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Report EPL-04/153

ANNUAL REPORT ERL 116 - Y/E 11 SEPTEMBER, 2004

RESULTS OF CORE DRILLING PROGRAMME NOVEMBER 2003 MOUNT PORTER GOLD PROSPECT NORTHERN TERRITORY, AUSTRALIA

by

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for

ARAFURA RESOURCES NL

1:250,000 - Pine Creek, SD 52-8
1:100,000 - Pine Creek, 5270

October, 2004

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INTRODUCTION

BACKGROUND

Gold mineralisation was discovered in the Mount Porter region by Gold Fields Exploration Pty Ltd, a subsidiary of Renison Goldfields Consolidated Limited (RGC), in 1984. Initial positive sampling results from exposed quartz reefs at the Mount Porter North prospect (3 kilometres north of Mount Porter) led to more extensive surface rock-chip sampling along the trend of the Mount Porter Anticline to the south. This resulted in the discovery of higher grade gold mineralisation in the "10400 Zone" on the eastern slopes of Mount Porter in 1988 (Dufty, 1989).

The gold mineralisation at Mount Porter was subsequently extensively explored by RGC and their subsidiary, Pine Creek Goldfields Limited (PCG), between 1988and 1994 during which time PCG operated the Enterprise, Czarina, International and Gandy's Hill Gold Mines ("Enterprise Gold Mine") immediately adjacent to Pine Creek. Exploration by RGC/PCG included a total of 223 drill holes. The bulk of these holes were completed between 9300-11000N (local grid) in a belt which stretched from 1200 metres south of Mount Porter to 500 metres north of the peak.

Following the final phase of drilling in 1993 (Eupene, 1994), PCG conducted archaeological (Mulvaney, 1993), sacred sites (AAPA), metallurgical (Capps, Mason & Till, 1994) and environmental (Anonymous, 1994) studies and prepared for mining the "10400 Zone", where Sans (1994) estimated there to be an Indicated Resource of 240-250,000 tonnes at a grade of 3.6-3.8 g/t Au within 70 metres of the surface, using a 1.5 g/t Au cut-off grade. But PCG's development plans were shelved later in 1994 because the anticipated financial return did not justify the development risk in the economic conditions which prevailed at the time.

Between 1995-1997, an additional 14 drill holes, some as deep as 550 metres, were completed at Mount Porter by Homestake Gold of Australia Limited under a farm-in arrangement with RGC. Homestake explored for major new zones of mineralisation over a one kilometre long section of the Mount Porter mineralised trend, mainly to the north of the 10400 Zone. Homestake had little success with this approach and withdrew from the project in 1998.

Arafura Resources NL acquired the underlying title, ERL 116, from Iluka Resources Limited (formerly RGC) in 2002. Following subscription of exploration funds *via* an IPO and listing on the Australian Stock Exchange late in 2003, Arafura drilled seven core holes into the 10400 Zone resource in late November and early December, 2003. This infill drilling was undertaken to confirm continuity of the highest grade gold mineralisation, as recommended by Sans (1994), who considered that the establishment of continuity of higher grade gold mineralisation in these areas was critical to the integrity of his resource estimate.

This report details the results of Arafura's drilling program.

LOCATION & ACCESS

The Mount Porter gold deposit is located 21 kilometres north of Pine Creek and 165 kilometres southeast of Darwin in the Northern Territory, Australia. (Figure 1).

Access to the titles from Darwin is along the Stuart Highway (225 kilometres) to Pine Creek then north along the Kakadu Highway and unsealed Frances Creek Road for 24 kilometres to a point about 6.5 kilometres past the turn-off to Mount Wells. From here a bush track leads to the prospect area some 3 kilometres distant (Figure 1). Without substantial upgrading, the Frances Creek Road north of the Mt Wells turn-off and the bush track to the prospect would both be inaccessible for the period January-April in most years.

The nearest major mine is the Union Reef Gold Mine, 10 kilometres to the southwest of Mount Porter (Figure 1). Operations ceased at Union Reefs in 2003 though the mill remains on care and maintenance at the date of this report. The Enterprise Gold Mine adjacent to Pine Creek town ceased production in 1995. The Spring Hill

gold deposit is ten kilometres to the west, the Union Extended Gold Mine (small past producer) is four kilometres to the west and the old McKinlay (silver, lead), Flora Belle (lead, silver) and Elizabeth (gold) mines are about eight kilometres to the west-south-west. The abandoned Frances Creek iron ore mines, which operated prior to 1974 are five to ten kilometres to the northeast of Mount Porter.

TOPOGRAPHY AND DRAINAGE

The Mount Porter area is "an erosion landscape of rugged, dissected ridges, with steep to gently undulating hills, and in the southern portion … within the granite country, of boulder fields and small rocky knolls". (Mulvaney, 1993).

Topography ranges from about 150 metres AHD along Frances Creek Road in the eastern part of the tenement, to 292.3 metres AHD (592.3 metres local datum) at Mount Porter in the centre of the prospect area. The identified gold resource (the "10400 Zone") is situated between the 200-275 metres AHD (present topography) on the eastern foothills of Mount Porter.

The Frances Creek Road to the east of the tenement and the access road between the Frances Creek Road and the mine site traverse the more gently undulating granite country.

Ephemeral gullies drain the prospect area which is in the very upper catchments of Nellie Creek to the south (which drains east over 30-35 kilometres to the Mary River) and Watts Creek to the north (which drains north over 20-30 kilometres to the McKinlay River). The proposed initial 10400 Zone pit and associated waste dumps are likely to be constrained within the gully system which drains south to Nellie Creek. Pre-resource mineralisation is also known within both the Nellie Creek catchment and the Watts Creek catchment and these may provide additional mineable resources with further exploration.

CLIMATE

Mount Porter is in the tropical monsoon belt of north Australia and experiences distinct hot, humid summers ("wet season") and cool, dry winters ("dry season"). Average monthly maximum and minimum temperatures range between 30-36ºC and 12-29ºC respectively, with occasional extremes >40ºC of and <5ºC.

Average rainfall in the region is 1100-1200 millimetres which falls mainly during the period between October and March, and especially during the months of January-March when the area comes under the influence of the sub-tropical NW monsoons and associated tropical low pressure systems and monsoon trough. Peak average monthly rainfall is in February (350 millimetres).

VEGETATION

"Open to dense eucalypt woodland with tall annual grass understorey" (Mulvaney, 1993) characterises the area of the tenement. This is typical of the "tropical eucalypt woodlands/grasslands" of Top End of the Northern Territory.

A field inspection by EcoFox Enterprises Pty Ltd in April, 2004, indicated:

- That dominant species adjacent to the 10400 Zone pit area in the reddish soils overlaying the carbonaceous mudstone include Cooktown Ironwood *Erythrophleum chlorostachys*, Stringybark *Eucalyptus tetrodonta*, Woollybutt *E. miniata*, Bloodwood *E. latifolia, E. dicromophloia*, and Carbeen *E. clavigera*. Understorey species include *Acacia* spp., Kurrajong *Brachychiton diversifolius*, Red-flowered Kurrajong *B. paradoxum*, Grevillea *Grevillea* spp., *Hakea* sp., Sandpaper Fig *Ficus scobina*, S*esbania formosa*, Billy Goat Plum *Terminalia ferdinandiana*, *T. pterocarya*, and Melville Island Beech *Canarium australianum*.

- A range of grass species exists on the site including the common annual *Sorghum intrans*, perennial Sorghum *S. plumosum*, Black Spear Grass *Heteropogon contortus*, *Panicum* sp. *Aristida* sp. and an unidentified perennial species.

- As the reddish soils grade into the grey soils overlaying dolerite and metasediments the woodland opens out and tends to become dominated by Darwin Box *E. tectifica*. Salmon Gum *E. tintinnans* occurs on the granite country on the lower slopes to the southeast of the tenement. These species associations are common within the open eucalypt woodlands that cover most of the "Top End" of the NT.

SUMMARY

Arafura Resources completed a program of 7 inclined HQ core holes (MPDH241-247) totalling 417.5 metres into the 10400 Zone gold deposit at Mount Porter in November-December, 2004. The first six holes successfully intersected the high grade mineralised zones but the seventh was terminated due to loss of circulation just as it reached the mineralised zone.

A total of 258 half-core samples were subsequently submitted for fire assay analyses for gold at North Australian Laboratories in Pine Creek. Forty one of these were check-assayed by ALS Chemex in Townsville.

NAL's results included:

- 60 samples with >1 g/t Au, including
- 18 samples with >5 g/t Au, including
- 9 samples with >10 g/t Au including
- 5 samples with >20 g/t Au.

The highest result was 39.9 g/t Au between 34-35 metres in MPDH246.

Excellent replication of results was achieved both internally at NAL and also between NAL and ALS Chemex. This suggest an absence of coarse gold in the areas drilled, even in the very high grade samples, and demonstrates that excellent diminution and homogenisation of gold was achieved during sample preparation by NAL.

SG measurements were carried out on core samples selected at regular intervals and detailed RQD and recovery logs were recorded in addition to normal detailed geological logs. After logging, all core from MPDH241-247 was photographed in both wet and dry condition.

Significant mineralised intercepts were realised including:

- 22.55 metres at 4.64 g/t Au from 38 metres in MPDH245;
- 12.90 metres at 6.35 g/t Au from 30.1 metres in MPDH246;
- 17.10 metres at 3.64 g/t Au from 21.7 metres in MPDH242;
- 13.00 metres at 3.47 g/t Au from 22 metres in MPDH244;
- 9.00 metres at 3.16 g/t Au from 30.1 metres in MPDH243;
- 9.00 metres at 2.28 g/t Au from 36 metres in MPDH241;
- 1.65 metres at 27.6 g/t Au from 58.9 metres in MPDH245; and
- 2.00 metres at 10.85 g/t Au from 42 metres in MPDH244.

These intercepts compare very favourably with those from earlier drilling on adjacent sections and provide confidence in the earlier assay data for the 10400 Zone.

This infill drilling confirmed continuity of the zones of highest grade gold mineralisation. This was previously considered critical to establish continuity of higher grade gold mineralisation in these areas and to confirm the integrity of earlier resource estimates.

TENURE

MINING/MINERAL RIGHTS

Exploration rights at Mount Porter are held by Arafura Resources NL under ERL116 which was transferred to Arafura Resources NL under a royalty arrangement with RGC's corporate successor, Iluka Resources Limited.

In March, 2003, Arafura lodged application for ML 23839 over all of ERL116 as well as over an access corridor east to the Frances Creek Road.

LAND TENURE

Background land tenure under ERL 116 and ML 23839 is Mary River West Pastoral Lease, PPL815 - NT portion 1630, owned by Equest Pty Limited (Gary Hamilton), C/- 9 Pall Mall Avenue, CURRUMBIN 4223.

NATIVE TITLE

The situation regarding Native Title on Pastoral Leases in the Northern Territory has not yet been established by court ruling. Regardless of this, until there is a definitive court ruling on the matter, the Native Title Act allows input to land use objectives by Native Title Holders or registered Native Title Claimants. However, this is not an issue with respect to exploration activities on ERL 116 as the date of grant of this title precedes introduction of the Native Title Act in 1993.

In contrast, grant of ML application 23839 would constitute a "future act" according to the Native Title Act and Native Title Holders and registered Native Title Claimants do have a "right to negotiate" in respect of compensation for loss of native title rights occasioned by grant of this lease. This process is usually handled through the claimants' "representative body", the Northern Land Council (for the Mount Porter region). A Native Title Compensation agreement has to be in place, either through negotiation or arbitration, before such a title will be granted by the NT Government. A key element, however, is that there is no veto right whereby the Native Title Claimant/Holder can ban mining (though they can possibly delay grant).

Registered Native Title Claim DC01/6 – Mary River West – C/- Northern Land Council, is in place over NT Portion 1630 which encompasses ERL 116 and ML 23839.

ABORIGINAL SACRED SITE CLEARANCES

Current AAPA Certificate C2003/025 (variation of D89/199, D90/307. C1993/197, C1996/042, C2001/062) is held by Arafura in respect of ERL 116 for mineral exploration. Certificate C1993/197 was previously issued to PCG for mining as well as exploration.

Current AAPA certificate C2004/098 was issued to Arafura on 7 July, 2004, for the purpose of "mining" in respect of the current area of ML application 23839. There are no registered or recorded aboriginal sacred sites within the area of the application.

An Aboriginal archaeological survey (Mulvaney, 1993) was completed by PCG in 1993 in preparation for planned mining at that time (prior to issue of C1993/197).

GEOLOGICAL SETTING

Table 1

Stratigraphic Relationships in the Pine Creek Inlier

(From Pine Creek & Batchelor 1:100 000 Geological Series Map, BMR/NTGS, 1985, and other sources)

RECENT/CAINOZOIC
Alluvium and Colluvium
Laterite
MESOZOIC
Petrel and Bathurst Island Formation
Mullaman Beds
Unconformity
CAMBRIAN
Daly River Group
Unconformity
MESOPROTEROZOIC
Katherine River Group, Tolmer Group
Unconformity
PALAEOPROTEROZOIC
Cullen Batholith
Mount Bundey Granite, Mount Goyder Syenite
Major period of deformation and regional metamorphism - 1870 - 1810 Ma
PALAEOPROTEROZOIC
Finniss River Group
Burrell Creek Formation/Welltree Metamorphics?

South Alligator Group
Mt Bonnie Formation
Gerowie Tuff
Koolpin Formation
Unconformity
Mount Partridge Group
Wildman Siltstone
Mount Deane Volcanic member
Acacia Gap Quartzite Member
Whites Formation
Coomalie Dolomite
Crater Formation
Unconformity
Namoona Group (/Batchelor)
Masson Formation
Celia Dolomite
Beestons Formation
Unconformity, deformation and high grade metamorphism
ARCHAEAN
Rum Jungle and Waterhouse Complexes

REGIONAL GEOLOGY

Stratigraphic relationships in the Pine Creek Inlier are summarised in Table 1 and an extract from the 100,000 Pine Creek Geological Series Map is included as Figure 2.

Gold mines and prospects in the Mount Porter region occur in:

- the Wildman Siltstone of the Mount Partridge Group,
- the middle and upper Koolpin Formation, Gerowie Tuff and Mount Bonnie Formation of the South Alligator Group,
- the Burrell Creek Formation of the Finniss River Group, and
- numerous semi-conformable sills of pre-orogenic Zamu Dolerite which intrude the Koolpin Formation and Gerowie Tuff.

All of these units are part of the Palaeoproterozoic succession of the Pine Creek Inlier which extends from Darwin to Katherine, east into Arnhem Land and west to the coast.

The Wildman Siltstone is comprised of medium and thin bedded and laminated, fine grained pyritic carbonaceous sediments for the most part but with minor sandstone beds and tuffs.

The Koolpin Formation consists of sulphidic carbonaceous siltstones and mudstones, ferruginous chert, iron formation, carbonates and phyllitic mudstones. Aeromagnetic patterns indicate the presence of pyrrhotite where it is the major sulphide phase in the Koolpin Formation. The Koolpin Formation varies in thickness from less than 100 metres to over 500 metres but its precise thickness in any area is difficult to determine because of the inclusion of sills of Zamu Dolerite. These can vary in thickness from a few metres to a few hundred metres.

The Burrell Creek Formation is up to 1,500 metres thick and consists dominantly of greywackes, siltstones and mudstones.

The Mount Bonnie Formation is a transitional unit which contains interbedded units of both Koolpin facies and Burrell Creek facies rocks. Its thickness is variable but generally ranges from 200-700 metres. The base of the Mount Bonnie Formation (formerly the Kapalga Formation, Crick *et al*., 1978) is defined as the base of the lower of two major greywacke-mudstone units each generally 20-50 metres thick, which represents the first recognisable input of Burrell Creek facies into the upper part of the South Alligator Group. The two thick

greywacke-mudstone units are separated by 30-60 metres of laminated siltstone, shale, chert and tuff (Goulevitch, 1980).

The Gerowie Tuff, the only time marker in the sequence, is up to 400 metres thick and is comprised of tuff, tuffaceous chert and tuffaceous siltstones with lesser amounts of interbedded Koolpin-facies sediments, ie. laminated cherts and carbonaceous siltstones. Bands of tuff, tuffaceous chert and tuffaceous siltstone continue through the Mount Bonnie Formation and, in places, continue into the lower Burrell Creek Formation. Beds of similar tuffaceous chert have been noted in drill core from the hanging wall sequence of Wildman Siltstone at Tom's Gully. This is much lower in the sequence than is normally the case for Gerowie Tuff input.

A sometimes angular and other times conformable contact separates the Wildman Siltstone and Koolpin Formation (Stuart-Smith *et al.,* 1993). The boundaries between the Koolpin Formation, Gerowie Tuff, Mount Bonnie Formation and Burrell Creek Formation are conformable.

The sediments, volcanics and dolerite sills are moderately to tightly folded about axial planes which strike to the south-south-east, south and south-south-west and dip vertically or steeply either side of vertical. The fold axes plunge northerly or southerly in different parts of the inlier generally at shallow angles. This accounts for the attenuated outcrop pattern. The dominant fold structure in the Mount Porter area is the Mount Porter Anticline which plunges gently to the NNW over a distance of 8 kilometres from the intrusive contact of the Allamber Springs Granite (see below).

Regional lower greenschist grade metamorphism accompanied the folding event during a major episode of deformation between 1870-1810 Ma.

The folded metasediment sequences and metadolerite sills of the Pine Creek Inlier were subsequently intruded by late Palaeoproterozoic granite batholiths and plutons. These generated aureoles of contact metamorphism, 0.5-2 kilometres wide, in the adjacent metasediments and metadolerites and this overprinted the effects of earlier regional metamorphism. In the Mount Porter area the Allamber Springs Granite, a component of the Cullen Batholith, is the local expression of this phase of plutonism. This intrusion cuts across the southern part of ERL 116 within a few hundred metres of the 10400 Zone.

Subsequently, an extensive array of north-east and north-west trending dolerite dykes intruded during extensional deformation. These crop out only rarely but are clearly evident on aeromagnetic images because of their magnetic character and continuity over distances up to 100 kilometres.

Mesoproterozoic sandstones, possibly Cambrian carbonate-rich rocks and Cretaceous sandstones probably all covered the Pine Creek Inlier area at later times but these have since been almost entirely removed by erosion, at least around Mount Porter.

GOLD MINERALISATION MODELS IN THE PINE CREEK INLIER

Goulevitch (1997) has summarised the styles of gold mineralisation in the Pine Creek Inlier and provides a detailed list of references to geological accounts for the various deposits which are mentioned below.

Prior to mining at Rustler Roost between 1994-1998, gold mineralisation in the Pine Creek Inlier was generally categorised into one of the following three dominant geological models:

1. Sheeted and stockwork quartz-sulphide vein systems mainly along major anticlinal hinge lines in the Mount Bonnie Formation, and to a lesser extent in the underlying Gerowie Tuff and overlying Burrell Creek Formation. Mineralisation is preferentially associated with a strong carbonaceous or sulphide component in the host sequence (Woolwonga, Moline) or located where there are marked competency differences between successive layers such as greywacke and shale (Enterprise, Union Reef, Goodall, Mount Todd, Alligator and Faded Lily at Brocks Creek, Chinese Howley, Big Howley, Spring Hill, Yam Creek, Fountain Head, Mount Tymn, Mount Porter North). A dominant linear auriferous quartz-vein structure sub-parallel to the axial plane of the associated anticline has

been identified in some deposits (Enterprise, Woolwonga). Bedding conformable quartz reefs are a feature of most deposits of this style and these often thicken and develop to saddle reefs where they pass over fold hinges (Enterprise, Union Reef, Fountain Head, Mt Tymn, Mount Porter North).

2. Sediment-hosted stratiform gold mineralisation and quartz-sulphide-vein-hosted stratabound gold mineralisation associated with cherty iron formation and carbonaceous mudstone mainly in the Koolpin Formation (Cosmo-Howley, Golden Dyke, Mount Porter, West Koolpin/Taipan at Quest 29) but also to a lesser extent in the Gerowie Tuff (Zapopan) and Mount Bonnie Formation (Northern Hercules, ?Beef Bucket at Rustler's Roost).
3. Auriferous stratiform, massive to banded, sulphide-silicate-carbonate mineralisation in the Mount Bonnie Formation (Mt Bonnie, Iron Blow, Moline).

As a result of the detailed geological investigations undertaken during mining at Rustler's Roost, and given the physical extent of the resources identified there, sediment-hosted stratiform gold mineralisation associated with cherty dolomitic and sulphidic shale in the Mount Bonnie Formation needs to be added to this list. This model displays elements of the first and second models listed above given that:

- the vast bulk of the mineralisation at Rustler's Roost is situated astride a major anticline (the Dolly Pot Anticline);
- sheeted quartz-sulphide veins host some of the gold mineralisation (in the Backhoe deposit); and
- the gold mineralisation at Rustler's Roost occurs in stacked sediment packages and thus displays both strong stratiform and strong stratabound character.

The Rustler's Roost model could be considered as a link between models 1 and 2 above.

Gold mineralisation models of lesser importance in the Pine Creek Inlier include:

1. Sediment-hosted, isolated, single quartz veins or reefs which generally transgress stratigraphy (BHS, Marrakai, Bandicoot, William, Great Northern, Great Western). Veins are generally only a metre or two thick and are very often banded or laminated. The Tom's Gully reef may be regarded as a near-bedding-conformable example of this model. Reefs of this style may be expressions of reverse faults.
2. Sheeted or stockwork quartz-feldspar-sulphide veins hosted by sills of Zamu Dolerite within the Koolpin Formation and Gerowie Tuff (Chinese Howley South, Margaret Diggings, Quest 29, Maureen).
3. Sediment-hosted, transgressive, linear arsenical ferruginous quartz-breccia reefs which pass across granite boundaries into low-grade linear sericite alteration zones of considerable length (Golden Honcho, Bonrook). **This is the only Pine Creek Inlier model in which gold mineralisation demonstrably post-dates granite intrusion.**

Most gold mineralisation in the region occurs mostly above the middle of the Koolpin Formation in the South Alligator Group, and in the lower part of the Burrell Creek Formation of the Finniss River Group. Tom's Gully and Golden Honcho are two of the very few exceptions to this generalisation. The Tom's Gully vein occurs in strongly carbonaceous pyritic sediments of the Wildman Siltstone of the Mount Partridge Group. The Golden Honcho reef system at Frances Creek transgresses the contact between the Allamber Springs Granite and the Mundogie Sandstone, also of the Mount Partridge Group.

Of prime importance in understanding the mineralisation at Mount Porter is the Cosmo-Howley/Golden Dyke style of gold mineralisation which is hosted by silicate-sulphide facies cherty iron formations in the middle and upper levels of the Koolpin Formation. Golden Dyke and adjacent smaller deposits produced 25,000 ounces of gold from a stratiform lens of cherty iron formation on the western side of the Golden Dyke Dome. Cosmo Howley produced 369,000 ounces of gold from similarly hosted stratiform mineralisation on the limbs and the crest of the Cosmo Anticline in zones complicated by, strong axial plane faulting.

The syn-orogenic granites (*eg*. Cullen Batholith, Mount Bundey Granite, Mount Goyder Syenite) are regarded by many geologists to be the driving force for gold mineralisation in the Pine Creek Inlier. Mineralisation is thus generally considered to be pre- or syn-intrusion. There is reasonable evidence to interpret that the bulk of the anticline-associated vein-type deposits were deposited during structural re-activation of regional fold structures

during granite intrusion, though this has not been established unequivocally. Only the Golden Honcho and Bonrook reefs demonstrably overprint granite intrusion.

GEOLOGY OF THE MOUNT PORTER DEPOSIT

(Goulevitch, 2004; partially after Eupene, 1994, and Majoribanks, 1994)

The metasedimentary rocks present in the Mount Porter project area belong to the Koolpin Formation of the South Alligator Group. For the most part the Koolpin Formation at Mount Porter is characterised by pyrrhotitic and pyritic carbonaceous shales and siltstones but in the Middle Koolpin Formation, sulphidic laminated chloritic/carbonaceous "shales", with prominently developed “chert” nodules, are ubiquitously present. (In most parts of the Pine Creek Inlier the “chert” nodules are actually comprised of microcrystalline silica but in more weakly metamorphosed areas, such as at Rustler’s Roost near Mount Bundey, the nodules are cryptocrystalline and chalcedonic in character. Chert is thus believed to be a pre-cursor for the microcrystalline silica and, for this reason, the term “chert” is applied to all the bedded nodular silica in the Koolpin-facies rocks of the South Alligator Group whether they be in the Koolpin Formation, Gerowie Tuff or Mount Bonnie Formation.

These chloritic chert-shale units in the South Alligator Group appear to be laterally continuous over considerable distances and are widely regarded to be “silicate facies” banded iron formations (BIF), though that has not been unequivocally established. According to Eupene (1994), over the 13 kilometres which separates exposures of Koolpin Formation at the Cosmo Howley and Golden Dyke gold mines, there is good correlation of nine identifiable sub-units of the Middle Koolpin Formation, including five separate iron formation horizons. This subdivision is believed to be useful at least as far east as the Horseshoe Anticline, 10 kilometres west-north-west of Mount Porter and 20 kilometres from Golden Dyke, but a lesser number of sub-units appears to be present at Mount Porter.

Due to perceived structural complexity, a lack of surface exposures and only a limited amount of drill core, the Koolpin Formation stratigraphy at Mount Porter has not yet been fully defined though it does appear that up to three BIF horizons separated by carbonaceous mudstone units may be present in the middle of the Koolpin Formation. These are overlain by a thick sequence of sulphidic (predominantly pyrrhotitic) carbonaceous mudstone. Distinct thick dolomitic marble units are present towards the base of the Koolpin Formation and some dolomitic marble bands, 10-20 centimetres thick, are interbedded with bands of nodular chert in the intervening sequence.

A subdivision of the Koolpin Formation and interleaved sills of Zamu Dolerite at Mount Porter away from the complex structural development in the 10400 Zone is shown in Table 2 as well as thicknesses of the individual units. This demonstrates considerable thickness variations of units over a distance of 1.5 kilometres along the Mount Porter Anticline.

The mineralised Middle Koolpin Formation (informally referred to in this report as “Unit I”) at Mount Porter, is interpreted to extend from the top of the uppermost dolomitic marble layer or band to the base of the massive sulphidic carbonaceous mudstone unit which constitutes the basal unit of the Upper Koolpin Formation. Unit I appears to be more than 45 metres thick on the crest of the Mount Porter Anticline in the 10400 Zone but possibly thinner on the limbs. Eupene (1994) subdivided the nodular cherty iron formations in Unit I into two sub-units separated by an intervening carbonaceous mudstone horizon 3-10 metres thick. He also recognised a biotite hornfels sub-unit below the lower nodular chert sub-unit. This sub-division was not supported by the 2003 drilling in which more carbonaceous zones occurred in different stratigraphic positions in different holes and chert nodules generally occurred sporadically within these zone. Consequently, until more lateral consistency can be established in the stratigraphy of the Middle Koolpin Formation, the entire unit, including variably garnetiferous/carbonaceous biotite hornfels at depth, is referred to as Unit I.

An overlying massive sulphidic carbonaceous mudstone unit comprises the bulk of the Upper Koolpin Formation at Mount Porter and this is informally referred to in this report as “Unit C”. The upper two dolerite sills, Du and Dm (see below) divide Unit C into three sub-units, C1, C2 and C3.

Table 2: True thicknesses (m) of sub-units of Koolpin Formation and Zamu Dolerite sills at Mount Porter in Homestake's core holes.

GRID NORTH	10150	10470	10475	10600	10640 E A'cline	10680	10710	10880	11100	11500	11500
MPDH/ UNIT	229	232	235/6	225	226	233	230	228	237	231	227
C3						>63.8			>72.9 **F**	>63	
Du						>8.5 **F**		>5	**F** >18.6	24	35.8
C2				>36		**F** >12.1 **F**		6	>17.1 **F**	23	>47.3
Dm				94	>53	**F** >13	>75	65-70	**F** >34 **A'cline** >6.8	>49 **F**	>74.5
C1				28.7	6.9	5.7	12.2	4	0.5 **A'cline** 2.0	**F** >1	>10.7
I	>40			>23.5 **F**	53.2	38.7	55-65	53	29.4 **A'cline** 44.7	54	
Klu	6.3			**F** >10.9 **A'cline** 21.2 **S'cline** 24.4	>16- >36.7	>11.1	>2	>1.5	?>7.9	NIL	
Dl	NI			20.4 **A'cline** 33						>6.6 ?Dm	
Kll				>78 **A'cline** >34							

The Lower Koolpin Formation ("Unit Kl")has not been identified in the 10400 Zone drilling but it has been drilled elsewhere at Mount Porter including in holes MPDH225, 226, 228, 229 and 230 drilled by Homestake. In MPDH225 the unit includes interbedded marble, chloritic cherty (nodular) iron formation and biotite-cordierite-garnet metasiltstones/hornfels and it is in excess of 88 metres thick, of which up to 10 metres occurs above the lower dolerite sill (see below).

Three semi-conformable dolerite sills (metadolerite/amphibolite) have been identified within the Koolpin Formation at Mount Porter. The thickest of these ("Dm", 70-90 metres true thickness) intrudes Unit C about 5-30 metres above the top of Unit I. A thinner dolerite sill ("Du", 10-25 metres true thickness) occurs higher in Unit C and another thin dolerite sill (20-30 metres true thickness) occurs below the uppermost dolomitic marble layer in the Lower Koolpin Formation. Du and Dl may not be as persistent laterally as Dm (Dl does not appear to be present in MPDH226 drilled a few hundred metres east of the 10400 Zone).

Thin (0.5-3 metres thick) fine grained felsic and/or mafic dykes also intrude the mineralised sequence at Mount Porter. These appear to post-date most of the structural development of the area. Some are definitely cut by auriferous massive sulphide veins but generally these dykes are not otherwise mineralised. Most of the felsic dykes in the 10400 Zone appear to be constrained within a 3-5 metre wide zone which extends roughly along 10160E at the surface. This zone dips very steeply to the east at the surface and less steeply to the east at depth.

The primary structure through the Mount Porter prospect is the Mount Porter Anticline, which is a prominent and persistent NNW plunging regional structure. The Mount Porter Anticline appears to have many features which characterise other major fold structures in the Pine Creek Inlier:

- Steeply dipping to slightly overturned but generally regular limbs;

- Complex axial zones, commonly with at least two separate antiform folds;
- Thickening of incompetent units, especially carbonaceous shale, in the axial zone, and disruption of competent units.
- Complex fault zones, frequently intruded by late basic or lamprophyric dykes and/or associated quartz veining and stockworks.
- Evidence of massive brecciation and mineralisation.

At the 10400N Zone, most of the mineralisation intersected to date occurs in a complex multiply hinged fold zone on, and immediately to the west, of the main axis of the Mount Porter Anticline (Figure 5). This zone is bounded by at least three major faults – a NE trending structure to the southeast (F1), an ESE trending structure to the north at about 10500N (F2) and a major NS trending fault and shear zone to the west on about 10100E (F5). Another major structure (F3), parallel to F2, occurs further to the north at about 10700N.

The Mount Porter Anticline and mineralised metasediment sequence are intruded to the southeast by the Allamber Springs Granite which is a phase of the Cullen Batholith. The NE trending granite contact traverses the southeast portion of the tenement and, on the basis of a drill intersection 500 metres east of the 10400 Zone (MPDH226), dips to the NW at about 40-45º.

PREVIOUS INVESTIGATIONS

The Mount Porter gold deposit was discovered on the eastern flanks of Mount Porter (292 metres, AHD) in 1988 by Gold Fields Exploration Pty Ltd, a subsidiary of Renison Goldfields Consolidated Limited (RGC) (Dufty, 1989). Initial positive outcrop samples led to more intensive exploration under ELs 4752 and 6530 and ERL 116 over the succeeding decade. ERL 116 remains to this time.

RGC's exploration to the end of 1993 included a total of 223 drill holes (Eupene, 1994). The bulk of these holes were completed between 9300-11000N (local grid) in a belt which stretched from 1200 metres S of Mt Porter to 500 metres N of the peak.

The final phase of exploration (46 holes) by RGC in 1993-1994 was conducted by their subsidiary, Pine Creek Goldfields Limited, who at the time operated the Enterprise Mine in Pine Creek, 20 kilometres to the south (Eupene, 1994; Majoribanks, 1994). This drilling was concentrated between 10250-10550N ("10400 Zone") where the earlier drilling had identified a coherent zone of relatively high grade (3-4 g/t Au) gold mineralisation at shallow depths (less than 70 metres from the surface). It was after this phase of exploration that the currently identified minerals resources were estimated for the "10400 Zone".

PCG conducted archaeological, sacred sites, metallurgical and environmental studies and in 1993-94 and prepared for mining the "10400 Zone" (Agnew, 1994). But plans were shelved in 1994 because the anticipated financial return of about $1 million did not justify the development risk in the economic conditions which prevailed at the time.

Between 1995-1997, an additional 14 drill holes, some as deep as 550 metres, were completed by Homestake Gold of Australia Limited under a farm-in arrangement with RGC. Homestake explored for new major zones of mineralisation over a kilometre long section of the Mt Porter mineralised trend, mainly to the north of the 10400 Zone (Stewart, 1996, 1997). Homestake had little success with this approach and withdrew from the project in 1998.

PCG completed orebody modelling of Mount Porter early in 1994 (Sans, 1994). The estimated global resources were:-

Cut-off 1.5 g/t Au
240-250,000 t at 3.6-3.8 g/t Au
Cut-off 1.7 g/t Au
215,000 t at 3.9 g/t Au
Cut-off 2.0 g/t Au
176,000 t at 4.4 g/t Au.

WORK COMPLETED – 2003-2004

SURVEYING

Prior to earthmoving, proposed drill hole locations were accurately sited by Ausurv Pty Ltd with reference to existing survey stations established during previous drilling campaigns by RGC/PCG prior to 1994, and by HGAL in 1996-1997. If necessary, proposed collar positions were re-established after earthmoving by reference to off-set pegs placed by Ausurv. Final coordinates were determined by the author from the actual position of the collar with reference to the original or re-established survey pegs.

Final RLs were determined by allowing for the build up of fill around collar pegs not disturbed during earthmoving or by reference to features not affected by earthmoving activities in the case of re-established pegs. Collar positions are estimated to be accurate to within 0.3 metres horizontally and vertically.

Azimuth lines were established by the author using a Suunto magnetic compass. The compass was calibrated to the mine grid by sighting between permanent survey stations. Archived survey information records that the local grid is oriented along 357.5º magnetic and this was confirmed during the calibration of the compass with the grid. Hole inclinations were set by the driller after levelling of the drill rig and were confirmed by the author or project geologist at some stage during the drilling of each hole.

Down-hole surveys were completed by the drilling contractor using a Eastman single shot camera. These were at nominally 36 metre intervals but survey spacing varied between 30-50 metres.

Subsequent to the drilling program, Ausurv conducted a differential GPS survey of established survey stations to relate local grid and RL to MGA94 grid and AHD respectively.

EARTHMOVING

Drill pads, access tracks and sumps were constructed by Union Extended (Ian Genat) using an excavator to reduce the extent of disturbance and reduce the spread of material.

DRILLING

Three inclined holes totalling 417.5 metres were drilled by Gympie-based, Underground Diamond Drilling Pty Ltd between 24 November and 3 December, 2003. Drilling was by HQ3 coring (61.1 millimetres diameter).

UDD utilised a truck-mounted RD 750 top-drive drill rig mounted for the program. Drilling was performed on a 2-shift, 24 hour basis and was under the control of supervisor, Mr Greg Schonknecht.

CORE HANDLING

Drill core was recovered from the mine site mainly on a daily basis by representatives of Exploremin Pty Ltd (EPL) and/or Arnhem Geological & Exploration Services Pty Ltd (AGES) and transported in secure, covered form to AGES's premises in the outer Darwin area.

All drill core was re-assembled in the AGES yard to allow accurate logging and determination of core recovery, and to provide a uniform method of core presentation for both photography and core cutting. Considerable effort was applied to correctly reassemble the core.

SG DETERMINATIONS

SG measurements were carried out on core samples selected at regular intervals by the project geologist. Core pieces were weighted in air and in water by a technical assistant, in a sling hung below an Ohaus Triple Beam Balance. The location of each SG sample was marked indelibly on the core tray as a permanent record of where the sample originated.

LOGGING

Geological logging was carried out by experienced project geologist, Mr Karl Lindsay-Park. Detailed hand-written descriptive logs were made with special attention directed at recording bedding to core angle (alpha). Summary logs were drawn up by the author and used as a basis for stratigraphic correlation.

Detailed RQD logs which included core recovery were recorded by a trained technical assistant. Core recovery was measured in each interval between core blocks which defined by the start and end of each core run.

After logging, all core from MPDH241-247 was photographed in both wet and dry condition.

SAMPLING

After being photographed, core from each hole was cut in half using a diamond saw. The core was cut in a consistent manner with respect to the orientation of bedding (along beta angle 0°/180°) and the cut core was replaced in the core tray by the operator in its original order and orientation.

Sampling of the core was carried out by the technical assistant under the supervision of the project geologist. The core was sampled in 1 metre intervals with minor variations to accommodate distinct rock type changes – eg. at boundaries between felsic dykes and metasediments and between distinctively different metasediment units. The same 'side' of the core was sampled throughout each hole. Broken material was sampled 50/50. Samples were placed in pre-numbered (drill hole number and interval) calico bags which generally contained about 4 kilograms of core.

Samples were transported to the laboratory in the back of a utility vehicle. A chain of custody form was drawn up by the project geologist who signed off the samples to the vehicle driver when they were despatched from the AGES yard. The vehicle driver in turn signed off delivery to the laboratory. A copy of the form was faxed to the laboratory by the writer with the assay instructions.

ASSAYING

Sample preparation and assay were performed by North Australian Laboratories (NAL) in Pine Creek, 225 kilometres south of Darwin.

The laboratory's sample preparation and handling protocols were as described below:

- Samples 'as received' weigh about 3-5 kilograms
- NAL batch number is assigned on receipt of the client submission order
- Samples are sorted in down hole order and reconciled against clients submission order
- Computerised job file is generated and sample list and sample labels printed
- Samples are crushed through a 200X125 jaw crusher to a particle size of 10mm
- Total sample is then hammer-milled or roller-milled to a nominal 1mm particle size
- Total sample dried at 110°C for minimum six hours in an electric drying oven
- Total sample pulverised to a nominal 90p100 µm particle size in a Keegor Disc Pulveriser
- Total sample is roll mixed on a rubber mat to ensure a homogeneous sample
- 500 gram is cut out and transferred to a labelled paper sample packet for assay

- Bulk residue of the fine milled sample is retained in its calico bag
- Fine milled residue samples are stacked into crates, in order, and returned to Darwin (stored at AGES)
- Assay pulps are returned to Darwin after final Assay Report issued (stored short-term at AGES).

A total of 258 samples (1 batche) were analysed by NAL by fire assay with AAS finish. Because of the high S and C levels, 33.5 gram assay samples were used rather than the normal 50 grams. Routine blanks and standards were included in the batch for quality control. Approximately 25% of the samples were routinely re-assayed. Selection of samples for re-assay was predominantly on the basis of initial assays >0.3 g/t Au though some samples with lower grade were also re-assayed. Where high gold assays were realised (>0.5-1 g/t) or where the difference between the primary and check assay was more than 20%, a further check analysis was performed on the sample. A total of 392 gold analyses were reported.

After completion of all primary assaying and the return of the assay pulps to AGES, 41 sample pulps were selected by the author, recovered and despatched to ALS Chemex (ALS) in Townsville for independent check assaying by the same fire assay/AAS approach but on a 50 gram assay sample. Samples included oxide, transition and primary mineralisation and were evenly distributed throughout MPDH241-246. The grade of the samples covered the full spectrum of results achieved by NAL.

ACID GENERATING ROCK

Twenty six selected 1 metre intervals of whole core were crushed and pulverised (p80-100 microns) by NAL and forwarded along, with and ten sample pulp residues from the normal analytical process, to NT Environmental Laboratories in Darwin for assessment of acid generation character. These provided a representative selection of unmineralised material intersected by MPDH241-247 likely to comprise waste rock in the event that a mining operation is established at Mount Porter.

RESOURCE ESTIMATE

Geological information obtained in the 2003 drilling program was used to refine the geological model for the 10400 Zone deposit and this, together with the new assay and SG information, as well as information gathered prior to 1994, was applied to generate new estimate of resources at Mount Porter. This estimate was prepared by Perth-based Resource Evaluations Pty Ltd.

RESULTS

SURVEYING

Collar and downhole survey details are listed in Appendix 10. Hole locations are shown with reference to previous drilling and schemation pit shel in Figures 3 and 4.

Digital survey files, which include information relative to MGA94 grid as well as local grid, are included on the accompanying CD. Ausurv's transformation report states that the following factors relate the local grid to MGA94 and AHD:

Transformation: conformal
Scale: 1.00110650
Angle of rotation: -6° 54' 36" (Local grid east of MGA grid)
X Translation: 794087.088
Y Translation: 8481841.000
Local grid to AHD: -297.724

LOGGING AND SG DETERMINATIONS

Complete drill logs are attached as Appendices 1-7. Each log includes the summary and full geological logs, recovery log, RQD log, and SG determinations. Digital summary logs are included on the accompanying CD.

ASSAYING

Sample details and assay result sheets from NAL are included in Appendix 8. Details of duplicate analyses and result sheets from ALS Chemex are attached as Appendix 9. This information is also presented on the accompanying CD.

NAL's results included:

- 60 samples with >1 g/t Au, including
- 18 samples with >5 g/t Au, including
- 9 samples with >10 g/t Au including
- 5 samples with >20 g/t Au.

The highest result was 39.9 g/t Au between 34-35 metres in MPDH246.

Correlation diagrams are included in Appendices 8 and 9. There is almost perfect correlation (±5%) between NAL's original determination and the first repeat result. There is also almost perfect correlation (±5%) between NAL's results and ALS Chemex's results. The excellent replication both internally at NAL and also between NAL and ALS Chemex suggest an absence of coarse gold, even in the very high grade samples, as well as excellent diminution and homogenisation of gold during sample preparation by NAL.

Significant mineralised intercepts (based on the NAL data) are listed in Table 3 below. These intercepts compare very favourably with those from earlier drilling on adjacent sections and provide confidence in the earlier assay data for the 10400 Zone.

ACID GENERATING ROCK

Analytical result sheets are attached as Appendix 11 and digital files are included on the accompanying CD.

TABLE 3: Significant Mineralised Intercepts, MPDH 241-247

HOLE NO	GRID EAST	GRID NTH	RL	AZIMUTH GRID	INCLN	DEPTH m		FROM m	TO m	INTERVAL m	Au grams/tonne
MPDH245	10148.5	10430	525	90º	-60º	61.5		38	60.55	**22.55**	**4.64**
							incl	38	55	**17.00**	**3.44**
							&	58.9	60.55	**1.65**	**27.60**
MPDH246	10149	10455	527.5	270º	-55º	65.5		30.1	43	**12.90**	**6.35**
							incl	30.1	38	**7.90**	**8.65**
							&	40	43	**3.00**	**4.28**
MPDH242	10174	10388.6	523.5	90º	-60º	61.5		21.9	39	**17.10**	**3.64**
							incl	21.9	34.2	**12.30**	**4.43**
							&	38	39	**1.00**	**5.48**
MPDH244	10150.5	10430	525	270º	-65º	55.6		22	35	**13.00**	**3.47**
							incl	22	27.2	**5.20**	**7.63**
								42	44	**2.00**	**10.85**
MPDH243	10174	10460	521.5	270º	-67º	64.9		30	57	27.00	1.63
							incl	30	39	**9.00**	**3.16**
							&	41	57	16.00	0.91
MPDH241	10158	10364	530.5	85.5º	-65º	70.5		36	45	9.00	2.28
							incl	36	38	**2.00**	**4.57**
							&	41	45	4.00	2.76
								54.15	64	9.85	1.04
MPDH247	10182	10389.3	523	270º	-55º	38.5		33	34	1.00	1.37

RESOURCE ESTIMATE

Following additional drilling in November 2003 Identified Resources for the 10400 Zone deposit calculated in accordance with the JORC Code now stand at:

Cut-off 0.5 g/t Au		**Cut-off 1.7 g/t Au**	
Indicated Resources	694,000 tonnes at 2.0 g/t Au	Indicated Resources	300,000 tonnes at 3.1 g/t Au
Inferred Resources	184,000 tonnes at 1.55 g/t Au	Inferred Resources	55,000 tonnes at 2.6 g/t Au
Total Resources	**878,000 tonnes at 1.9 g/t Au**	**Total Resources**	**355,000 tonnes at 3.0 g/t Au**

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BSc(Hons) MSc FAIG
6 October, 2004

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Appendix 1

MPDH 241 - Logs

Appendix 2

MPDH 242 - Logs

Appendix 3

MPDH 243 - Logs

Appendix 4

MPDH 244 - Logs

Appendix 5

MPDH 245 - Logs

Appendix 6

MPDH 246 - Logs

Appendix 7

MPDH 247 - Logs

Appendix 8

Analytical Results Sheets – North Australian Laboratories

Appendix 9

Analytical Results Sheets – ALS-Chemex

Appendix 10

Drill Hole Collars and Down Hole Surveys

Appendix 11

Laboratory Results - Acid Rock Determinations