite is broadly zoned with equigranular grey granite in the central zone grading into more phenocrystic and xenolithic finer grained reddish granite.

The Katherine River Group overlies the Edith River Group. The age of the Katherine River Group is constrained by the Plum Tree Creek Volcanics below 1857 – 1822 Ma and the West Branch Volcanics above 1712 – 1705 Ma (Kruse and others, 1994) and the Oenpelli Dolerite above 1720 Ma and is probably

closer to 1800 Ma (Sweet et al., 1999). The Kombolgie Subgroup is comprised of mature quartz arenites punctuated by basaltic, extrusive, volcanic units.

Extrusive volcanic rocks of the Nungbgarri Volcanics and the Gilruth Volcanic Member are present. The former conformably separates the Mamadawerre (basal member of the Kombolgie Subgroup) from the Gumarrirnbang while the Gilruth outcrops as a thin lateritised or saprolitic surface separating the latter from the overlying Marlgowa Sandstone and conformable McKay Sandstone.

Overlying the Kombolgie Subgroup, six formations in ascending order, Cottee Formation, Shadforth Sandstone, McCaw Formation, Diamond Creek Volcanics, Gundi Sandstone and West Branch Volcanics comprising the Upper Katherine River Group are exposed within the south eastern portion tenement. The formations grade from shallow marine sandstones, polymictic conglomerate lenses and mudstones of the Cottee Formation, Shadforth Sandstone and McCaw Formation, to basaltic lava flows, fluvatile volcanoclastic sandstones and pebbly lithic sandstones of the Diamond Creek Volcanics and Gundi Sandstone to fluvatile to shallow marine conglomerate, lithic sandstones and extrusive mafic lavas of the West Branch Volcanics.

Undifferentiated Cretaceous sandstone and claystones cap and obscure the older rocks throughout the tenement. Recent cover comprising sands and clay, gravel and cemented ferruginous deposits infill most valleys and also obscure any outcrop.

Exploration Target

The focus of the exploration strategy is the discovery of unconformity-related uranium deposits. The nearby economic deposits at Coronation Hill, Ranger, Jabiluka, Koongarra and the now depleted Nabarlek Mine serve as models for this strategy. The presence of gold, palladium and platinum in these deposits plus the economic gold-platinum resource at Coronation Hill in the South Alligator Valley, indicates an additional potential for this deposit style.

Previous Exploration

Historically, the area has little to no known historical uranium exploration. Other exploration activities have been small-scale prospecting/mining for tin, tungsten and copper, which included some associated uranium, from the late 1970's until 1990's. Some copper with minor associated uranium, and tungsten mineralisation is indicated from historical records, however, these anomalies have not been ground verified.

Cameco Exploration 2004-2005

The 2004 exploration program consisted of an airborne hyperspectral survey, and outcrop sampling of areas of airborne radiometric anomalies identified from the airborne radiometric surveys conducted by UTS in 2000 and 2003. In total, 86 samples were collected from 91 stations; 42 airborne radiometric (ARAD) anomalies were ground investigated.

The ARAD anomaly investigation identified seven areas of interest identified by their ARAD anomaly numbers; MLR005, MLR006, MLR014 within the Diamond Creek area and MLR001, MLR015, MLR039 within the Grace Creek Granite.

Cameco Exploration 2005-2006

The 2005 exploration program consisted solely of outcrop sampling. In total 250 stations were visited, and 225 samples taken; the outstanding stations being mapping locations. The aims of the 2005 program were to continue ground investigation of the ARAD anomalies identified from the radiometric surveys flown in 2000 and 2003; ground investigate and validate interpreted clay anomalies derived from the hyperspectral survey flown in 2004; and to continue with the collection of regional baseline samples.

No new areas were discovered in 2005. Sampling density was increased in the already identified areas of MLR015 (northern granite anomaly) and MLR014 (Diamond Creek area). Sampling at MLR015 obtained a maximum value of 650 ppm U from clay-altered granite. At MLR014, basal conglomerate interpreted as Gumarrirrbang Sandstone unconformably overlies outcrop of Hindrance Creek Sandstone. No additional sampling was conducted at MLR005, although the area is ranked as a high priority drill target. Drilling of targets MLR005 and MLR014 in the Diamond Creek area was proposed for 2006. Figure 4 shows the identified high priority areas where further work and drilling is recommended.

Figure 4: Target Areas Requiring Further Work

EXPLORATION PROGRAM

The exploration program for 2006 consisted of helicopter-supported drilling of two diamond-core holes in the Diamond Creek area in the southern portion of EL9452. A temporary camp was established in the area to support the drilling. The camp was mobilised on 15 May 2006, with drilling and processing of drill core completed prior to demobilisation on 4 June 2006.

Titeline Drilling of Ballarat Victoria, was contracted to perform the drilling, using a CS1000 heli-drill rig. All access tracks, track re-establishment and rehabilitation was carried out by Wildman River Stock Contractors Pty Ltd., of Darwin. Jayrow, of Darwin provided a Bell 206L Longranger helicopter necessary for the drill-rig slinging operations.

A total of 815.7m were drilled in two diamond-core drill holes (MLD001, MLD002). Drill holes were located using a Trimble DGPS. A Drilling Summary is provided in Table 1 and drill hole locations are shown in Figure 5.

Table 1: Drill Summary

Figure 5: Drill Hole Locations

The drill core was logged and sampled at the Diamond Creek camp. ASD reflectance spectra were recorded from one piece of core from every row of core. Geochemical sampling was conducted on a composite basis; approximately a five cm section of half core is selected from each row within the core trays, and these were combined over a nominal five metre interval. Samples were analysed at NTEL in Darwin for a suite of over 50 elements, and 4 lead isotopes by weak acid leach. Sampling, geochemical analysis, and infra-red spectroscopy methodology is summarised in the Appendix 1.

Appendix 1: Cameco Australia Standard Sampling Methodology and Procedures

A detailed report of drill core information, including lithology, colour, alteration, structure and magnetic susceptibility can be found in Appendix 2. Major and trace element geochemical data for drill-core samples are tabulated in Table 2.

Tabulated clay mineralogy as determined by The Spectral Geologist from ASD spectra are presented in Table 3. Graphical strip plots presenting downhole lithology against geochemistry, and clay minerals A list of 23 thin-sections sent for petrographic descriptions to Pontifex and Associates of Adelaide is shown in Table 4 and the associated petrographic report written by Alan Purvis of Pontifex and Associates, is presented in Appendix 3: Pontifex Petrography Report 9053.

All drill holes were logged with an Auslog gamma probe, with a chart of the corrected depths and equivalent U3O8 ppm values is presented in Figure 6 and Figure 7. Raw gamma data (Binary, and ASCII text format with eU3O8% values) and ASD spectral data (ASCII text format) can be found in the data directory of this report.

Appendix 2: Detailed Drill Report for MLD001 and MLD002

Table 2: Geochemical Assay Results Drill Core Samples

Table 3: Drill Core Samples - TSG Minerals

Table 4: Drill Core Samples - Thin Section Listing

Figure 6: MLD001 Downhole Gamma Log Chart

Figure 7: MLD002 Downhole Gamma Log Chart

Figure 8: MLD001 Graphical Strip Plot

Figure 9: MLD002 Graphical Strip Plot

Appendix 3: Pontifex Petrography Report 9053

Drill Program

MLD001

MLD001 was collared near a NW trending fault (apparently juxtaposing Mamadawerre Sandstone (Phe) and Hindrance Creek Sandstone (Peh). The outcropping ridge of NTGS mapped Peh is comprised of sandstone pebble and cobble conglomerate, with a radiometrically anomalous breccia trending 025° with one outcrop sample (ML040290) returning 254ppm U3O8 and anomalous Au. The dipping sandstone and conglomerate ridge forms gentle 'flat iron' bedding slopes dipping gently to the east. The drill hole is collared

immediately to the north of the sandstone - conglomerate ridge of mapped Peh, on a small floodplain on the southern side of a sandstone scree covered low hill.

The NTGS mapping in the area suggests that the ridge is composed of Hindrance Creek Sandstone, and the hole would be collared in Mamadawerre Sandstone separated by the NW trending fault..

The northern edge of the mapped Peh sandstone-conglomerate ridge is defined by an interpreted north-west trending fault, with Mamadawerre Sandstone mapped to the north of the fault. The basal conglomeratic section of the Gumarrirbang Sandstone is exposed some 300m to the east of the drill hole.

The collar summary and location map of the drilling is presented in Table 1 and Figure 5 respectively.

MLD001 collared in a 12.3m section of lithic sandstone (greywacke) comprised of commonly hematized and clay altered volcanic fragments, quartz grains and clay, and was assigned to the Gumarrirbang Sandstone. The lithic nature of the sandstone is attributed to proximal erosion and subsequent deposition of the underlying amygdale-rich, basic volcanics of the Nungbalgarri Volcanics. The upper contact of the volcanics is difficult to distinguish, and may in part be erosional, with later structural modification. Quartz veining and weak brecciation occurs in the vicinity of the upper contact, and may account for the only thin (6.1m section) preserved section of volcanics.

The Nungbalgarri Volcanics (Phn) was intersected in a 6.1m section from 12.3m to 18.2m, and is characterised by common chlorite and limonite filled amygdules with minor quartz infilling and rarely by pink feldspar (adularia), in the upper portion. The lower section is finer grained and more homogenous with lesser amounts of small amygdules (~1mm) infilled with chlorite. The basal disconformity has the appearance of bedding and is almost completely altered to yellow sericite. A small radiometric peak is observed in the downhole gamma log with up to 79 eppm U3O8 from 16.35 to 17.75m within a more weathered section of the volcanics. The U enrichment may be attributable to supergene enrichment along the basal reducing contact of the volcanics..

A quartz-rich arenite interpreted as Mamadawerre Sandstone (Phe) underlies the volcanics with a thin interval of cobble conglomerate, overprinted in part by weak brecciation, quartz veining, minor milling and faulting extending down to 22m. Pebble beds and floating pebbles in a coarse to very coarse-grained sandstone extends to 60.5m. Hematite banding and fracturing is common throughout the upper portion and the sandstone becomes progressively more bleached towards the base of the unit. Liesegang banding defined by limonite along crossbedding and bedding planes is common towards the base of the unit.

A pebble conglomerate comprised of subangular to subrounded vein quartz, clay and hematite altered very fine grained siltstone, volcanic or tuffaceous

clasts within a hematite-altered coarse to very-coarse grained matrix occurs from 91 to 117.2m. A 4.5 m interbed of sandstone occurs within the conglomerate from 107.9m. The basal portion of the Mamadawerre Sandstone to 145.5m is more a litharenite than quartz-arenite towards the base, with increasing lithic fragments and interstitial clay. Bedding is difficult to distinguish throughout the formation.

The base of the Mamadawerre Sandstone is not preserved in the drill hole, due to faulting at 145.5m. The damage zone of the fault extends some 15m above the fault expressed as quartz veining, weak brecciation and shearing within the sandstone.

Below the fault at 145.5m, interpreted Hindrance Creek Sandstone (Peh) extends to the end of the hole at 375m. The maroon brown to weakly green coloured sandstone is comprised of coarse to very coarse-grained, volcanolithic to feldspathic greywacke with scattered floating pebbles of quartz and volcanic fragments. The sandstone is massive, with rare bedding planes preserved. Alteration of the feldspar grains to yellow green sericitic clay occurs throughout the sandstone. Irregular hematite banding and blotchy bleaching of the sandstone occurs throughout.

An isolated interval of up to 4100cps (388 eppm U) occurs from 229.5m to 230.45m in the downhole gamma logging. Three 0.5m half-core geochemical samples covering this interval returned a best result (sample D06MLD001-G002) of 0.5m from 230m of 659ppm U₃O₈, 4020ppm As, 676ppm Co, 804ppm Ni, 40ppb Au and 860ppm S. Thin quartz-hematite veins with weak peripheral blotchy red and specular hematite alteration appear coincident with this radiometric anomaly. The anomalous interval is of limited extent, with 0.5m half-core samples either side of the interval recording no anomalous results.

MLD002

MLD002 was designed to test airborne radiometric anomaly MLR014, and was collared approximately 80m SE of surface sample ML050226 which recorded 542ppm U₃O₈ and 26ppb Au in a coarse-grained lithic hematitic altered sandstone. The hole is 2.2 km NNE of MLD001, and is similarly collared in Mamadawerre Sandstone as indicated by NTGS 1:250K mapping.

The collar summary and location map of the drilling is presented in Table 1 and Figure 5 respectively, and a strip plot of the hole is presented in F..

MLD002 intersected a relatively homogenous coarse-grained, lithic-rich sandstone (sublitharenite-litharenite). The sequence is typically massive, but with frequent cross-bedding, and occasional planar laminations. Pebble horizons are rare and conglomeratic intervals are absent. Lithics include rounded-subangular volcanic-derived clasts, up to 5 cm in diameter. There is a higher incidence of lithics, particularly >0.5 cm fragments, from approximately 250 m to EOH. The entire section of drill core is interpreted to be Hindrance Creek Sandstone.

Pervasive dark purple-maroon diagenetic haematite is present throughout the hole. This is commonly overprinted by bleaching, commonly fracture-controlled, although several >1m, pervasively bleached, HE-absent zones are present (e.g. 320.6 - 325.4 m). Spotty bleaching is also common, particularly towards the end-of-hole. Bleaching is interpreted as the removal of pre-existing haematite.

Interstitial clay content is low, typically less than 2%. Coarse-grained, arkosic intervals locally contain up to 10 % interstitial clay; however these intervals are rare, and do not exceed 0.5 m in width. A dark-green chloritic clay was observed to occur within and lateral to a single fracture at 337.1 m, although no anomalous radiometric response was recorded.

There is no significant structural disruption in MLD002, although numerous fractures and small fault zones are present. The most intense fracturing is at a low angle to core axis. Fault zones are generally characterised by brittle fracturing and broken core, or fault gouges, typically not exceeding 2 cm in width, containing clay as well as milled quartz fragments. Fracturing and faulting decreases in intensity and frequency downhole; from 270 m to EOH the sequence becomes blocky. Available measurements on oriented core confirm bedding dips moderately (5-37 degrees), with dip directions most commonly in the 045-135 quadrant. Some of the steeper dips measured relate to the dip of cross-bedding, rather than the enveloping surface of the bedding plane.

The hole is radiometrically barren; handheld SPP2 scintillometer readings on the core rarely recorded >30 cps. Downhole radiometric gamma logging (S591 NQ probe) only exceeded 500 cps on one occasion, with a narrow spike at 76.05 m (maximum of 1,432 cps NQ probe; 177 ppm eU3O8).

Downhole gamma tool readings gradually increase down the hole, and may be attributed to the increase in clay and lithic fragments, particularly volcanolithics, in the basal portion of the Hindrance Creek Sandstone. Background values in the 350 m - EOH interval are in the order of 200 cps. This compares with background values of 150 cps in the 75-300 m interval.

Discussion

The drilling thus far, while being disappointing in terms of meeting exploration objectives, has produced interesting results from a geological perspective. The NTGS 1:250K mapping in this area suggests that both drill holes were collared in the basal Mamadawerre Sandstone of the Kombolgie Subgroup; MLD001 was collared in Gumarrirnbang Sandstone, and MLD002 directly into Hindrance Creek Sandstone.

Field reconnaissance of the 'flat iron' sandstone-conglomerate ridge immediately to the south of MLD001, with the added knowledge of the stratigraphy intersected in the drilling, would indicate that the pebble conglomerates encountered in the drilling from ~91m to ~117m (~ -175m RL) are similar to those at the top of the ridge at 293m RL. This would suggest that there is significant fault movement along the interpreted NW trending fault that

lies between MLD001 and the north face, of the now interpreted Mamadawerre Sandstone, sandstone-conglomerate ridge. The 'flat iron' dip slope forming the eastern edge is the bedding slope of the Mamadawerre Sandstone.

An initial interpretation of the Diamond Creek area is presented in Figure 10, combining observation from outcrop and drill core.

Figure 10: Initial Interpretive Notes on Geology in Diamond Creek Area

Boulder conglomerate at the base of the Gumarrirnbang Sandstone, noted in several locations is present some 300m to the east of the drill hole, and appears to be coincident with a north trending fault to the east of MLD001. The drilling intersected volcanics interpreted as Nungbalgarri Volcanics, and volcanics have been mapped in a creek bank, along the interpreted north trending fault, some 600m south of MLD001, and also approximately 1.4km south of the drill hole in samples ML040242, ML040244, ML050237. Volcanics have also been mapped in the vicinity of MLD002 in samples ML050231 and ML050232. This would suggest that a thin remnant of volcanics is present that is overlain by boulder conglomerate at the base of the Gumarrirnbang Sandstone in the Diamond Creek area. The basal boulder conglomerate in the Gumarrirnbang Sandstone would suggest that there was significant erosion and rapid down cutting of the basement at the time of deposition, and the upper portion of the volcanics has most likely been eroded.

Faulting may be present along the north trending creek valley to the east of MLD001, as the stratigraphy to the east of the creek is generally very shallow dipping ($\sim 5^\circ$) to the east as opposed to dips of up to 20° on the 'flat iron' sandstone-conglomerate ridge.

The drilling at MLD002 suggests that the entire hole is within Hindrance Creek Sandstone (Peh). The intersected sandstone is lithic-rich throughout, and quite unlike Mamadawerre Sandstone (Phe) intersected elsewhere in the region. There does not appear to be any bulk lithological or geochemical variation downhole, although there is an increase in lithics, particularly volcanolithics, from 250-300 m to EOH, and this is reflected by increases in some of the major and trace elements eg K₂O, MgO, Ba, Zn. In addition, there is no overall change in the sedimentological characteristics of the hole; throughout the hole, the sandstone is massive to weakly bedded, with common cross bedding and lesser planar laminations.

CONCLUSIONS AND RECOMMENDATIONS

Drilling, outcrop sampling and basic reconnaissance has indicated that the Diamond Creek area is continuing to be complex. It is interpreted that the Mamadawerre Sandstone is laterally discontinuous, and that Nungbalgarri Volcanics or Gumarrirnbang Sandstone may overlie the unconformity with the underlying Hindrance Creek Sandstone. Palaeo-topographic highs may be responsible for the discontinuous deposition of the Mamadawerre Sandstone.

Rapid down warping of the basin, at the time of Gumarrirnbang deposition, is suggested by the large boulder conglomerate at the base of the unit. The thin remnant of Nungbalgarri Volcanics suggests that the upper portion of the unit was eroded and down-cut by the Gumarrirnbang Sandstone. Localised faulting, down cutting and erosion of the Nungbalgarri Volcanics and local reworking of the sandstone in localised fault bounded sub-basins is interpreted to control the deposition of the boulder conglomerate.

It is proposed to fly a helicopter-borne VTEM electromagnetic survey over the Diamond Creek area, extending to the north, with a two-fold objective. It has been demonstrated in other areas of Arnhem Land that EM surveys can easily distinguish the conductive unconformity at the top of the Nungbalgarri Volcanics, and therefore may help with stratigraphic correlation and mapping of the unit in the subsurface. The complex faulting in the area may also be defined by imaging structural offsets of the Nungbalgarri Volcanics. The second objective of the VTEM survey is to further drill targets by testing for areas of increased conductivity, which may be due to alteration associated with structure and a mineralising event.

One line of the VTEM survey will be flown over the granite anomaly, MLR015, in the north of the project, and may better define the subsurface of the anomaly.

It is anticipated that drilling will be conducted in Year Five.

EXPENDITURE

A summary of the expenditure for the reporting period is given in Table 5. The total reportable expenditure for EL 9452 up until the anniversary date is \$432,697.99.

Table 5: Summary of Expenditure EL 9452

WORK PROGRAM

A summary of the proposed exploration activities, timing and contractors under consideration for Year 4 of the project is tabulated below in Table 6 and Table 7.

A helicopter-borne electromagnetic survey (VTEM) in the Diamond Creek area is planned in 2007. The long helicopter ferry times from Katherine may necessitate the Diamond Creek temporary campsite to be re-established for the survey.

The budget to complete the program as planned is expected to be in excess \$260,000.

Table 6: Location and Scheduling of Activities

Activity	Duration of Activity	Timing	Amount	Approximate Location
VTEM survey	14 days	July to August	Approximately 2,800 line kilometres	Diamond Creek areas, extending to NE covering the Kombolgie Subgroup sediments.

Table 7: Listing of On-Site Personnel Requirements

Activity	Equipment	Personnel	Potential Contractor
Helicopter operations	AS350 Squirrel	1	Jayrow Helicopters
VTEM survey	Helicopter-borne geophysical bird	2	Geotech
Road refurbishment	Loader and grader	3	Wildman River Stock Contractors
Camp Operations	Temporary base camp	1-2	Unknown at this time

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