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## A.C.N. 006 195 982

# EL10103 "Warramana", EL10317 "Yalco", And EL10329 "Yalco 1" Combined Second Annual Report

**For the Period 5/06/2003 – 4/06/2004**

**Volume 1 of 1**

| | |
|---|---|
| **Tenure Holder:** | **North Mining Limited (Rio Tinto)** |
| **Tenement Operator:** | **Anglo American Exploration (Australia) Pty Ltd** |
| **Compiled By:** | **Trudi Kennedy** |
| **Date:** | **28th June 2004** |

***Distribution***

***Department of Business Industry and Resource Development, NT - (1)***
***Anglo American Exploration (Australia) Pty Ltd – Perth Office (2)***
***North Mining Limited (Rio Tinto) – (1)***

# SUMMARY

Exploration Leases 10103 “Warramana”, 10317 “Yalco” and 10329 “Yalco 1” cover a combined area of 1,275km$^2$ and are located within the McArthur Basin near the Gulf of Carpentaria, Northern Territory, approximately 25 km northwest of Borroloola, on the Bauhinia Downs and Mount Young 1:250,000 map sheets. Rio Tinto Exploration Pty Ltd acquired the leases as a result of its takeover of North Mining Ltd during 2000. All three leases were granted on 5th June 2002 for a period of six years.

During Year 2 of the leases, the Batten Trough Farm In and Joint Venture Agreement was entered into between Rio Tinto Exploration Pty Ltd (North Mining Limited and other Rio Tinto companies) and Anglo American Exploration (Australia) Pty Ltd. This Agreement was signed on 29th September 2003 and it has been lodged with the Department for registration. Under this Agreement, Anglo American Exploration (Australia) is carrying out work on these licenses. They now form part of a regional exploration project that Anglo American Exploration (Australia) Pty Ltd is undertaking in Joint Venture with Rio Tinto Exploration Pty Ltd (North Mining Limited) within the McArthur Basin. The other leases within the Project include EL7294, EL10316 and EL23676. There was little opportunity to undertake field work in 2003 due to the Joint Venture agreement with the Rio Tinto group being finalised late in the field season. 2004 field activities have been delayed until June due to an excessively long wet season; this field work had originally been planned for April. Since the Joint Venture agreement was finalised last year most activity has been associated with data gathering and review, geoscientific desktop studies, organising ground access, and minor reconnaissance work and logistical preparation for the current field season.

The exploration target is sediment hosted massive sulphide Pb – Zn deposits. Rio Tinto Exploration’s previous exploration results in the area had confirmed the favourable geological setting and Zn-Pb prospectivity of the sub-basin. The sub-basin remains a quality “grassroots” exploration target that Anglo American Exploration (Australia) Pty Ltd intends to test as part of their larger Batten Trough Project.

Permission was received in March 2004 from the Director of Mines, Northern Territory Government, for drilling evaluation of the Project to commence.

**Keywords**
EL10103 Warramana, EL10317 Yalco, EL10329 Yalco 1, Fandango prospect, Yalco prospect, Middle Proterozoic, McArthur Basin, Batten Trough, Zinc, Lead, Base Metals, Emu Fault Zone, Barney Creek Formation, Lynott Formation, Dolomite, McArthur River (HYC) Zn-Pb-Ag deposit.

# TABLE OF CONTENTS



**LIST OF TABLES**



**LIST OF FIGURES**

# 1. INTRODUCTION

This report outlines the exploration activities conducted on EL10103 "Warramana", EL10317 "Yalco" and EL10329 "Yalco 1" during the period 5th June 2003 to 4th June 2004. Rio Tinto Exploration Pty Ltd acquired the leases as a result of its takeover of North Mining Ltd during 2000. All three leases were granted on 5th June 2002 for a period of six years. They now form part of a regional exploration project that Anglo American Exploration (Australia) Pty Ltd is undertaking in Joint Venture with Rio Tinto Exploration Pty Ltd (North Mining Limited) within the McArthur Basin. The other leases within the Project include EL7294, EL10316 and EL23676.

The three leases are located approximately 25km northwest of Borroloola in the Northern Territory on the Bauhinia Downs (SE 53-03) and Mount Young (SD53-15) 1:250,000 map sheets and the Batten (6065), Tawallah Range (6066), Borroloola (6,165) and Bing Bong (6,166) 1:100,000 map sheets. The Carpentaria Highway is located to the southwest of the project area. The Yalco prospect area is accessed via the Roper Bar Road 20km west of Borroloola then by unsealed tracks from Cow Lagoon Community. The Fandango (Warramana) prospect area is accessed by following the Carpentaria Highway 30km north of Borroloola (toward Bing Bong) and then turning west along the track leading to Bone Lagoon Community. Established dirt tracks lead from the community to the prospect area.

Rio Tinto Exploration Pty Limited's previous exploration results in the area had confirmed the favourable geological setting and Zn-Pb prospectivity of the sub-basin. The sub-basin remains a quality "grassroots" exploration target that Anglo American Exploration (Australia) Pty Ltd intends to test, in Joint Venture with Rio Tinto Exploration Pty Ltd, as part of it's larger Batten Trough Project.

# 2. TENURE

Figure 1 shows the Lease Plan and the tables below show the 387 sub blocks that comprise the leases.

| Block | A | B | C | D | E | F | G | H | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Roper 3071 | | | | | X | | | | | X | | | | | X | | | | | X | | | | | X |
| Roper 3072 | X | | | | | X | | | | | X | | | | | X | X | X | | | X | X | X | X | |
| Roper 3144 | | | X | X | X | | | X | X | X | | | X | X | X | | | X | X | X | | | X | X | X |
| Roper 3145 | | | | | | X | X | | | | X | X | X | X | | X | X | X | X | | X | X | X | X | |
| Roper 3216 | | | X | X | X | | | X | X | X | | | | X | X | | | | X | X | | | | X | X |
| Roper | X | X | X | X | | X | X | X | X | | X | X | X | X | | X | X | X | X | | X | X | X | X | |

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3217 | | | | | | | | | | | | | | | | | | | | | | | | |
| Roper 3288 | | | | X | X | | | | X | X | | | | X | X | | | | X | X | | | | X | X |
| Roper 3289 | X | X | X | X | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Roper 3290 | | | | | | | | | | | | | | | | | | | | X | | | | |
| Roper 3360 | | X | X | X | X | | X | X | | X | | X | X | | X | | | | | X | | | | X | X |
| Roper 3361 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Roper 3362 | X | | | | | X | X | | | | X | X | X | | | X | X | X | X | | X | X | X | X | |
| Roper 3432 | | | | X | X | | | | X | X | | | | | | | | | | | | | | | |
| Roper 3433 | X | X | X | X | X | X | X | X | X | X | | | | | | | | | | | | | | | |
| Roper 3434 | X | X | X | X | X | X | X | X | X | X | | X | X | X | X | | X | X | X | | | | | | |

Table 1. Sub-blocks that comprise EL10103.

| Block | A | B | C | D | E | F | G | H | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| New.W 46 | | | | | | | | | | | | | | | | | | | | X | | | | | X |
| New.W 47 | | | | | X | | X | X | X | X | | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| New.W 48 | X | | | | | X | | | | | X | | | | | X | X | | | | X | X | | | |
| New.W 117 | | | | | | | | | | | | | | | X | | | | | X | | | | | X |
| New.W 118 | | | | X | X | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| New.W 119 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | | X | X | | | |
| New.W 120 | X | | | | | | | | | | | | | | | | | | X | | | X | X | X | X |
| New.W 121 | | | | | | | | | | | | | | | | | | | | | X | | | | |
| New.W 189 | | | | | X | | | | | X | | | | | X | | | | | | | | | | |
| New.W 190 | X | X | X | X | X | | X | X | X | | | | X | X | | | | | | | | | | | |
| New.W 191 | X | X | X | X | X | | | | | | | | | | | | | | | | | | | | |
| New.W 192 | X | X | X | X | X | | | | | | | | | | | | | | | | | | | | |
| New.W 193 | X | | | | | | | | | | | | | | | | | | | | | | | | |
| Roper 3359 | | | | | | | | | | | | | | | | | | | | X | | | | | X |
| Roper | | | | | X | | | | | X | | | | | X | | | | | X | | | | | X |

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3431 | | | | | | | | | | | | | | | | | | | | | | | |
| Roper 3432 | | | | | | X | | | | | X | | | | | X | | | | | X | | | | |

Table 2. Sub-blocks that comprise EL10317.

| Block | A | B | C | D | E | F | G | H | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Roper 3360 | X | | | | | X | | | X | | X | | | X | | X | X | X | X | | X | X | X | | |
| Roper 3432 | X | X | X | | | | X | X | | | | X | X | X | X | | X | X | X | X | | X | X | X | X |
| New.W 48 | | X | X | X | X | | X | X | X | X | | X | X | X | X | | | X | X | X | | | X | X | X |
| New.W 49 | X | | | | | X | | | | | X | | | | | X | | | | | X | | | | |
| New.W 119 | | | | | | | | | | | | | | | | | | | X | X | | | X | X | X |
| New.W 120 | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | X | X | | | | |
| New.W 121 | X | | | | | X | | | | | X | | | | | X | | | | | | | | | |

Table 3. Sub-blocks that comprise EL10329.

## 3. EXPENDITURE

Listed in the table below, are details of the expenditures incurred on EL10103, EL10317 and EL10329 during the reporting period.

| ITEM | EL10103 | EL10317 | EL10329 |
|---|---|---|---|
| Staff salaries | $6,940 | $7,175 | $7,735 |
| Geological & geophysical consultants | $4,230 | $4,210 | $4,210 |
| Non-technical consulting services | $455 | $455 | $455 |
| Safety-health-environment costs | $2,065 | $2,065 | $2,065 |
| Field expenses | $50 | $50 | $50 |
| Printed & digital data | $210 | $210 | $210 |
| Communication expenses | $30 | $30 | $30 |
| Travel and accommodation | $3,830 | $3,980 | $4,010 |
| Vehicle expenses | $460 | $460 | $655 |
| Land tenure maintenance costs | $4,045 | $2,420 | $1,760 |
| Administration | $3,345 | $3,155 | $3,175 |
| **TOTAL** | **$25,660** | **$24,210** | **$24,355** |

Table 4 Expenditure EL10103, EL10317 and EL10329

# 4. REGIONAL GEOLOGY

The Warramana and Yalco leases are located within the Middle Proterozoic McArthur Basin of northern Australia. The Batten Trough is a 70km wide north-trending syn-sedimentary graben or half-graben that is defined to the east by the Emu Fault Zone. The McArthur Group sediments within the Trough are comprised of the Batten and Umbolooga Subgroups and are approximately 4.5km thick. The onlapping Younger Roper Group sediments obscure the western margin.

Cainozoic sand, silt and lesser black soil cover much of the lease area with little outcrop of the underlying McArthur Group sediments. Dolomitic and cherty units of the Lynott Formation, Reward Dolomite and Teena Dolomite dominate outcrops while the relatively more recessive Barney Creek Formation siltstone occurs as rare outcrops in the eastern part of EL10103. The following geological descriptions are as detailed in the Bauhinia Downs (De Ross, G et al., SE 53-03) and Mount Young (Pietsch, B.A., et al., SD53-15) 1:250,000 map sheets.

**EL10103**

The northern half of EL10103 is covered by Cainozoic sand deposits with distinct linear elements, with minor Quaternary alluvial gravel, sand and silt along drainage systems. The southern portion of the lease is dominated by Cainozoic undifferentiated alluvial, colluvial and eluvial deposits including unconsolidated gravel, sand, silt, clay, ferruginous cemented detritus, minor calcrete, silcrete and ferricrete. A small outcrop of Cretaceous lithic sandstone, quartzarenite, muddy sandstone, conglomerate, sandy mudstone, commonly ferruginised and silicified, occurs in the southwest of the lease.

The Barney Creek Formation, Reward Dolomite (Umbolooga Subgroup), Lynott Formation and the Yalco Formation (Batten Subgroup) represent the Proterozoic on the lease. Minor outcrops of the Barney Creek Formation and the Reward Dolomite occur in the southeastern portion of the lease. The Barney Creek Formation consists of siltstone and mudstone, thin-bedded to laminated, variously dolomitic, carbonaceous and pyritic. It also contains dololutite, pink and green ?tuffaceous mudstone, rare breccia and sandstone. The Reward Dolomite is comprised of dololutite, muddy dololutite and dolarenite with lesser mudstone and pelletal dolarenite. Units of the Lynott Formation include the Caranbirini Member, a thin-bedded mudstone and dolomitic mudstone, partly carbonaceous and pyritic; dololutite and ?tuffaceous mudstone and minor fine-grained dolarenite, and the Hot Spring Member a thin-bedded dolomitic mudstone, dololutite and muddy dololutite with interbeds of fine- to coarse-grained sandstone, dolarenite, sandy dolarenite and dolomitic sandstone, and certified stromatolitic dolostone, minor silicified pink ?tuffaceous mudstone. Isolated outcrops of the Caranbirini Member occur along drainage systems in the centre

of the lease while the Hot Springs Member also has minor outcrops in the north and centre of the lease. The overlying Yalco Formation is comprised of thinly interbedded certified stromatolitic dolostone, dololutite, dolarenite and minor sandstone with abundant chert nodules and laminae and intraclast chert breccia. This unit also occurs within the centre of the lease.

**EL10317**

This lease is located just east of the Tawallah Range and contains a faulted sequence of the Tawallah Group, McArthur Group and Nathan Group sediments and volcanics. The Tawallah Group is represented by a linear outcrop of the Gold Creek Volcanics and the Tanumbirini Rhyolite in the central western part of the lease and there are minor outcrops of the Warramana Sandstone in the north of the lease. The Gold Creek Volcanics are amygdaloidal vesicular basaltic lavas, basaltic doleritic sills and dykes with very fine- to medium-grained, poorly-sorted, cross-bedded, feldspathic-micaceous sandstone; hyaloclastic breccia (peperite) with basaltic blocks in a fine sandy matrix and autoclastic, flow-banded rhyolitic lavas. The Warramana Sandstone is a medium- to coarse-grained, cross-bedded and rippled, lithic and feldspathic sandstone, which is in places conglomeratic. Thin shale beds and clasts are common. The Tanumbirini Rhyolite is a porphyritic lava.

The Umbolooga Subgroup of the McArthur Group is represented by the Masterton Sandstone, Mallapunyah Formation, Amelia Dolomite, Tatoola Sandstone, Tooganinie Formation, Myrtle Shale, Mara Dolomite Member, Barney Creek Formation, Reward Dolomite, Lynott Formation (Caranbirini Member, Hot Spring Member and Donnegan Member) and the Yalco Formation. The Masterton Sandstone is a pink, brown and buff, fine- to medium-grained, moderately sorted quartzarenite that occurs through the centre of the lease trending northeast and in minor outcrops in the north. The Mallapunyah Formation is a red to purple dolomitic shale and siltstone with dolomitic cross-bedded sandstone interbeds. It is represented mainly in the centre of the lease with minor outcrops in the north. The Amelia Dolomite is a stromatolitic dololutite and silty dololutite with interbeds of dolarenite and shale and rare fine-grained sandstone. The Tatoola Sandstone is a medium-grained, thin to medium-bedded, vuggy sandstone that is commonly dolomitic and lithic. The overlying Tooganinie Formation is comprised of dololutite, stromatolitic dololutite, dolomitic shale and siltstone, dolarenite, sandy dolarenite and sandstone. The Myrtle Shale is a thin-bedded to laminated, commonly dolomitic siltstone, shale, dololutite (in places stromatolitic) and fine-grained sandstone. The Mara Dolomite Member represents the Emmeruga Dolomite and is comprised of dololutite, stromatolitic dololutite, dolomitic siltstone, dolarenite and dolomitic breccia. The next units, the Barney Creek Formation and the Reward Dolomite have previously been described under the geology section for EL10103.

The Caranbirini Member, the Hot Spring Member and the Donnegan of the Lynott Formation and the Yalco Formation represent the Batten Subgroup units. Each of these units is described in the geology section for EL10103 with the exception of the Donnegan Member; this is a dolomitic siltstone, fine- to coarse-grained dolomitic sandstone and sandy dolarenite.

The Smythe Sandstone and the Balbirini Dolomite, on the western portion of the lease, represent the Nathan Group. The Smythe Sandstone is a massive, coarse polymict conglomerate, pebbly lithic sandstone, and sandstone. The Balbirini Dolomite is comprised of dololutite, stromatolitic dololutite, commonly cross-stratified and rippled dolarenite, dolomitic siltstone and shale and silty dololutite.

Cretaceous units including lithic sandstone, quartzarenite, muddy sandstone, conglomerate, sandy mudstone, commonly ferruginised and silicified occur in the north and western margin of the lease. Increasing Cainozoic cover of unconsolidated gravel, sand silt, clay, ferruginous cemented detritus with minor calcrete, silcrete and ferricrete occurs in the northern portion of the lease.

**EL10329**

EL10329 straddles the Emu Fault Zone and contains units of the Tawallah Group, McArthur Group (Umbolooga Subgroup and Batten Subgroup), Nathan Group and Roper Group. The Wollogorang Formation and the Warramana Sandstone represent the Tawallah Group in the northern portion of the lease. The Wollogorang Formation is an interbedded, fine-grained flaggy sandstone and red-brown mudstone, that is micaceous and dolomitic. The unit also has a rare basal polymict conglomerate. The Warramana Sandstone is described in the geology section for EL10317.

The Umbolooga Subgroup within the lease contains the Mallapunyah Formation, the Amelia Dolomite, Barney Creek Formation and the Reward Dolomite. A description of the Mallapunyah Formation and Amelia Dolomite can be found in the geology section for EL10317 and a description for the Barney Creek Formation and Reward Dolomite in the geology section for EL10103.

Units of the Batten Subgroup represented within the lease include the Lynott Formation (Caranbirini Member, Hot Spring Member and Donnegan Member), the Yalco Formation and the Stretton Sandstone. Descriptions of the Caranbirini Member, Hot Spring Member and Yalco Formation can be found in the geology section for EL10103 and a description of the Donnegan Member can be found in the geology section for EL10317. The Stretton Sandstone occurs on the central eastern margin of the lease and is comprised of a fine- to medium-grained, thin- to medium-bedded quartzarenite.

In the southeastern area of the lease a minor outcrop of the Smythe Sandstone (Nathan Group) occurs. It is comprised of massive coarse polymict

conglomerate, pebbly lithic sandstone and sandstone. Also in the central eastern portion of the lease the Limmen Sandstone, of the Roper Group, crops out. This is a fine-grained, structureless quartzarenite with clay clast imprints and minor ripples and cross-beds, interbedded with grey micaceous siltstone; very fine-grained sandstone and iron-stained, poorly sorted pebbly sandstone. There is a basal regolith breccia in places.

Government mapped geology is included as Figure 2.

## 5. EXPLORATION RATIONALE

Rio Tinto Exploration's previous exploration results in the area had confirmed the favourable geological setting and Zn-Pb prospectivity of the sub-basin. The target sought is sediment hosted massive sulphide Pb – Zn deposits similar to those that occur at Mt Isa, Century (within the Lawn Hill Formation) or the McArthur River mine. The sub-basin remains a quality "grassroots" exploration target that Anglo American Exploration (Australia) Pty Ltd intends to test as part of their larger Batten Trough Project.

Significant thicknesses of black pyritic Barney Creek Formation shale were identified from drilling on EL10103 prior to RTE's program of exploration in 2002. Elevated base metal geochemistry was also noted in these shales in previous exploration. Drilling at Yalco had also previously identified elevated base metal geochemistry in areas of prospective stratigraphy i.e. Barney Creek Depositional Sequence (BCDS).

## 6. PREVIOUS EXPLORATION

EL's 10103, 10317 and 10329 cover areas of several historic leases. R A Curtis of Rio Tinto Exploration Pty Limited prepared the following study.

AO (Australia) conducted regional gravity surveys over EL1728 in 1979 (CR 1980-0191). Nine NE-SW traverses spaced 1.5 – 2 km apart with station spacings of 200m covered the northern parts of the Fandango prospect. Shell (Bornman, 1981) conducted RAB drilling (2129m) at Fandango in the early 1980's to test the extent of subcropping Barney Creek Formation and to aid in the placement of diamond holes. These RAB holes averaged 9.6m depths and were not (geologically) logged. Of the 221 RAB holes drilled, only 39 were recorded as finishing in "bedrock?" or "hard". Shell concluded that RAB drilling as an exploration tool was of limited use, due to the thickness of the cover and weathering zone.

AO and Shell drilled six diamond holes in the northern parts of the Fandango area in the 1980's. Holes BB1 (AO (Australia), 1980), BB3 and BB4 (Bornman,

1981) targeted gravity features, with all holes intersecting Emmeruga Dolomite. BB2 (AO (Australia), 1980) and BB5 (Bornman, 1982) were drilled as stratigraphic holes. BB6 (Dashlooty, 1983) was drilled below a RAB anomaly of 420ppm Zn, 80ppm Pb. Drill holes BB2, BB5 and BB6 are interpreted to have intersected rocks of the Barney Creek Formation.

BHP drilled three diamond holes in the southern parts of the Fandango in the early 1980's. DDHMcA4 tested an aeromagnetic low in an area of extensive Cainozoic cover. It intersected Mallapunyah Formation (stratigraphically below the target unit).

DDHMcA5 (BHP Minerals, 1983) tested a local gravity high near outcrop of Barney Creek Formation. It intersected anomalous Barney Creek Formation. Detailed sampling of thin pyrite beds within the anomalous zone returned up to 4.05% Zn and 1500ppm Pb.

In 1983 and 1984, BHP (BHP Minerals, 1984; Carville, 1985) completed numerous EM37 soundings on the old Shell grid lines and around drill hole DDMcA5. Soundings around DDMcA5 identified a conductive zone trending NW-SE in concurrence with the mapped strike of the Barney Creek Formation. DDHMcA16 (Carville, 1985), drilled to test this EM37 conductor, intersected siltstones and pyritic black shales of the Caranbirini Member (maximum 285ppm Zn and 125ppm Pb). Between 1988 and 1998, a consortium of companies under the McArthur Joint Venture (McArthur JV) held the majority of the Batten Trough including the Yalco and Fandango areas. This consortium comprised Quilpie Pty Ltd, Noranda Pty Ltd, Perilya Mines NL, Topend Resources NL and T P Lindner. MIM Exploration entered the McArthur JV in 1992. The McArthur JV concentrated their exploration activities on defined target areas, most of which were within 20 km of the HYC deposit. They also conducted work as an apparent second priority on more regional targets including Yalco.

In the mid 1990's, BHP collected soil samples in the vicinity of outcropping Barney Creek Formation southeast of Fandango (Paterson, 1995). No significant results were returned, probably hampered by the veneer of Quaternary cover.

In 1992, the McArthur JV flew a series of QUESTEM surveys over extensive areas of the Batten Trough. This data produced only two significant strongly conductive zones across all channels, one underlying the HYC deposit the other at Yalco.

In 1994, MIM Exploration Pty Ltd drilled three diamond holes totaling 708.7m at Yalco. Hole YNPD02 was drilled to test a very weak soil geochemistry anomaly at the contact of the BCDS and the underlying Emmerugga Depositional Sequence (EDS). The pre-collar of this hole intersected 6m @ 0.11% Pb, 240ppm Zn from 18m in BCDS. The collar locations of diamond holes YNPD05

and YNPD06 are uncertain. These holes were drilled through parts of the stratigraphy above the target BCDS.

BHP held title over the southeastern corner of Fandango again in the mid 1990's. They conducted TEM soundings around DDMMcA5 including "re-sounding" old sites.

Airborne EM surveys included the Yalco North 75Hz QUESTEM survey and the Lorella 75Hz QUESTEM survey (Kettlewell, 1992), both of which were flown for MIM Exploration. MIM identified one QUESTEM anomaly ("Anomaly 18") in the southwestern area of the Fandango prospect. They followed up this anomaly with PROTEM soundings on a 500 x 600m grid (Partington, 1992). In 1991 a single RC hole was drilled to test the conductor. The hole intersected weathered dolostone of the Lynott Formation with a laterite cap. The deep weathering was thought to be the cause of the EM anomaly.

In 1995 BHP (Paterson, 1996) drilled a diamond hole 2.4km WNW of DDMcA5 targeting a PROTEM sounding. Hole BCD001 finished in pyritic black shales of the Barney Creek Formation after running out of drill rods.

No further work was carried out in the Fandango or Yalco areas until RTE's 2002 program.

## 7. EXPLORATION CONDUCTED

During Year 1 of Exploration License 10103, work carried out by North Mining consisted of an airborne HoistEM survey flown over an area of approximately 10 x 15km in the southern part of the EL, and a 12 hole RC drilling program.

During Year 1 of Exploration License 10317, work carried out by North Mining consisted of a review of previous exploration including the re-interpretation of an earlier QUESTEM survey that was used to target a 12 hole RC drilling program at the Yalco Prospect, 4 of these drill holes were on EL10317.

During Year 1 of Exploration License 10329, work carried out by North Mining consisted of a review of previous exploration including the re-interpretation of an earlier QUESTEM survey that was used to target a 12 hole RC drilling program at the Yalco Prospect, 8 of these drill holes were on EL10329.

During Year 2 the Batten Trough Farm In and Joint Venture Agreement was entered into between North Mining Limited (and other Rio Tinto companies) and Anglo American Exploration (Australia) Pty Ltd. This Agreement was signed on 29 September 2003 and it has been lodged with the Department for registration. Under this Agreement, Anglo American Exploration (Australia) is carrying out work on this license.

Since the Agreement with North Mining (Rio Tinto) was signed, work carried out by Anglo American Exploration (Australia) on EL 10103, EL10317 and EL10329 has comprised of a review of all previous exploration in the Batten Trough dating back over 40 years, reinterpretation of this data, selection of suitable target areas with the potential to host 'world-class' orebodies, negotiation and submittal of work programs to the AAPA and Northern Land Council (NLC) to allow target testing to occur during the 2004 field season, organising ground access, and minor reconnaissance work and logistical preparation for the current field season. There was little opportunity to undertake field work in 2003 due to the Joint Venture agreement with the Rio Tinto group being finalised late in the field season. 2004 field activities have been delayed until June due to an excessively long wet season; this field work had originally been planned for April.

# 8. PROPOSED FUTURE EXPLORATION

**Work proposed for Year 3 on EL10103**
Work proposed by Anglo American Exploration (Australia) for Year 3 of EL 10103 is expected to comprise of ground based TEM surveys (approximately 45 line kilometres), mapping, rock chip sampling and drill testing of any anomalies resulting from this work.

Expenditure for this work is expected to be in the order of $60,000. Dependant on the amount of drill testing required this sum might be increased.

**Work proposed for Year 3 on EL10317**
Work proposed by Anglo American Exploration (Australia) for Year 3 of EL 10317 is expected to comprise of ground based TEM surveys (approximately 16 line kilometres), mapping, rock chip sampling and drill testing of any anomalies resulting from this work.

Expenditure for this work is expected to be in the order of $50,000. Dependant on the amount of drill testing required this sum might be increased.

**Work proposed for Year 3 on EL10329**
Work proposed by Anglo American Exploration (Australia) for Year 3 of EL 10329 is expected to comprise of ground based TEM surveys (approximately 30 line kilometres), mapping, rock chip sampling and drill testing of any anomalies resulting from this work.

Expenditure for this work is expected to be in the order of $55,000. Dependant on the amount of drill testing required this sum might be increased.

The proposed future expenditure for these three leases is detailed in Table 5.

| ITEM | EL10103 | EL10317 | EL10329 |
|---|---|---|---|
| Staff salaries & consultants | $15,000 | $13,000 | $14,000 |
| Ground geophysical surveys | $30,000 | $25,000 | $27,000 |
| Analytical costs | $2,000 | $2,000 | $2,000 |
| Safety-health-environment costs | $4,000 | $2,000 | $3,000 |
| Field expenses | $3,000 | $3,000 | $3,000 |
| Travel and accommodation | $6,000 | $5,000 | $6,000 |
| **TOTAL** | $60,000 | $50,000 | $55,000 |

Table 5. Proposed Future Expenditure.

# 9. CONCLUSION

During the first year of the lease, the Batten Trough Farm In and Joint Venture Agreement was entered into between Rio Tinto Exploration Pty Ltd (North Mining Limited and other Rio Tinto companies) and Anglo American Exploration (Australia) Pty Ltd. Rio Tinto Exploration Pty Limited's previous exploration results in the area had confirmed the favourable geological setting and Zn-Pb prospectivity of the sub-basin. Proposed future exploration may include geological mapping and reconnaissance investigations with subsequent ground geophysical surveys (EM and gravity) and RC drilling of prospective areas.

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