NEWMONT AUSTRALIA LTD
AUSTRALIAN DEVELOPMENT LTD
JOINT VENTURE

EXPLORATION LICENCES 5074 & 5135
PIPELINE PROJECT

THIRD ANNUAL REPORT
for the period January 29, 1989 to
January 28, 1990

TENNANT CREEK 1:250,000 (SE53-14)
GEOLOGICAL SHEET

V. A. Preston,
January, 1990

Distribution:
Department of Mines & Energy (1)
Darwin (1)
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Melbourne (1)
Tennant Creek (1)
Australian Development Ltd. (1)
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SUMMARY

Pipeline project area (EL5074 and 5135) covers 31 blocks and is located approximately 20km west of Tennant Creek. Exploration carried out during the third year focused on re-assessment and evaluation of magnetic anomalies (Explorer 43, Explorer 54 and P9) identified a possible host to ironstone style mineralisation. Ground magnetic surveys were carried out over three anomalies. Ongoing interpretation of the aeromagnetic and available geological data led to a better understanding of the solid geology within the project area.
### LIST OF PLATES

**PIPELINE PROJECT**

<table>
<thead>
<tr>
<th>PLATE No.</th>
<th>TITLE</th>
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<tbody>
<tr>
<td>1</td>
<td>Pipeline Project Area Geological Compilation 1:25,000</td>
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<tr>
<td>2</td>
<td>Ground Magnetic Survey Boundary - Pipeline</td>
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</tbody>
</table>
INTRODUCTION

GENERAL

The Pipeline Project Area encompasses two exploration licences originally granted to Australian Development Limited and now forming part of a joint venture with Newmont Australia Limited. One of the licences (EL5074) has an anniversary of 29th January, whilst the anniversary for EL 5135 is 24th March. These licences are part of a larger group of 12 licences within the Tennant Creek district which are the subject of the joint venture.

During December 1987 Australian Development Ltd. made application to the Director of Mines to have the 12 licences consolidated into several groups to simplify reporting. Permission was granted during January 1988 for the licences to be consolidated into several project areas with a common anniversary of 29th January.

This project area has been named the Pipeline Project area after the Amadeus Basin - Darwin Gas Pipeline which passes through parts of both licences.

THE JOINT VENTURE

Australian Development Ltd. (ADL) and Newmont Australia Limited (Newmont) entered into a joint venture in 1987 where Newmont can earn a 50% interest in the subject 12 exploration licences by exploration expenditure of $3M during the four year period to December 1991. Newmont commenced exploration of the licences in November 1987.

LOCATION AND ACCESS

The Pipeline project area lies to the west of the Tennant Creek township (Figure 1) and straddles the boundary between Phillip Creek and Tennant Creek stations, however the bulk of the area is within Tennant Creek station. Access to the area is via station tracks and fence lines and a few past and current exploration tracks.

The Amadeus Basin - Darwin gas pipeline traverses the area and reasonably good access is afforded by the pipeline maintenance road. This can only be used however with the specific approval of the Gas Pipeline Authority.
GEOLOGY

REGIONAL GEOLOGY

The Pipeline project area covers parts of the central section of the early Proterozoic Warramunga Group sediments. Dodson and Gardener (1978) provide the most recent stratigraphic subdivision for this group. These authors subdivide the uppermost formation, previously known as the Carraman Formation into six numbered greywacke units and two units of acid volcanics known as the Gecko Volcanics and the Warrego Volcanics. This sequence is underlain by acid volcanics and shaley sediments of the Bernborough Formation and the Whippet Sandstone which is in turn underlain by unit 1 greywackes of Dodson and Gardener or the Monument Beds of previous authors.

Williams (1987) has suggested that the Whippet sandstone is the lower most unit of the Warramunga Group and that it unconformably overlies a sequence of greywacke, shale, BIF, chert and acid volcanics which he considers are the equivalent of Division 1 of the Arunta inlier in central Australia. The Warramunga Group is viewed as the equivalent of Division 2 of the Arunta complex by Stuart et.al. (1984).

Williams (1987) has further proposed an informal subdivision of the Carraman Formation by recognizing lower, middle and upper units. The middle unit named the Black Eye Member (thickness up to 3000m) has been delineated on the basis of its magnetic response and includes a sequence of hematite shales, quartz porphyries and greywackes with up to 20wt% magnetite. This unit also encloses all known massive magnetite ironstones on the field, some of which are hosts to the major ore bodies including Nobles Nob, Juno and Warrego.

Structure is reasonably complex with three main deformations resulting in moderate to steep open folds orientated ESE-WNW with numerous plunge reversals. Two main periods of faulting are recognized including an earlier development of steep shear zones sub parallel to fold axes and a later set of NW-SE faults with major sinistral strike displacements. Folding is thought to have commenced early in the basins' history while some sediments were still only partially consolidated.

The Warramunga Group has been metamorphosed to greenschist facies and shows evidence of local contact metamorphism against granite contacts, however, the numerous porphyry intrusives have produced minimal contact metamorphic effects.

Other intrusives include dolerite, syenite and lamprophyre dykes. Several sets of large quartz veins cut through the field with a north to north westerly trend and are considered to be low temperature fillings of late stage fractures. These later features are not known to be mineralised.

FEATURES OF KNOWN TENNANT CREEK ORE DEPOSITS

The major ore deposits of the Tennant Creek goldfield have a number of common features:

1. They occur in hematite and magnetite ironstone bodies in sheared and altered sediments often at the intersection of the two phases of shear orientation.
### TABLE No. 1

**TENNANT CREEK PRODUCTION AND/OR RESERVES (APPROXIMATE)**

<table>
<thead>
<tr>
<th>Deposit</th>
<th>Tonnage (mt)</th>
<th>Grade (Au g/t)</th>
<th>Cu%</th>
<th>Bi%</th>
<th>Contained Gold oz.</th>
<th>Contained Copper</th>
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</thead>
<tbody>
<tr>
<td>WARREGO</td>
<td>5.0</td>
<td>7.0</td>
<td>2.6</td>
<td>0.3</td>
<td>1,150,000</td>
<td>174,370</td>
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<tr>
<td>NOBLES NOB</td>
<td>1.28</td>
<td>25.6</td>
<td>?</td>
<td>?</td>
<td>1,100,000</td>
<td></td>
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<tr>
<td>JUNO</td>
<td>0.38</td>
<td>65.2</td>
<td>0.42</td>
<td>0.4</td>
<td>841,000</td>
<td>1,490</td>
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<tr>
<td>PEKO</td>
<td>3.1</td>
<td>3.4</td>
<td>4.14</td>
<td>0.2</td>
<td>340,000</td>
<td>147,410</td>
</tr>
<tr>
<td>WHITE DEVIL</td>
<td>+0.30</td>
<td>22.0</td>
<td>1.5</td>
<td>0.08</td>
<td>+200,000</td>
<td></td>
</tr>
<tr>
<td>ORLANDO</td>
<td>0.68</td>
<td>8.8</td>
<td>4.01</td>
<td>0.07</td>
<td>174,193</td>
<td>27,350</td>
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<tr>
<td>ARGO</td>
<td>0.298</td>
<td>13.5</td>
<td>0.82</td>
<td>0.68</td>
<td>130,000</td>
<td>1,510</td>
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<td>GECKO</td>
<td>4.73</td>
<td>0.74</td>
<td>3.86</td>
<td>0.07</td>
<td>112,910</td>
<td>188,450</td>
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<tr>
<td>EL DORADO</td>
<td>0.146</td>
<td>22.7</td>
<td>?</td>
<td>?</td>
<td>106,910</td>
<td></td>
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<tr>
<td>TC 8</td>
<td>0.03</td>
<td>55.0</td>
<td>?</td>
<td>?</td>
<td>53,226</td>
<td></td>
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<tr>
<td>GOLDEN 40</td>
<td>0.104</td>
<td>14.0</td>
<td>?</td>
<td>?</td>
<td>47,000</td>
<td></td>
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<tr>
<td>WHIPPET</td>
<td>0.016</td>
<td>34.0</td>
<td>?</td>
<td>?</td>
<td>17,548</td>
<td></td>
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<tr>
<td>NORTHERN STAR</td>
<td>0.153</td>
<td>7.3</td>
<td>?</td>
<td>?</td>
<td>36,029</td>
<td></td>
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<tr>
<td>IVANHOE</td>
<td>0.315</td>
<td>2.9</td>
<td>3.7</td>
<td>?</td>
<td>29,463</td>
<td>11,880</td>
</tr>
</tbody>
</table>

**Note:**

(Figures used in this table came from a variety of sources and may well be incomplete or in some cases overstated. For this reason the table should be used as a guide to deposit size distribution only).

Approx. 20 smaller deposits have produced more than 1000 oz, 120 mines are known.)
2. They occur in anticlinal fold closures in both principal folds and drag folds.

3. They are often closely associated with iron rich sediments in the folded stratigraphy.

4. They occur in alteration zones which are confined to the shear zones and have root like channels open down dip.

5. Alteration assemblages include chlorite (dominant) magnetite, talc, dolomite, quartz, and sericite. Bleaching is common in the footwalls.

Table 1 demonstrates that there are two distinct deposit types in the field, the gold rich deposits such as Nobles Nob and the copper rich deposits such as Peko. Both styles have significant Bi and Se (commercially extractable in some cases), and minor uranium which may be of some use to exploration. Silver and base metals other than Cu are generally low however individual shoots of Pb-Zn mineralisation were found in some of the Cu rich mines eg. Orlando and the Ivanhoe mine produced more silver than gold in a ratio of approx. 3:1.

The deposits are iron sulphide poor, Cu occurs as chalcopyrite and gold is free or associated Cu-Bi sulphosalts, As is minor or absent.

In form the deposits tend to be pipe or plug shaped bodies of quartz hematite and magnetite surrounded by chlorite magnetite hematite and zones of dolomite. Several shoots of ore may be present at each mineralised site and metal ratios vary between shoots. Several of the ore bodies, such as Nobles Nob and White Devil are elongate in plan with the long axis parallel to local cleavage direction.

Of the 700 odd mapped or drilled ironstones in the field, some 150 carry detectable gold mineralisation. Paragenetic studies on the various deposits have all shown that the Cu, Au, Bi assemblages have been deposited from solution subsequent to the emplacement of the magnetite bodies.

Weathering-oxidation extends to an average of 60m with a zone of trace element depletion extending to an average depth of 30m beneath a dissected, partially pisolithic laterite profile. Several deposits including Nobles Nob and Peko benefited from supergene enrichment.

LOCAL GEOLOGY

The Pipeline project occupies an area with minor topographic relief and extensive soil and alluvial sand cover. Outcrops are scarce and restricted to the north in the area of the Explorer 54 prospect, to the north west boundary and to the southern part of the project area in the vicinity of ADL's Nail prospect.

The Explorer 54 outcrops include silicified iron rich sediments with minor ironstone lenses and sheared crystal tuff. Cleavage trends 035° and may be locally dragged into this orientation by a fault indicated by a series of sub-cropping quartz veins. These sediments are believed to be representative of the Black Eye Member of the Carraman Formation. To the SW of this isolated outcrop coarse grained quartz sands suggest a granitic basement.
Several small outcrops of siliceous tuffaceous siltstone with E-W cleavage trends occur within zones of lateritic rubble and subcrop in the north western corner of the project area adjacent to the gas pipeline. A further 1km south of this area broad zones of quartz scree surround E-W trending quartz veins in granitic sands.

In the area surrounding the Nail prospect in the southeast of the project area small outcrops of foliated crystal tuff, foliated quartz feldspar porphyry and tuffaceous sediment with minor banded iron formation strike 100° and dip 75°N. Zones of lateritic gravel and quartz float occur adjacent to these outcrops and several large quartz veins traverse the area on trends of 335° to 360°. A further 3km to the west of this zone several areas of karsted calcrite have been observed. It is unclear whether these outcrops represent tertiary calcrite or Cambrian limestone of the Wiso basin.

The distribution of apparently granite derived soils and interpretation of regional (BMR) gravity data and low level aeromagnetic data lead to the conclusion that granite occupies a significant portion of the soil covered parts of the project area. The southern granite boundary is considered to run west to east from a point approximately 1km south of the NW corner of the project area, through the Explorer 72 magnetic anomaly to a point 1km south of the NE corner of the project area.

Outcrops around the Nail prospect are considered to represent a roof pendent or raft of sediment surrounded by granite. A considerable part of the soil area between the Explorer 54 prospect and ADL's Pinnacles prospect is also considered to have a granitic basement.
EXPLORATION PROGRAMME

PREAMBLE

The magnetic nature of the ore deposits in the Tennant Creek district was recognized early in the history of the field. As a result of the past success of prospecting for discrete magnetic anomalies, most of the magnetic anomalies are currently covered by mineral claims controlled by the two major local explorers, ADL and Geopiko. In view of this situation Newmont decided to pursue a non-model specific exploration programme with the intention of finding significant mineralisation in subtle magnetic settings or low grade high volume deposits. To this end systematic exploration proceeded through a phase of data acquisition which included systematic soil sampling, geological mapping, interpretation of low level airborne geophysics and rotary air blast drilling.

During 1988 two geochemical anomalous zones and one magnetic anomaly were identified for Rotary Air Blast drilling. This programme was designed to test the subsurface geochemistry beneath a range of different styles of surface geochemical and geophysical targets. Drilling at all three locations returned Au values that were slightly above or below the detection limit. The results suggest that surface anomalies reflect low level trace element concentrations at the granite - hornfels contact. For further information on exploration programmes carried out during the second year of the project area refer to the annual report by D.F. Pearson (1989).

Following the failure of the broad grid soil geochemistry programme to identify mineralisation, work completed during Year 3 focused on further assessment of the geology and geophysical characteristics of the remaining project area.

WORK COMPLETED

Exploration conducted during the Pipeline Project’s third year commenced with a re-assessment of the project area geology using previous mapping, interpretation of 1988 coloured aerial photography and the airborne geophysics. This work provided constraints on the extent of the prospective Warramunga Group in the project area and highlighted several discrete magnetic anomalies. Three magnetic anomalies Explorer 43, Explorer 54 and P9 were selected for ground magnetic surveys and assessment.

GEOLOGICAL COMPILATION

The Pipeline Project Area is very difficult to assess geologically as bed rock exposure is scarce (less than 1%) and consists of rubbly partially lateritised subcrop lacking reliable structural data. Most of the area is covered with tan coloured transported sand, soil and pisolitic lag. RAB drilling conducted in Year 2 at Explorer 72 and Anomaly C27 demonstrated transported material up to 20m deep over a granitic bed rock.

The 1:25,000 scale geological compilation (Plate 1) comprises mapping of the rubbly exposures, interpretation of vegetation trends, data from previous drilling and interpretation of aeromagnetic trends. This compilation suggests that granitic bedrock is much more extensive under the project area than was previously thought comprising as much as 70% of the present area. The remaining area is occupied by sheared and hornfelsed flysch sediments of the Black Eye Member of the Carraman Formation.
Three major NW trending shear zones have been identified passing through
the project area. The northernmost comprises part of the regional Mary Lane
- Mary Anne shear zone, the central shear is unnamed whilst the southern
shear is thought to represent the south eastern extension of the Navigator
fault zone, a major structure mapped to the SE of the Warrego Mine.
Discontinuous outcrops of massive white quartz demonstrate the trend of
numerous NW and N trending late stage fault zones.

Linear NW trending magnetic anomalies (including P8, Explorer 72) located to
the south of Explorer 43 and P9 are interpreted to represent gabbroic dykes
intruded sub parallel to the Navigator fault - shear zone adjacent to the
granite – Carraman Formation contact (Plate 1). These dykes appear to have
been disrupted by later NE trending faults. Magnetic Anomaly P7 may
represent a similar feature in the western part of the project area.

The main benefit of the geological compilation to the exploration programme
has been to reduce the search area by constraining the extent of the
prospective Warramunga Group sediments. This has further highlighted
magnetic anomalies at Explorer 43, Explorer 54 and P9.

ROCK CHIP SAMPLING

Outcrop sampling was carried out on an ad. hoc. basis during the geological
mapping and site inspections. Seven samples were collected comprising
ferrocrete, granophyre, quartz veining and lamprophyre (Appendix 1).
Samples were analysed for gold and a suite of pathfinder elements, by Classic
Comlabs in Darwin. Gold results for the survey were disappointing with all
values at background level or below the detection limit (0.001 ppm).

GROUND MAGNETIC SURVEYS

Magnetic anomalies at Explorer 43, Explorer 54 and P9 were gridded and
ground magnetic data was collected by contractors Goanna Exploration Ltd
using an EDA OMNI IV proton precession magnetometer with a sensor set at
2.5m and an EDA OMNI MAG PPM 400 as a base station.

EXPLORER 43

The Explorer 43 magnetic anomaly occurs in NW trending Carraman Formation
sediments approximately mid way between interpreted granite boundaries
located 1km north and south (Plate 1 & 2). A total of 4.6 line km of ground
magnetic data was collected on north – south lines 40m apart and station
spacings of 5m (Figure 2). The anomaly was previously surveyed by Geopeko
however that grid could not be resurrected.

The new data (Figure 2) represents a bean shaped magnetic anomaly of
approximately 300m strike length trending SE to E. Modelling was somewhat
limited by the need to extend line 10,000 E a further 400m north and south to
confirm the regional magnetic field. However, the preliminary interpretation
suggests a flat lying, depth limited, ironstone body occurring between 250m
and 330m as a likely causative body.

This interpretation can be compared with that of Geopeko which determined a
depth of 244m and attempted to test the target with a 381.2m deep diamond
drill hole. Excessive hole deviation caused the hole to pass 58m north and 16m
below the target intersecting a sequence of chloritic magnetite bearing
greywackes and shales with minor tuff bands. Limited sampling of core from chloritic shales in the target area returned 1.4m of 0.15ppm Au (repeat of 0.47ppm Au) and 600ppm Cu.

It is possible that this drill test, completed in 1967 without the benefit of a down hole magnetic probe may not have tested the source of the anomaly.

Further data collection and modelling is required.

EXPLORER 54

The Explorer 54 magnetic anomaly is located 2.5km SW of the abandoned Ivanhoe Mine (Plate 1 & 2). The only outcrop in the area occurs on a small hill 1km to the west and comprises hornfelsed greywackes surrounding a NE trending massive white quartz vein. An E-W trending granite contact is interpreted to lie 400m south of the anomaly (Plate 1) and a previous diamond drill hole by Geopeko confirms the anomaly lies within a sequence of magnetite bearing greywackes intruded by narrow dolerite dykes and showing minor hornfels effects.

As the Geopeko grid could not be resurrected the anomaly was re-gridded and ground magnetic data was collected on lines 80m apart at 5m stations (Plate 2). Line 9920E was extended south in order to more accurately define the regional magnetic field (Figure 3).

Interpretation of the magnetic data suggests a target magnetic body at a depth of 285m dipping 55°N. This target appears to have been adequately tested by Geopeko's diamond drill hole which had been drilled southward through a target at 305m, leading to the conclusion that the source of the magnetic anomaly is magnetic sediments. Unfortunately the drill hole could not be re-opened to allow down hole magnetic probing.

Core from Geopeko hole Explorer 54 DDH1 was examined at Geopeko's Irwin Street, Tennant Creek core storage area. A total of 14 samples were taken and assayed by AAS and Neutron activation methods for Au and a range of other elements (for full details see Appendix 1 and 2). Several samples of chloritic shale with minor quartz veining returned weak Au anomalies up to 0.12ppm Au however these results are not confirmed by both analytical techniques.

The broad nature of the magnetic anomaly and the apparently well placed existing drill test suggests no further work is justified at Explorer 54.

GEOPHYSICAL ANOMALY P9

The P9 magnetic anomaly is located 9.3km SW of the Ivanhoe Mine in the southern part of the Pipeline project area (Plate 1 & 2). P9 is interpreted to lie in a narrow band of Carraman Formation sediments with granite or porphyry contacts 400m north and 800m south of the anomaly however this is difficult to confirm as there is no outcrop in the area. Large quartz veins outcrop at the Pinnacles Prospect (Australian Development Limited) 2km north of P9. These veins strike N-S on trend with P9 and may reflect late stage re-activation of a major N-S shear zone which can be interpreted from the regional aeromagnetic data (Plate 1).

The P9 anomaly also appears to be on stratigraphic trend with hematitic pelites which outcrop 2.5km to the SE and host minor ironstone related gold mineralisation at "The Extension" Prospect.
ONGOING PROGRAMME

Exploration planned for Year 4 includes additional ground magnetic surveys to firm up targets at Explorer 43 and P9. A gravity survey will be conducted in this zone to enhance our understanding of the lithological and structural controls. The Explorer 43 and P9 magnetic anomalies will be re-assessed and re-ranked against existing targets on adjacent project areas. The best targets will be drill tested.
CONCLUSIONS

A compilation of available geological and geophysical data indicates that 70% of the Year 3 Pipeline Project area covers granitic bedrock. This constrains exploration to the remaining 30% covering prospective Carraman Formation sediments. Assessment of three magnetic targets lying within the Carraman Formation reached the following conclusions:

1. The Explorer 43 anomaly may represent a blind mineralised ironstone body at a depth of at least 250m that was missed by a previous early drill test.

2. The Explorer 54 anomaly can be explained as resulting from hornfelsed magnetic sediments and has been adequately drill tested previously.

3. The P9 anomaly may represent a blind mineralised ironstone target at 225m depth that has never been drill tested.

Further data including ground magnetics and gravity data should be acquired and assessed prior to planning drilling programmes to test Explorer 43 and P9.
EXPENDITURE SUMMARY

PIPELINE PROJECT
INCORPORATING EL's 5074 and 5135

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<tr>
<th></th>
<th>EL5074</th>
<th>EL5135</th>
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<tr>
<td>Salaries, Wages &amp; Overheads</td>
<td>35,187</td>
<td>16,558</td>
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<td>Geophysics</td>
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<td>Admin. &amp; Office Costs</td>
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<tr>
<td>Field Supplies</td>
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<td>766</td>
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<td>Field Living</td>
<td>813</td>
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<tr>
<td>Vehicles</td>
<td>1,784</td>
<td>840</td>
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<td>Travel &amp; Accom.</td>
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<td>1,718</td>
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<td>Land Management</td>
<td>241</td>
<td>113</td>
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<td><strong>TOTAL</strong></td>
<td><strong>$56,426</strong></td>
<td><strong>$26,554</strong></td>
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PROJECT TOTAL $ 82,980

(Total Project expenditure has been distributed amongst included EL's pro rata on the basis of graticular blocks in Year 3)
REFERENCES


Williams, B.T.; 1987: Exploration of the Tennant Creek Mineral Field, N.T. in Geology and Geochemistry of Gold Copper iron oxide systems: Tennant Creek and Starra Districts, Volume 1 University of Tasmania pp28-60.
APPENDIX ONE

ROCK CHIP LEDGER

Note: Certain batches of samples were assayed for Au down to a detection limit of 0.002 ppm (i.e., 0.2 ppb) by increasing concentration factor on the DIBK extraction and carbon rod AAS analysis.
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<thead>
<tr>
<th>SAMPLE NUMBER</th>
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<th>DESCRIPTION</th>
<th>ANALYTICAL DATA</th>
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<td>3559401</td>
<td>391000E 382400N</td>
<td>R/C</td>
<td>Ferromilite - Fe matrix i angularity clasts</td>
<td>Au 0.004  4</td>
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<td>3559402</td>
<td>388395E 312920N</td>
<td>&quot;</td>
<td>Leached granitic/spencile, Dy has altered texture</td>
<td>Cu  9 &lt; 2 &lt; 10 &lt;1</td>
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**NEWMONT AUSTRALIA LIMITED**

**SAMPLE REPORT**
<table>
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<tr>
<th>SAMPLE NUMBER</th>
<th>CO-ORDINATES</th>
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<th>DETECTION LIMIT</th>
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<tr>
<td>4 0 0 9 3 6 1</td>
<td>IVANHOE</td>
<td>RC</td>
<td>Silicon Fe-rich sediment i apyroxenite</td>
<td>AAS</td>
<td>0.004 2 10 5 2 1</td>
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<tr>
<td>4 0 0 9 3 6 2</td>
<td>N° 15° 04′ 39″</td>
<td>RC</td>
<td>Massive hornblende with minor pyr</td>
<td>AAS</td>
<td>0.002 9 10 8 2 1</td>
</tr>
<tr>
<td>4 0 0 9 3 6 3</td>
<td>N° 15° 04′ 39″</td>
<td>RC</td>
<td>Massive leucite e-a plessicrite</td>
<td>AAS</td>
<td>0.001 5 10 7 2 1</td>
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<tr>
<td>4 0 0 9 3 6 4</td>
<td>N° 15° 04′ 39″</td>
<td>RC</td>
<td>Ferroan hornblende + pyroxene + pyroxene</td>
<td>AAS</td>
<td>0.004 6 10 5 2 1</td>
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<td>4 0 0 9 3 6 5</td>
<td>N° 15° 04′ 39″</td>
<td>RC</td>
<td>Polyphase pyroxene + hornblende + leucite</td>
<td>AAS</td>
<td>0.002 6 10 5 2 1</td>
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<tr>
<td>4 0 0 9 3 6 6</td>
<td>N° 15° 04′ 39″</td>
<td>RC</td>
<td>Polyphase pyroxene + abundant leucite</td>
<td>AAS</td>
<td>0.002 6 10 5 2 1</td>
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<td>4 0 0 9 3 6 7</td>
<td>N° 15° 04′ 39″</td>
<td>RC</td>
<td>Silicon hornblende + chlorite + olivine + minor pyroxene</td>
<td>AAS</td>
<td>0.011 13 10 5 5 5 8</td>
</tr>
<tr>
<td>4 0 0 9 3 6 8</td>
<td>N° 15° 04′ 39″</td>
<td>RC</td>
<td>Bleached silic. silt: horn sil, scoriae, thin pyroxite</td>
<td>AAS</td>
<td>0.006 10 10 5 5 8 1</td>
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<tr>
<td>4 0 0 9 3 6 9</td>
<td>N° 15° 04′ 39″</td>
<td>RC</td>
<td>Chilled silt: olivine, altered olivine</td>
<td>AAS</td>
<td>0.002 12 15 5 9 19</td>
</tr>
<tr>
<td>4 0 0 9 3 6 10</td>
<td>N° 15° 04′ 39″</td>
<td>RC</td>
<td>Bleached breccia zone in shaly horn sil: olv-sil</td>
<td>AAS</td>
<td>0.009 10 10 5 5 2 4</td>
</tr>
<tr>
<td>4 0 0 9 3 6 11</td>
<td>N° 15° 04′ 39″</td>
<td>RC</td>
<td>Dolerite/old sill: olv-sil, horn sil</td>
<td>AAS</td>
<td>0.009 5 20 5 9 8 1</td>
</tr>
<tr>
<td>4 0 0 9 3 6 12</td>
<td>N° 15° 04′ 39″</td>
<td>RC</td>
<td>Gt + Qtz + olv + horn sil</td>
<td>AAS</td>
<td>0.008 6 10 5 5 6 4</td>
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<tr>
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<td>N° 15° 04′ 39″</td>
<td>RC</td>
<td>Dolerite/old sill</td>
<td>AAS</td>
<td>0.009 7 10 5 5 6 9</td>
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<td>RC</td>
<td>Breccia in silt: olv + leucite, horn sil: horn sil, olv</td>
<td>AAS</td>
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<td>N° 15° 04′ 39″</td>
<td>RC</td>
<td>Dolerite/old silt + horn sil + olv</td>
<td>AAS</td>
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<td>RC</td>
<td>Dolerite/old silt: olv + horn sil</td>
<td>AAS</td>
<td>0.001 21 10 5 5 8 8</td>
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<td>4 0 0 9 3 6 17</td>
<td>N° 15° 04′ 39″</td>
<td>RC</td>
<td>Dolerite: brecciated silic: fracture + horn sil, olv</td>
<td>AAS</td>
<td>0.007 39 10 5 5 3 5</td>
</tr>
<tr>
<td>4 0 0 9 3 6 18</td>
<td>N° 15° 04′ 39″</td>
<td>RC</td>
<td>Dolerite: brecciated silic: fracture + horn sil, olv</td>
<td>AAS</td>
<td>0.004 10 10 5 5 2 2</td>
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<td>N° 15° 04′ 39″</td>
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<td>Dolerite: brecciated silic: fracture + horn sil, olv</td>
<td>AAS</td>
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</tr>
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<td>RC</td>
<td>Dolerite/old silt: olv, scoriae, thick sil</td>
<td>AAS</td>
<td>0.004 150 10 5 5 8 3</td>
</tr>
</tbody>
</table>
**SAMPLE REPORT**

**ANALYTICAL DATA**

<table>
<thead>
<tr>
<th>SAMPLE NUMBER</th>
<th>CO-ORDINATES</th>
<th>SAMPLE TYPE</th>
<th>DESCRIPTION</th>
<th>Au</th>
<th>Cu</th>
<th>Pb</th>
<th>Zn</th>
<th>Bi</th>
<th>Ag</th>
<th>Co</th>
<th>As</th>
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</thead>
<tbody>
<tr>
<td>4009401</td>
<td>318305E</td>
<td>R/C</td>
<td>Granite/phyllite: ex. assoc. &amp; felsic intrusion</td>
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<tr>
<td>4009402</td>
<td>318305E</td>
<td>R/C</td>
<td>Amphiphostite: ex. weathered green material</td>
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<td></td>
</tr>
</tbody>
</table>

**DETECTION LIMIT**

- Au: 0.001
- Cu: 5
- Pb: <5
- Zn: <2
- Bi: <10
- Ag: <1
- Co: <5
- As: <50

**PROJECT**

- PROJECT NAME: AOI S V
- EXTENSION: 400940
- PROJECT No.: NT31
APPENDIX TWO

EXPLORER 54 DDH1 SAMPLE DESCRIPTIONS AND NAA RESULTS
# Sample Report

**Newmont Australia Limited**

**Project Name:** WA-Aql Joint Venture

**Sampled/Logged By:** D.T.

**Material:** Diamond Core ERPE-54

**Date:** 4-4-89

**Depth:**

**Laboratory:** Recovered Lab.

**Laboratory Report No.:** 513

**N.A.L. Order No.:** W513

**Sample Record**

**Sample Number** | **Co-ordinates** | **Sample Type** | **Method** | **Detection Limit** |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4009 3607 136°02'50&quot; 19°33'20&quot;</td>
<td><strong>Co.</strong></td>
<td><strong>Paper</strong></td>
<td><strong>Shale</strong></td>
<td><strong>Ba</strong>: 2.7</td>
</tr>
<tr>
<td>4009 3607 136°02'50&quot; 19°33'20&quot;</td>
<td><strong>Co.</strong></td>
<td><strong>Paper</strong></td>
<td><strong>Shale</strong></td>
<td><strong>Ba</strong>: 2.7</td>
</tr>
<tr>
<td>4009 3607 136°02'50&quot; 19°33'20&quot;</td>
<td><strong>Co.</strong></td>
<td><strong>Paper</strong></td>
<td><strong>Shale</strong></td>
<td><strong>Ba</strong>: 2.7</td>
</tr>
<tr>
<td>4009 3607 136°02'50&quot; 19°33'20&quot;</td>
<td><strong>Co.</strong></td>
<td><strong>Paper</strong></td>
<td><strong>Shale</strong></td>
<td><strong>Ba</strong>: 2.7</td>
</tr>
</tbody>
</table>

*Note: The sample report includes various chemical analyses and concentrations for different elements and compounds. The data is summarized in a table format with columns for sample number, co-ordinates, sample type, method, and detection limit.*

**Analytical Data**

- **Sample Number:** 4009 3607 136°02'50" 19°33'20"
- **Co-ordinates:** 136°02'50" 19°33'20"
- **Sample Type:** Paper
- **Method:** Shale
- **Detection Limit:** Ba: 2.7

*additional notes:*

- **Diamond core samples taken from hole drilled by Capella at Expleit**

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Additional notes and comments are written on the page, indicating further information or annotations related to the sample data.