HARMONY GOLD (AUSTRALIA) PTY LTD

ANNUAL EXPLORATION REPORT

MAUD CREEK PROJECT NT

YEAR ENDING DECEMBER 31 2003

REPORT GROUP
MCN 4145-4146, MCN 4149-4152
MCN 4218-4225
MCN 4343-4345
MLN1978

KATHERINE 1:250,000 (SD 53-9)

KATHERINE1:100,000 (5369)

Distribution:

DBIRD Darwin
Brocks Creek library NT
Harmony Gold Perth WA

Compiled
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SUMMARY

During May 2001 Hill 50 Gold NL (Hill 50) acquired the Maud Creek project tenements from Phoenix Mining Limited. Hill 50 was subject to corporate takeover during 2002 and is 100% owned by Harmony Gold (Australia) Ltd.

During 2001 the Maud Creek Group tenements were explored using diamond core and RC drilling that focused on the Main Zone (Gold Creek) open pit that had been mined by AngloGold in 2000.

Exploration expenditure reported by Harmony for 2001 was $728,101.

During 2002, additional RC and diamond core drilling was commissioned by Harmony to further quantify the down plunge extent of Main Zone and Eastern Shear mineralisation.

Exploration expenditure reported by Harmony for 2002 was $567,066.

During 2003 exploration focused on reviewing and quantifying the results of the previous two years of drilling. A resource estimate using geostatistical treatment was commissioned that defined gold resources down plunge from the Main Zone pit. A total indicated and inferred resource of 5,686,308t @ 4.51g/t Au was estimated.

Exploration expenditure for the 2003 year was reported as $16,571.00

1.0 INTRODUCTION

This report describes exploration work carried out on the Maud Creek Group tenements during the year ended December 31st 2003.

The report includes a summary of historic exploration work that lead to the discovery and mining of the Main Zone gold deposit, plus work undertaken subsequently by Hill 50 and Harmony Gold (Australia) Limited.

2.0 TENEMENT DETAILS

The central Maud Creek Project area comprises a block of contiguous MCNs and one MLN surrounding the principal gold resource area. The tenements have group reporting status with a reporting due date of 31st January.

Table 1.

Tenement id	Granted	Expires	Area ha
MCN 4145	6/6/91	31/12/03	39.9
MCN 4146	6/6/91	31/12/03	39.4
MCN 4149	6/6/91	31/12/03	39.9
MCN 4150	6/6/91	31/12/03	39.9
MCN 4151	6/6/91	31/12/03	32.6
MCN 4152	6/6/91	31/12/03	23.5
MCN 4218	10/6/92	31/12/04	40.0
MCN 4219	10/6/92	31/12/04	40.0
MCN 4220	10/6/92	31/12/04	40.0
MCN 4221	10/6/92	31/12/04	40.0
MCN 4222	10/6/92	31/12/04	40.0
MCN 4223	10/6/92	31/12/04	40.0
MCN 4224	10/6/92	31/12/04	40.0
MCN 4225	10/6/92	31/12/04	40.0
MCN 4343	7/1/93	31/12/03	22.1
MCN 4344	7/1/93	31/12/03	36.0
MCN 4345	7/1/93	31/12/03	36.0
MLN 1978	29/1/03	28/1/28	477.3
			1106.6

The area covered by these tenements totals 1106.6ha. See Fig 2

MLN 1978 has been granted and amalgamates late MCN 4134 - MCN 4144 inclusive for the purposes of future mining operations. The tenements lie on Freehold title covering Maud Creek Pastoral Station that is owned by Harmony.

3.0 LOCATION AND ACCESS

The Maud Creek Project is situated 18km east of the town of Katherine NT and 275km south east of Darwin. It is centred on 8402000mN 225000mE. (GDA84 AMG Zone 53) See Fig. 1 and Fig.2.

The preferred access is via the Stuart Highway, 18km km ESE of Katherine, thence left onto Ross Road and travel past the RAAF radar dome, thence northerly for 8km past the present Maud Creek homestead along station firebreaks and fence lines, following the route of AngloGold's haul road.

Alternative but more difficult access is via the all weather bitumen Katherine Gorge Road north easterly from Katherine for 20km, thence SE 9km via a firebreak track that follows Maud Creek upstream to the old Maud Creek Goldfield and the Main Zone Deposit.

Off-track access is generally reasonable in the dry season except for rugged rocky areas underlain by Kombolgie Formation or limestone units of the Daly Basin sediments. Areas of black soil and several well-incised stream channels severely limit access during the wet season.

Due to heavy monsoonal rains in summer, strong vegetation regrowth makes access difficult in some areas for a month or so after the wet season.

4.0 GEOLOGICAL SETTING OF MAUD CREEK PROJECT

4.1 Regional Geology

Maud Creek lies in the south eastern part of the Pine Creek Inlier that comprises a thick sequence of Lower Proterozoic arenitic to silty sediments interlayered with volcanics and mafic sills.

Granitoid plutons were emplaced during a period of regional metamorphism that imparted strong fold patterns, faults and foliations (1870Ma to 1780Ma). Greenschist facies metamorphism was locally elevated to amphibolite grade in the vicinity of granitoid intrusions. A range of economic minerals including gold and tin were introduced into structurally favourable sites at a late stage during or just after granite intrusion and orogeny.

The Lower Proterozoic is unconformably overlain by mid Proterozoic arenites of the Kombolgie Sandstone. The latter has been subjected to gentle folding and faulting.

The Proterozoic rocks were subsequently transgressed by the Cambro-Ordovician Daly River Basin sedimentation and volcanism. In the Maud Creek area the older sequence is partially obscured by this shallow south dipping assemblage comprising trachyandesite lava flows, minor clastic sediment and limestone. Outliers of horizontal Cretaceous sandstones occur as residuals of a continental shallow basin facies.

4.2 Local Geology

In the vicinity of Maud Creek the oldest exposed rocks are the Lower Proterozoic Tollis Formation. This comprises the upper unit of the Finniss River Group (El Sherana Group)

The **Tollis Formation** comprises greywacke, mudstone, fine grained thin bedded to laminated quartz arenite, minor conglomerate and thin banded ironstone. Toward the base is the 200m thick Dorothy Creek Member that includes mafic lava, tuff, agglomerate and minor chert.

At the Maud Creek Goldfield the Tollis Formation is intruded by thick sills of Maud Dolerite. The 'dolerite' is crudely zoned into a quartz dioritic to granophyric upper zone and a more mafic lower zone of microgabbro. It has been pervasively carbonated (siderite) and sericitised on fractures.

Tollis Formation has been subjected to both tight and open folding and shearing. Bedding strikes 300 to 350 degrees magnetic, is locally vertical, but more commonly dips easterly at 45 degrees. Metamorphic grade is greenschist facies.

The Tollis Formation is overlain with angular unconformity by Edith River Group. This comprises a lower sedimentary and upper volcanic rock suite.

Kombolgie Formation arenites unconformably overlie both of the above units.

Late stage, undeformed, magnetic syenitic dyke swarms striking north easterly, cut all of the pre Cambrian stratigraphy in this area.

The Antrim Plateau Volcanics comprising trachyandesite flows, limestone and minor clastic sediments onlap and mask the Proterozoic basement units to the west and south of the Maud Creek Gold Field. This cover generally thickens in a southerly direction. Essentially the Maud Creek Goldfield occupies an erosion window in younger less prospective sequences.

4.3 Gold Mineralisation

Gold mineralisation at the **Maud Creek Goldfield** was first discovered and mined in fractured, veined Maud Dolerite and Tollis Formation 1km to the NE of the Main Zone discovery. Later work led to discoveries on the Western Shear, (Gold Creek Fault) at the faulted, brecciated and silicified contact of sandstone and mafic volcanics in Tollis Formation. Other veins are hosted by fractured Tollis Fm tuffaceous and carbonaceous chert lithologies.

Veins are generally of quartz with lesser carbonate and variable pyrite with minor chalcopyrite and arsenopyrite, the latter particularly at Main Zone. The veins are with choritic, haematitic and sericitic selvedges in Maud Dolerite.

Main Zone (Gold Creek) Deposit

The deposit comprises the largest gold accumulation found to date in the Maud Creek field. The global resource pre mining was 995,000oz with a recoverable 250,000oz extractable by open pit and underground mining methods (N.Payne 2001) The recoverable oxide resource at the time of acquisition by AngloGold in February 2000 stood at 151,000t @ 5.02g Au/t for 24,441 ounces. The majority of the oxide ore was mined by AngloGold by

open pit methods during 2000-01 and trucked to the Union Reef mill for treatment.

In terms of **structural setting** the immediate Main Zone environment is best understood (see below). The rationale for the location of the Maud Creek Goldfield is less well understood, airborne magnetics only giving poor textural relief. The strongly linear northwest alignment of Maud Creek suggests that it has followed some structural weakness, perhaps a fault system that is poorly exposed. The north-south faulting hosting main zone is compatible with being a splay off such a system.

Main Zone is focused on the Gold Creek Fault Zone that is a complex, multistage reverse fault set that strikes north-south and dips east commonly at 60 degrees. It separates a footwall of banded (Tollis Fm) arenite from a hangingwall of sheared and foliated mafic volcanic tuffs and fragmentals. (Dorothy Creek Member?) Only the southern sector of the Western Shear has proved to be of economic interest. The bulk of the deposit is hosted by the mafic fragmentals, while further mineralisation has been noted in the immediate arenite footwall.

Breccia veins developed by progressive fractal deformation and dilation characterise the deposit along with quartz veining, silicification, chloritisation, pyritisation, carbonation, hydrocarbon (graphite) introduction, arsenopyrite, gersdorffite and fuchsite.

Along with gold there is anomalous silver, arsenic, antimony, copper, lead, molybdenum, tin and tungsten associated with the mineralising event. Carbon as graphite/bitumen has been introduced as part of a hydrothermal event that has been determined to comprise three distinct but progressive gold mineralising phases.

The deposit dimensions are 150m long by 10m-20m thick. The upper 50m appears to have been overturned to a very steep west dip. The gold-arsenic mineralisation appears to have post dated the majority of deformations.

Both north east and north west striking fractures and faults have offset and "shuffled" the mineralised zone, and assisted in progressive dilation of the setting. The mafic tuff sequence above Main Zone is extensively altered, veined and locally well mineralised for 100m above the deposit.

The deposit is highly oxidised to 15m-20m depth, then moderately oxidised (transition ore) to 25m-30m depth. This passes abruptly into primary mineralisation that has some refractory characteristics.

Maud Dolerite outcrops 250m to the east of Main Zone. Immediately to the west and south the sequence is blanketed by up to 40m of flow basalt of the Antrim Plateau Volcanics. This has precluded all exploration methods except drilling. The effectiveness of airborne magnetics is downgraded over basalt cover.

5.0 PREVIOUS EXPLORATION

Historical Activity

The Maud Creek Goldfield was discovered in 1887 adjacent to Maud Creek some 1km NE of the Main Zone deposit that was not discovered until a hundred years later.

A battery was set up for production between 1890-92 but was deserted soon after. The field re-opened during the Great Depression between 1932 and 1940. The recorded total production was 540oz gold. Production was affected by the fine grain size of the gold and high sulphide content of the primary ore.

Ore was produced from some 20 shallow shafts and potholes, with an average head grade of about 30-45 g/t Au. Shafts of 6 to 12 metres deep, with drives of 15 to 30 metres in length were the norm. The gold occurred in sulphidic quartz reefs and silicified fault breccia cutting Maud Dolerite and tuffs of the Tollis Formation. The veins varied from a few centimetres to a metre in width, trending north-easterly and north-westerly. Minor chalcopyrite and pyrite are associated with the veins.

Modern Exploration

Between 1966 and 1973 several companies including Western Nuclear Australia and Magnum Exploration explored the area for copper, gold and uranium. IP surveys and drilling of siliceous and gossanous breccias intersected low, albeit anomalous, concentrations of copper and molybdenum and numerous pyritic zones. The NT Geological Survey carried out IP surveys, soil sampling and petrographic investigations in the late 1970s as part of an assessment of an extension to Katherine Gorge National Park.

C.S.R.Limited 1985-1986. The company was granted several exploration licences covering the Maud Creek Goldfield and adjacent areas. (EL4716, Mt Gates: EL4914 Maud Creek:: **EL 4669 Mt Shepherd**: EL 4874 Peckham Hill) Their exploration objective was to locate gold in Lower Proterozoic. dolerites analogous to WA's Golden Mile.

During 1985 work was carried out on Mt Shepherd EL and the Mt Gates workings near the old Homestead.

The Mt Shepherd EL 4669 covered most of the western half of the Maud Goldfield including the present Main Zone pit. In 1985, following on from an airborne, 200m spaced magnetic and radiometric survey, ground work included stream sediment BLEG sampling over Maud Dolerite. Some 26 samples were taken and analysed for Au, Ag and Cu. Soil sampling was also carried out (158 samples As, Cu, Fe) Rock chip sampling was carried out on old mining pits (6 samples) Petrographic samples were also collected.

In 1986 further soil sampling programs were completed totalling 630 samples sieved to -80 mesh, and analysed for As, Cu and Fe. The area covered

included **Maud Creek EL5914**, that included the central and eastern Maud workings.

Ground magnetics were conducted over the soil grid.

A total of 25 trenches were dug in the vicinity of workings, and were channel sampled (Au, Ag, Cu, As, Pb, Zn and Fe)

Thirteen petrographic samples were submitted from the area.

Regional rock chip sampling was undertaken.

CSR withdrew following disappointing results in the Maud Dolerite.

Placer Exploration Ltd 1988-1992

Placer purchased all of C.S.R.'s Australian mineral assets in August 1988. No field work was carried out at Maud Creek until 1989-1990.

Placer Exploration 1989-90 Placer conducted a program of detailed geological mapping and rock chip sampling (274) supported by 6.6 line/km of IP. Project total drilling, 26 holes for 2830m were completed including the Chessmen-Red Queen area.

Placer followed up a CSR BLEG stream anomaly (1.3ppb Au) and sampled the mineralised Main Zone breccia veins that gave strong gold values. These were drill tested (WP1-WP10, 1137m) along with the rest of the "Western Shear Zone" that hosts the Main Zone gold deposit. The program met with significant widths and grades of gold mineralisation.

Placer Exploration Ltd 1990-1991

Most of the work carried out was on the Western Shear Zone (Main Zone) prospect and comprised systematic RC drilling, 36 holes for 2746.3m (incl. WP11 to WP42) and diamond core drilling, 726.84m, in 7 holes (WD1-7).

The drilling was supported by traverses of gradient array IP over the whole Western Shear Zone along with ground magnetics, detailed geological mapping at 1:500 scale and rock chip sampling.

Placer Exploration Ltd 1991-1992

Work continued on the Western Shear Zone, comprising 1208m of precollar RC holes, and 12 diamond core hole tails totalling 941m, and deepening WD2. (WP43-WP53, WD8-WD20)

The Main Zone deposit was estimated at 1Mt @ 4.0g Au/t when Placer optioned the project to Kalmet Resources NL in December 1992.

Kalmet Resources NL 1992-1993

Kalmet took an option from Placer (exercised on 22/8/96) and conducted colour aerial photography, and photogrammetry to produce scale base maps. In addition, Placer's drilling data was entered into a Surpac database.

At Main Zone, 15 close-spaced costeans were dug over a 550m strike to gain bedrock information. A total of 845 samples were collected.

Kalmet Resources NL 1993-1994

The upper 60m of the deposit had not been drilled and an RC program comprising 36 holes for 2211m was completed. (MRC-1 to MRC-36)

Metallurgical testing of five high grade RC samples was completed and core samples were sent to AMDEL for further work.

A project manager was appointed with a view to mining.

An environmental impact study was commissioned.

Mt Carrington Mines Ltd 1993-1994

Mt Carrington independently carried out exploration on MCNs4218-4225 south and east of Main Zone.

They undertook gridding and RAB drilling comprising 588 holes for a total of 2451m on 200m line spacing and 25m separation. (RAB1-RAB588)

Follow up RC drilling comprising 25 holes for 933m (MC1-MC25)

A stream sediment BLEG survey determined gold and arsenic. 45 samples.

Mt Carrington Mines became Norminco and conducted reviews.

A further 991m in 73 RAB holes on airmag targets, and 95 soil samples taken by Norminco.

Kalmet Resources NL 1994-1995

Sterilisation RC drilling comprised 21 holes each to 99m depth, to the west of the Main Zone deposit. (MCP1-MCP21)

Exploratory RC drilling to detail the oxide zone, (MCP37-MCP50) totalled 595m.

Metallurgical tests showed the primary sulphide mineralisation was refractory (arsenopyrite)

Biox tests undertaken.

Feasibility showed project marginal.

Kalmet Resources NL 1995-1996

Geological detailed 1:500 mapping at Western Shear.

RC drilling MCP51-MCP301, for an advance of 25,548.2m

Diamond core drilling, 20 holes for 1949.92m (MD14-MD33)

RAB drilling , 282 holes for 3674m.
Gridding and surveying, petrography, database validation.

Kalmet Resources NL 1996-1997

Kilkenny Resources NL reviewed the Kalmet reports using a consultant, and conducted due diligence on underground and open pit mining scenarios with a view to acquiring the prospect.

Kalmet commissioned Resource Service Group to formulate a work program for the 1997 year.

Work implemented comprised surveying and gridding, Aerial photography, geological mapping, Soil sampling, stream sediment sampling, RC drilling, diamond drilling, resource estimations, metallurgical testwork, pre feasibility work and EIS document preparation. The Main Zone deposit was estimated at 415,000oz as a result of this work but the bulk of the deposit was determined to be refractory.

Kalmet Resources NL became a wholly owned subsidiary of Kilkenny Gold NL in September 1997.

Kilkenny Gold NL 1997-1998

Structural assessment, metallogeny, exploration review. (B.Hill)
Aerial magnetic interpretation and review

Rock chip sampling, 8 samples, gold, arsenic.

Soil sampling, 99 samples, 100/25m grid, -200 mesh, gold, arsenic.

RC drilling, 102 holes for 9759m. Divided into Main Zone testing plus prospects O'Shea's, Maud Flats, Chlorite Hill, Surprise, Curlies and Roo Plains. (MCP, MCW, MCE, SRRC, SWM)

Diamond drilling, 8 holes for 1139.9m, MD047-MD054.

Resource estimation, measured, indicated and inferred, 9Mt @ 3.0g/t Au.
Optimised open pit, proved and probable reserve, 463,000t @ 6.79g/t Au.
Underground design study in progress.
O'Shea's, resource total, 19,000t @ 3.07g/t Au.

Biox met. Testing, Leachwell base of oxidation testing, SAG mill test work.

Kilkenny Gold NL 1998-1999

Consultant geological and magnetic interpretation around Main Zone deposit.

Geological mapping.

Main Zone oxide pit design commissioned. 151,000t @ 5.02g/t Au.

Metallurgical testwork, Albion process.

The Maud Creek feasibility study and environmental sciences, heritage and aboriginal artifact field surveys related to MLN 1978 application were completed.

Phoenix Mining Ltd 1999-2000

Kilkenny Gold NL became Phoenix Mining Ltd in 1999.

AngloGold Australasia Ltd acquired rights to mine the Main Zone deposit and treat the ore at its Brocks Creek operation in February 2000.

AngloGold conducted a thorough investigation of the resource and collected 14 rock chips for multielement analysis plus petrographic study.

Mining of oxide and transition ore from the deposit occurred during 2000.

Total production comprised 173,581t @ estimated* 3.32g Au/t.
*Blended with Brocks Creek ore.

Hill 50 Gold NL 2000-2001 (Hill 50 Limited)

Hill 50 acquired the tenements in May 2001 and Drillcorp was commissioned in August 2001 to carry out pre collar and diamond core drilling positioned south of the existing pit. During that year a total of 204m of RC precollar and 2,712.1m of diamond core drilling was completed from four surface collar positions and daughter wedges.

At 'Chlorite Hill', 1km to the NE, an RC drilling program comprising 12 holes for 691m tested the old workings. All holes were drilled in dolerite, and some met with narrow intercepts at moderate grade.

Rock chip sampling comprising 11 samples plus reconnaissance geological work was also carried out. Expenditure totalled $728,101.

Harmony Gold (Aust) Ltd 2001-2002

The 2002 program was an extension of the drilling initiated in 2001. The primary objective was to further evaluate the down plunge component of the Main Zone deposit and the Eastern Shear hanging wall mineralisation.

Stanley Drilling was commissioned to drill 25, deep RC holes, including 5 RC precollars and 6 diamond core holes. The coring component totalled 1,010m while RC drilling totalled 6,233m

S.Snodin was commissioned to conduct an air photo and geophysical interpretation of the Maud Creek project area at photoscale (1:25,000) which included the area subject to this report. Expenditure was $567,066.

6.0 EXPLORATION DURING 2003

During 2003 Harmony focused on reviewing the extensive drilling data from its previous two years of work, plus the drilling data that pre-dated open pit mining.

A consultant was commissioned to apply geostatistical treatments to Harmony's sectional grade interpretation so as to arrive at an updated gold resource figure for the deposit.

The consultant concluded that the Main Zone gold deposit contained a global indicated plus inferred resource totalling **5,686,308t averaging 4.51g Au/t**.

The full report as written by the consultant is included as Appendix 1.

7.0 EXPENDITURE STATEMENT 2003

Salaries and Wages	$3,143.00
Consultants geostatistics	$10,592.00
Photography	$110.00
Consumables	$2,726.00

	$16,571.00

8.0 FORWARD PROGRAM 2004

The Maud Creek Project was the subject of resource evaluation drilling by Hill 50-Harmony over the 2001-2002 period.

The statistically estimated resource shows that Main Zone is a substantial deposit with contained gold totalling over 800,000oz.

This resource is known to have a refractory component that requires customised treatment to elevate gold recoveries to economic levels.

In the 2004 year Harmony will be investigating the best alternatives available to realise a satisfactory return on its investment at Maud Creek. These options include conducting metallurgical tests and finding a suitable partner to offset the costs of development. An audit of the status of rehabilitation at the site is also proposed.

It is anticipated these costs will amount to $15,000 in 2004.

APPENDIX ONE

F. Dyer, Geostatistical Resource Estimate
Maud Creek Deposit