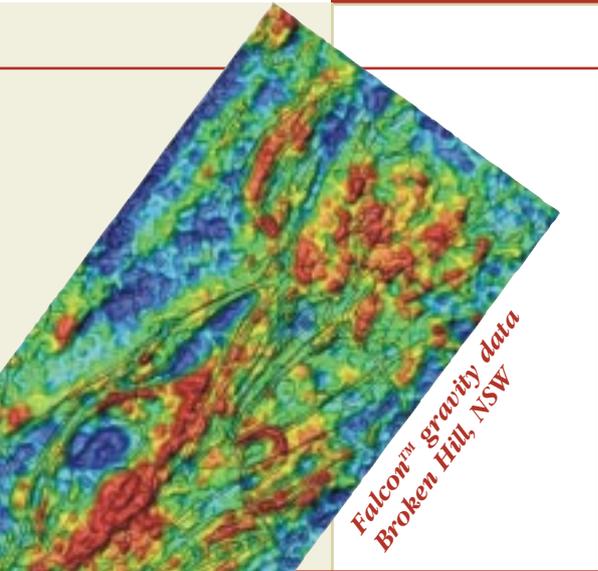


AUSTRALIAN *Mineral* EXPLORATION



FEBRUARY 2004

A REVIEW OF EXPLORATION FOR THE YEAR **2003**



OVERVIEW

- ▶ Australian mineral exploration spending in 2002-03 rose by 14.4% to \$732.5, the first significant increase since 1996-97.
- ▶ Global non-ferrous mineral exploration budgets rose 26% to an estimated US\$2.4 billion in 2003. Australia's share of reported world budgets was US\$339.3 million (15.5%).
- ▶ All States and the Northern Territory recorded increases in mineral exploration activity. Western Australia dominated with \$423.6 million, 57.8% of total Australian mineral exploration expenditure in 2002-03.
- ▶ Gold was the major commodity sought with spending of \$378.4 million, 51.7% of the total. There were significant increases in iron ore, coal and nickel exploration.
- ▶ Company exploration activities generated a significant number of drill intersections of economic interest, particularly for gold and nickel, in several mineral provinces. A number of junior companies commenced production of nickel and/or have nickel projects at an advanced stage.

EXPLORATION REVIEW

Australian mineral exploration expenditure rose by 14.4% to \$732.5 million in 2002-03 (year ending 30 June 2003) according to the Australian Bureau of Statistics (ABS). This was the highest annual current dollar expenditure since 1998-99. In constant 2002-03 dollars spending was 11.4% higher than in 2001-02 (Figure 1) but was 45% lower than the 1996-97 peak. It was the first constant dollar increase since that peak.

All States and the Northern Territory recorded increased spending in 2002-03 with Western Australia, the leader, attracting \$423.6 million, an increase of 11.2% on 2001-02. Other spending was: New South Wales up 22% to \$58.8 million, Victoria up 36% to \$46.2 million, Queensland up 23% to \$114 million, South Australia up 14% to \$36.7 million, Tasmania up 7.5% to \$4.3 million and the Northern Territory 1% to \$49.2 million.

Gold dominated exploration spending (51.7%) and at \$378.4 million was at its highest level since 1998-99. Iron ore and coal exploration recorded strong growth with increases of 77% (to \$44.5 million) and 55% (to \$77.9 million) respectively. Nickel exploration rose by 22.7% to \$65.9 million but copper and zinc, lead, silver exploration fell slightly. After a record year in 2001-02, mineral sands exploration fell by 17.8% to \$27.3 million.

In 2002-03 ABS reported that exploration drilling totalled, 5.16 million metres, an increase of 0.3 million metres (7%) from 2001-02. Of the total, 1.62 million metres (32%) were on production leases.

¹ All monetary references in this paper are to Australian dollars unless otherwise stated.

Government programs

The Australian and State/Northern Territory governments continued geoscience programs to support mineral exploration with new data, products and initiatives in 2003. Highlights included:

Geoscience Australia

- Online delivery of geophysical data, including magnetics, radiometrics, gravity and DEM, via the Internet using the new web-based Geophysical Archive Data Delivery System.
- New maps, data sets and insights into the controls on distribution of gold mineralisation in the Yilgarn and Gawler Cratons and Tanami Province, and copper-gold systems in the Gawler Craton.
- Online interactive 3D geological models to assist exploration under cover are available for the Eastern Goldfields (Yilgarn Craton), Gawler Craton and the Tanami Province.

Northern Territory

- Commencement in July 2003 of a new geoscience initiative costing \$15.2 million over 4 years.
- Acquisition of airborne gravity data over 6875 km² of West Arnhem Land in joint venture with industry and Geoscience Australia.
- Release of major diamond exploration databases containing ~58,000 diamond indicator results from over 700 historical exploration tenements.

Queensland

- Continuation of a \$9.2 million geoscience initiative over 4 years.
- Release of an exploration geochemistry database with over 1.4 million points.
- Release of a GIS of the gold-rich Charters Towers region including updated geology, mineral occurrences, geophysical information and whole rock geochemistry.
- New airborne geophysical survey of 65,000 line kilometres covering nearly 30,000 km² of the Central Bowen Basin.
- Scanning and loading over 6,300 previous company exploration reports onto the web-searchable document management system (QDEX).

South Australia

- Continuation of TEISA (Targeted Exploration Initiative SA) 2020.
- New geophysical maps and compilations based on reprocessed open file data for over 3 million line km.
- Interpreted Depth to Basement map using depth to magnetic basement and GEODATA drill hole database released.
- Release of new Basement Geology of the Gawler Craton regional maps and online GIS.

New South Wales

- Continuation of the \$30 million Exploration NSW geoscience initiative.
- Broken Hill Falcon™ airborne gravity gradiometer survey flown in February 2003 and data presented.
- NSW Lachlan Fold Belt Synthesis with new interpretations of tectonic and metallogenic evolution, new concepts on mineral systems released.

Western Australia

- 1:100,000 scale geology database of the Eastern Goldfields available on CD.
- A new GIS viewer, which includes a capacity to export customised maps to Word documents, is incorporated in the CD together with geophysical and satellite images.
- Continued major production program releasing 36 maps, 36 books and 27 digital datasets.
- Release of a further 76,000 line km of high quality aeromagnetic and radiometric data.

Victoria

- Victorian Initiative for Minerals & Petroleum (VIMP) continued, with investment of \$29.5 million over 10 years in acquisition of modern geoscientific data.
- MapShare - Online Web Mapping gives access to geology, geophysics, geochemistry, drill holes, mineral occurrences, tenements, land status, roads.

Tasmania

- Tasmania's online geological and mineral exploration knowledge base (TIGER) implemented with interactive maps, tenements, technical reports and company exploration data.
- 3D geological model of western Tasmania forms the basis for a new understanding of the tectonic and metallogenic evolution of Tasmania

Land Access

The grant of tenure for minerals is made under State and Territory mining legislation. These grants are subject to a range of legislative and administrative regimes relating to land use including native title, cultural heritage, and environment and planning, both at State/Territory and Commonwealth levels. New legislation in the 1990s that reflected a higher level of statutory recognition of native title, environment and heritage protection introduced new access procedures that led to a backlog of mineral tenement applications in some states in the late 1990s.

All States (except South Australia - see below) and the Northern Territory have now implemented procedures consistent with the Commonwealth *Native Title* Act for the grant of exploration licences on land potentially impacted by Native Title. Under these arrangements claims can be handled under the Expedited Procedures process. As a result, new exploration licences are being granted and the backlog of claims reduced in those jurisdictions most impacted by the

Native Title Act. For example, Western Australia granted over 1400 prospecting and exploration licences, and 130 Mining Leases in 2003. The Northern Territory has granted over 600 exploration licences in the last 3 years. Queensland has reduced the number of outstanding mineral exploration permit applications and it is expected that a standard exploration permit application will now be granted approximately six months after the initial application is made under the new Expedited Procedure. South Australia has been operating under its approved "Right to Negotiate" scheme of its *Mining Act* since June 1996 and has experienced no delays in the granting of exploration licences. Native Title is generally not a limitation to land access in New South Wales, Victoria and Tasmania.

All Governments and industry are actively pursuing a policy of resolving native title claims and ensuring protection of Aboriginal heritage by negotiation, especially through the development of Indigenous Land Use Agreements (ILUAs). Several jurisdictions have developed standard ILUAs and regional agreements. For example, regional agreements concerning Aboriginal heritage protection protocols have been signed with four of the six Western Australia native title representative bodies meaning that heritage protocols cover 80% of WA and also 80% of outstanding exploration title applications. If an applicant for an exploration title signs a Standard Heritage Agreement with a native title representative body, its licence application will be submitted via the Expedited Procedure under the *Native Title Act*. In 2002-03, 21 ILUAs were authorised by native title groups in Queensland and a further 18 ILUAs are expected to be registered in 2003-04 allowing many outstanding applications for exploration permits to progress. South Australia is pursuing a State-wide ILUA process with a standard template and to date two ILUAs have been signed with native title claimant groups.

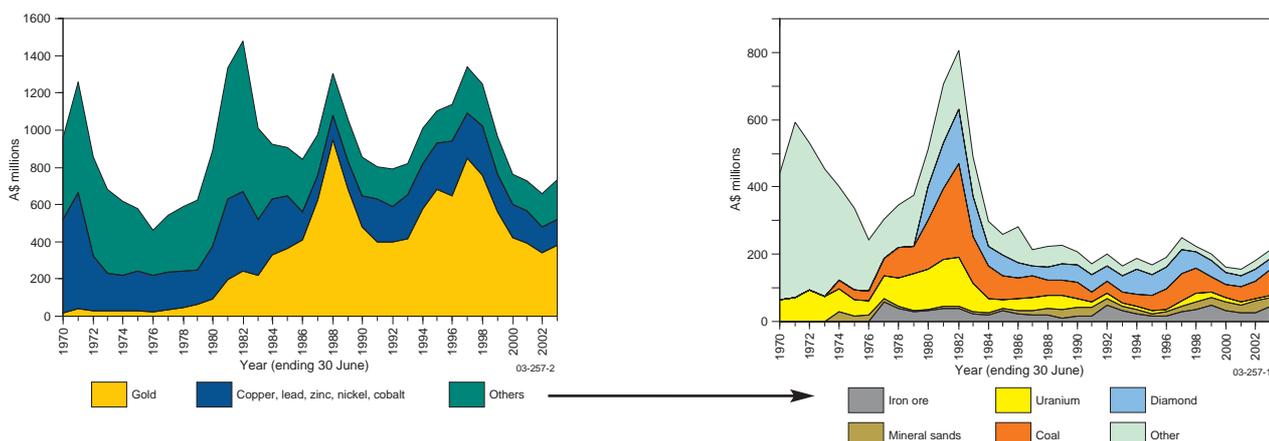
The Commonwealth Government, Northern Territory Government and the Aboriginal Land Councils are currently reviewing the workability of the Commonwealth *Aboriginal Land Rights (NT) Act* to facilitate the grant of exploration and mining tenure on Aboriginal freehold land in the Northern Territory. The Northern Territory Government has also committed additional resources for capacity building projects in Aboriginal communities and to improve processes to facilitate land access. The *Environment Protection and Biodiversity Conservation Act 1999* has also reduced duplication between Commonwealth and State environment assessment processes by focusing Commonwealth interests on matters of national environmental significance and providing for the accreditation of State processes. The States are also streamlining their environment, heritage and conservation estate processes to better coordinate with native title and mineral tenement processes. These developments will further reduce delays for mineral exploration companies, while delivering sound environmental and heritage outcomes. Specific information on land access and tenements is available from the individual jurisdictions (see Contacts on page 8).

The Metals Economics Group's (MEG) world survey of non-ferrous mineral exploration budgets for 2003 reported an increase of 26% to an estimated total budget of US\$2.4 billion. Budgets for exploration in Australia, rose by 11% to US\$339.3 million.

According to the MEG data 61% of 2003 mineral exploration budgets for Australian-based companies was for exploration in Australia. The MEG survey included 233 companies with non-ferrous mineral exploration budgets of more than US\$100,000 that were exploring in Australia, an increase of 12 over 2002. Budgets for Australian mineral exploration were directed mainly to gold (US\$209.3 million), base metals (US\$83.5 million) and diamonds (US\$15.9 million). Australian grassroots mineral exploration budgets are dominated by the search for gold (55% of total budgets).

There was an increase of almost 50% in the number of successful initial public offerings (IPOs) for mineral exploration on the Australian Stock Exchange in 2003 to 38. Capital raisings via IPOs, mainly for exploration in Australia, totalled \$206 million. The average amount raised by these IPOs was \$5.4 million. Joint ventures continued to be prominent as a means of funding mineral exploration with junior companies joining with majors to facilitate exploration on their leases. Major international companies to participate in joint venture arrangements during the year included Barrick Gold Corp, AngloGold Ltd, Newmont Mining Corp, BHP Billiton Plc, Teck Cominco Ltd, Anglo American Plc and Inco Ltd.

Figure 1: Australian mineral exploration expenditure in constant 2002-03 dollars. Based on Australian Bureau of Statistics data deflated by Consumer Price Index.



EXPLORATION HIGHLIGHTS

Gold

New South Wales (NSW)

- Continuing exploration by Alkane Exploration Ltd at its *Wyoming* prospect, 12 km north of its Peak Hill mine yielded numerous high grade intersections. At Wyoming One intersections included 129 m at 3.85 g/t Au from 48 m, 15 m at 11.92 g/t Au from 105 m and 99 m at 4.3 g/t Au from 258 m and at Wyoming Three 3.7 m at 5.17 g/t Au from 47 m and 10 m at 8.35 g/t Au from 48 m. An initial resource estimate, for both deposits is 6.38 Mt at 2.43 g/t Au (0.498 Mozs) (cut off grade of 0.75 g/t Au).
- Near Cobar, Golden Cross Resources Ltd, reported encouraging results from initial drilling at the *Mt Boppy South* prospect. The holes, testing an epithermal vein system, yielded results including 3 m at 10.8 g/t Au from 24 m, 10 m at 2.75 g/t Au from 9 m and 4 m at 3.29 g/t Au from 14 m.
- Central West Gold NL reported high-grade intersections from the *Boorook* prospect near Tenterfield. Two in holes gave 3 m at 103 g/t Au and 2 m at 22 g/t Au.

Northern Territory (NT)

- At the *Malbec* prospect, 1 km west of its Chariot mine near Tennant Creek, Giants Reef Mining Ltd announced significant gold intersections in non-magnetic ironstones. These included 15 m at 7.83 g/t Au between 9 and 24 m, 1 m at 10.95 g/t Au from 49 m and 1 m at 14.36 g/t Au from 54 m.
- Northern Gold NL and Harmony Gold Mining Co. reported high-grade drill intersections at the *Zapopan* project near Pine Creek, including 3.6 m at 35.7 g/t Au, 6 m at 31.2 g/t Au and 5.7 m at 19.4 g/t Au.

Queensland (QLD)

- Strategic Minerals Corporation NL reported more high-grade intersections from its *Explorer* prospect, Woolgar project, 100 km north of Richmond. Results included 8 m at 10.7 g/t Au from 113 m and 11 m at 14.7 g/t Au from 82 m.
- At *Wallace South*, 20 km southeast of Cloncurry, a resource of 52,000 oz from 0.66 Mt at 2.4 g/t Au was estimated by Cloncurry Mining Co. Better drill results include 40 m at 3.09 g/t Au, 10 m at 13.44 g/t Au and 16 m at 8.49 g/t Au.

South Australia (SA)

- Helix Resources Ltd continued to report encouraging intersections from the *Tunkillia* project in the Gawler Craton. These included 29 m at 4.3 g/t Au, 2 m at 29.7 g/t Au and 2 m at 27.8 g/t Au from one hole in the Area 223 North area.
- At its *Challenger* mine, Dominion Mining Ltd reported drilling had demonstrated the potential for an extended underground mine life by intersecting mineable grade mineralisation over 150 m vertically below previous drilling. Intersections reported included 4 m at 22.03 g/t Au, 6 m at 21.5 g/t Au and 6 m at 42.48 g/t Au.

Tasmania (TAS)

- At the *Lisle* project, TasGold Ltd reported high-grade gold intersections. Some of the better results included 1 m at 5.8 g/t Au, 1 m at 7.8 g/t Au and 4 m at 12.8 g/t Au from 6 m, including 1 m at 42.7 g/t Au from 7 m.

Victoria (VIC)

- MPI Mines Ltd reported two significant gold discoveries under the cover of the Murray Basin north of its Stawell gold mine. At *Kewell*, 100 km northwest of Stawell, under 120 m of cover, Stawell style mineralisation was intersected with intercepts of 4.2 m at 3.46 g/t Au from 149.6 m, 2.3 m at 2.2 g/t Au from 161.6 m and 4.12 m at 12.6 g/t Au from 180.44 m reported. At *Wildwood*, 20 km north of the Stawell mine and also undercover, MPI intersected 4 m at 5.21 g/t Au from 119.8 m and 3.45 m at 3.84 g/t Au from 131.7 m.
- At its *Ballarat East* project at Ballarat, Ballarat Goldfields NL reported an indicated resource of 0.3 Mt at 9.2 g/t Au (0.1 Moz) and an inferred resource of 1.7 Mt at 11 g/t Au (0.6 Moz). Recent drilling returned high-grade intersections including 2.4 m at 14.1 g/t Au from 602 m and 6.7 m at 9.6 g/t Au from 599 m.

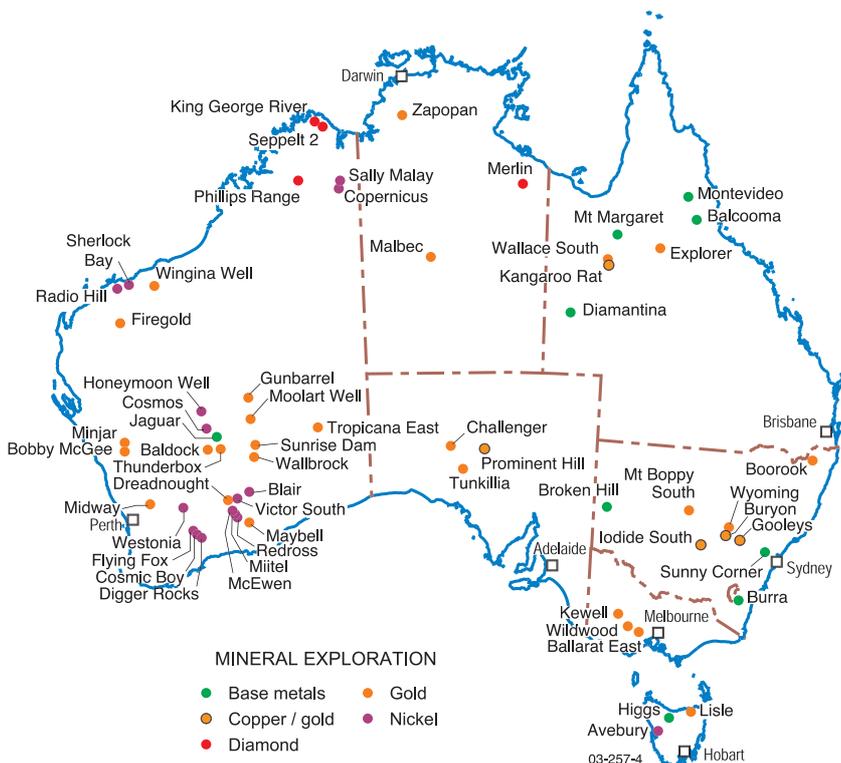


Figure 2: Selected mineral exploration projects, 2003.

Western Australia (WA)

- Drilling by AngloGold Ltd identified the Carey Shear, a repetition of the Sunrise Shear Zone, at a depth of approximately 900 m under the *Sunrise Dam* mine. The hole also intersected 10 m at 53.6 g/t Au at a downhole depth of 1350 m.
- Gindalbie Gold NL reported a high-grade discovery at the *Bobby McGee* prospect 160 km southwest of Mount Magnet. Intersections reported include 7 m at 171 g/t Au from 37 m, 16 m at 6.97 g/t Au from 24 m and 4 m at 8.7 g/t Au from 13 m.
- At the *Firegold* prospect, in the Ashburton province, 17 km northwest of the Mt Olympus gold mine, Pelican Resources Ltd reported encouraging drill results including 1 m at 21.8 g/t Au from 35 m, 2 m at 3.51 g/t Au from 38 m and 17 m at 1.02 g/t Au from 20 m including 6 m at 2.08 g/t Au.
- Wide zones of gold mineralisation were reported by De Grey Mining Limited from reconnaissance drilling at the Indee Turner River gold project, 70 km southeast of Port Hedland. Among them were 32 m at 8.40 g/t Au, 26 m at 8.39 g/t Au and 40 m at 4.34 g/t Au at the *Wingina Well* prospect.
- At the *Minjar* project, 150 km southwest of Mount Magnet, Gindalbie Gold NL reported high-grade gold intersections below the planned base of the Silverstone open pit, including 5 m at 15.72 g/t Au, 11 m at 12.0 g/t Au and 6 m at 15.46 g/t Au.
- At the *Wallbrook* project, 125 km northeast of Kalgoorlie, Jackson Gold Ltd reported strong intersections. On the Redbrook prospect it encountered 120 m at 1.27 g/t Au – the entire length of hole. Other intersections reported from the project included 1 m at 9.36 g/t Au at the Painted Harlot prospect and 7 m at 9.45 g/t Au at the Eleven Bells prospect.
- Dalrymple Resources NL reported that deep drilling at the *Thunderbox* deposit returned intersections including 98.74 m at 2.74 g/t Au and 56.26 m at 2.38 g/t Au.
- East of Laverton, AngloGold Ltd

and Independence Gold Ltd intersected promising gold values at the *Tropicana East* project. Limited drilling returned intersections of 13 m at 1.9 g/t Au from 79 m and 11 m at 1.3 g/t Au from 43 m in a second hole.

- At Cullen Resources Ltd's *Gunbarrel* project 130 km east of Wiluna, high-grade results were recorded from the Southern Prospect. These included 1 m at 77.7 g/t Au from 56 m, 8 m at 4.28 g/t Au from 86 m and 1 m at 11.94 g/t Au from 8 m.
- Drilling at the *Midway* prospect, Mt Gibson project, 280 km northeast of Perth, by Oroya Mining Ltd yielded a number of significant intersections including 4 m at 9.22 g/t Au from 42m, 13 m at 8.97 g/t Au from 74 m and 21 m at 3.35 g/t Au from 49 m.
- Hamill Resources Ltd continued to report high-grade intersections at its *Baldock* prospect near Menzies. These included 1.36 m at 74.8 g/t Au from 241 m, 3.43 m at 40.6 g/t Au from 226 m and 1.16 m at 59.6 g/t Au from 339.7 m.
- Deep intersections were reported by Austminex NL from the *Dreadnought* prospect 5 km south of Coolgardie. Dreadnought currently has an inferred resource of 0.97 Mt at 3.0 g/t Au and the new results have the potential to increase that. Results include 14 m at 9.1 g/t Au from 177 m, 12 m at 10.7 g/t Au from 100 m and 7 m at 9.4 g/t Au from 152 m.
- Mawson West Ltd reported high-grade intersections from its *Maybell* prospect at Norseman, including 6 m at 31.42 g/t Au and 5.5 m at 15.66 g/t Au.
- Newmont Australia Ltd and Johnsons Well Mining NL reported that at the *Moolart Well* project 150 km north of Laverton, gold mineralisation had been defined over about 4 km. Better intersections included 12 m at 6.47 g/t Au and 16 m at 1.25 g/t Au.

Copper-Gold

- At *Prominent Hill*, SA, Minotaur Resources Ltd continued to report good intersections including 130 m at 1.41% Cu and 0.43 g/t Au and

162 m at 1.03% Cu and 0.46 g/t Au. Late in the year further intersections reported included 103 m at 2.52% Cu and 1.1 g/t Au and 133 m at 1.72% Cu and 1.4 g/t Au including 27 m at 4.2% Cu and 2.3 g/t Au. This drilling confirmed the presence of two copper-bearing breccias in the western part of the deposit of which the southern breccia is wider and of higher grade.

- Drilling by Triako Resources Ltd at its *Iodide South* prospect at Mineral Hill, NSW, returned intersections including 8.2 m at 12.4% Cu and 1.2 g/t Au, 14.6 m at 1.5% Cu and 6.2 g/t Au including 4.5 m at 2.1% Cu and 15.8 g/t Au and 5.6 m at 1.4% Cu and 3.2 g/t Au.
- Newcrest identified a large porphyry-style system at *Gooleys North* prospect on the Junction Reefs JV area, east of Cadia, NSW, where an intersection of 743.4 m at 0.17 g/t Au and 0.10% Cu was obtained.
- Newcrest, and Compass Resources, discovered a new porphyry system at *Buryon* near Alectown, northwest of Bathurst, NSW, where 196 m at 0.26% Cu and 0.16 g/t Au was intersected.
- Cloncurry Mining Company reported an inferred resource of 0.875 Mt at 1.65% Cu and 1.0 g/t Au at the *Kangaroo Rat* prospect, about 20 km southeast of Cloncurry, QLD. Better drill results include 9 m at 4.6% Cu and 0.98 g/t Au, 6 m at 3.1% Cu and 2.1 g/t Au and 11.2 m at 2.14% Cu and 1.4 g/t Au

Nickel

Tasmania

- Allegiance Mining N.L. has received environmental approval for the first stage of development of the *Avebury* nickel deposit, west of Zeehan in Tasmania. This will involve construction of an access road and decline to enable bulk sampling and geotechnical assessment.

Western Australia

- Independence Gold NL reported a high-grade nickel intersection from



- drilling on its *Victor South* project, near Kambalda. The intersection was 15 m (true width) at 10.0% Ni including 10.6 m at 12.8% Ni. This helped confirm the geometry of the sulphide orebody and adds confidence to grade expectations.
- At the *Radio Hill* deposit in the Pilbara region, Fox Resources Ltd reported drilling aimed at testing extensions of mineralisation was successful. One hole returned 18.0 m at 5.1% Ni eq. – 3.62% Ni, 3.06% Cu, 0.2% Co and 0.5 g/t Pd and another 25.4 m at 4.4% Ni eq. – 3.25% Ni, 2.01% Cu, 0.16% Co and 2.15 g/t Pd. Fox believes that mining may restart at Radio Hill by June 2004.
 - Western Areas NL have reported an intersection of 6.6 m grading 7.9% Ni from 454.6 m downhole depth (including 3.7 m at 9.0% Ni) in the *Flying Fox* area of its Forrestania project. Subsequently it reported an aggregate intersection of 21.4 m at 7.79% Ni from 494 m downhole, from one drill hole and a second hole returned 6.6 m at 7.9% Ni. Further drilling intersected massive sulphides and included 2.6 m at 5.2% Ni and 5.6 m at 3.6% Ni.
 - Titan Resources NL confirmed a nickel discovery at its *McEwen* prospect at Widgiemooltha. A new high-grade shoot was identified below disseminated nickel mineralisation. Intersections that penetrated the zone returned 3 m at 4.64% Ni from 164 m, 2 m at 2.64% Ni from 158 m and 4 m at 2.79% Ni from 180 m.
 - Drilling at the *Cosmos* project by Jubilee Mines NL intersected new high-grade nickel sulphide mineralisation. Better intersections include 0.3 m at 13.1% Ni, 1.35 m at 3.9% Ni and 0.55 m at 8.5% Ni.
 - Mincor Resources NL reported massive and matrix nickel sulphides in a drill hole located 300 m north of the *Redross* open pit. The mineralisation occurs in two zones – an upper zone with 1.75 m at 1.46% Ni and a lower zone in which the main intersections were 3.46 m at 3.05% Ni and 0.83 m at 7.00% Ni.
 - A measured resource estimate was released by Central Kalgoorlie Gold Mines Ltd (now Sherlock Bay Nickel Corporation Limited) for the *Sherlock Bay* nickel deposit near Karratha. The estimate is 9 Mt at 0.53% Ni and 0.1% Co. The deposit has a strike length of 590 m and is open at depth. Drilling yielded intersections including 13 m at 0.56% Ni, 11 m at 0.64% Ni, and 21 m at 0.57% Ni.
 - Massive sulphides were intersected by Australian Mines Limited in drilling at the *Blair* mine at Kambalda. Intersections included 1.6 m at 6.5% Ni. Significant nickel sulphides intersections were encountered at Area 57 where results included 3.60 m at 6.2% Ni and 2.65 m at 5.65% Ni.
 - In a new possible nickel region Westonia Mines Ltd reported nickel sulphides from drilling at its *Westonia* project, west of Southern Cross. The mineralisation occurs in the Westonia Greenstone belt and two drill holes returned intersections of 16 m at 1.77% Ni from 44m and 10 m at 1.61% Ni from 30 m.
 - Thundelarra Exploration Ltd announced that Sally Malay Mining Limited at the *Copernicus* deposit had reported significant intersections including, 17 m at 1.91% Ni and 1.45% Cu, 18 m at 1.52% Ni and 0.79% Cu, 23 m at 1.50% Ni and 0.72% Cu. The company also intersected 8 m at 1.75% Ni and 1.08% Cu in a drill hole south of the current resource in the Copernicus deposit.
 - Western Areas NL upgraded the nickel resource adjacent to the existing decline at *Cosmic Boy* to 189,000 t at 2.78% Ni. It also increased the resource at *Digger Rocks* deposit by 20% to 54,900 t grading 3.72% Ni.
 - Mincor Resources NL's drilling at the south end of the *Miitel* orebody assayed 6.88 m at 3.12% Ni (4.5 m true width) and 4.88 m at 3.09% Ni (4.4 m true width). Both holes intersected the down-plunge extension of the NO5 ore body.
 - Deep diamond drilling by Sally Malay Mining Ltd at *Sally Malay* intersected nickel sulphides over 7.4 m at 1.58% Ni, 0.74% Cu and 0.08% Co including a 4.4 m interval at 2.06% Ni, 0.98% Cu and 0.1% Co, approximately 650 m below surface. Confirming that mineralisation continues below the main fault zone.
 - At the Wedgetail prospect in its *Honeymoon Well* project MPI Mines Ltd reported an intersection of 8.81 m at 6.52% Ni. At the Harrier prospect, also in the Honeymoon Well project, intersections of 0.35 m at 9.16% Ni, 0.28 m at 24.7% Ni and 3.95 m at 3.12% Ni were recorded.

Zinc, lead, silver, copper

- At *Sunny Corner* near Lithgow, NSW, Golden Cross Resources Ltd, reported that reconnaissance drilling intersected 50 m at 0.4% Cu, 1.8% Pb, 3.8% Zn, 1.0 g/t Au and 45 g/t Ag and 14 m at 0.7% Cu, 2.9% Pb, 6.2% Zn, 0.07 g/t Au and 23 g/t Ag.
- Drilling by Pinnacles Mines Pty Ltd at the old Pinnacles mine, *Broken Hill*, NSW, intersected mineralisation including 6.4 m at 11.16% Zn, 1.38% Pb and 0.63 g/t Au and 2.5 m at 12.58 g/t Au.
- At *Burra*, south of Queanbeyan, NSW, Universal Resources Ltd intersected 11 m at 14.77% Zn, 1.23% Pb and 9 g/t Ag.
- Kagara Zinc Ltd reported further good intersections at *Balcooma* project, near Greenvale, QLD. In the Upper Lens 4.6 m at 28.8% Pb and 4.53 g/t Au and 4.0 m at 4.8% Pb and 9.4 g/t Au was reported. High-grade copper intersections were 8.1 m at 16.8% Cu and 8.0 m at 13.45% Cu and 7.3% Pb.
- Kagara Zinc Ltd's drilling at *Montevideo* near Chillagoe, QLD, returned a 38.1 m intersection of 7.0% Zn including 13.8 m at 11.0% Zn.
- Glengarry Resources Ltd reported anomalous silver, cobalt and tungsten intersections at its *Diamantina* project south of Mt Isa, QLD. A 1 m intersection at 84.6 g/t Ag, 0.32% Co and 470 ppm W was recorded at 47 m at the end of a hole.
- At *Mount Margaret* in northwest Queensland, Exco Resources NL has identified a new zone of

shallow, high-grade sulphide mineralisation at E1 North.

Significant intercepts included 106 m at 1.56% Cu and 0.41 g/t Au from 24 m and 78 m at 1.97% Cu and 0.65 g/t Au from 22 m

- TasGold Ltd reported an indicated resource of 215 000 t at 3.5 g/t Au, 1.5% Pb, 1.3% Zn and 23 g/t Au from its *Higgs* deposit near Moina, TAS. In further exploration the first hole yielded 3.5 m at 4.0 g/t Au, 5.1% Pb, 4.2% Zn and 0.4% Cu.
- Inmet Mining Corporation and Pilbara Mines Limited announced an initial inferred resource for the *Jaguar* deposit at Teutonic Bore 260 km north of Kalgoorlie, WA, 1.4 Mt at 3.7% Cu, 13.2% Zn, 0.9% Pb, 140 g/t Ag and 0.18 g/t Au. Strong intersections continue to be reported including 3.67 m at 7.36% Cu, 10.95% Zn and 233 g/t Ag and 5.03 m at 4.36% Cu, 7.49% Zn and 144 g/t Ag.

Diamond

- An airborne gravity gradiometry survey using the BHP Billiton FALCON™ system by Diamond Mines Australia in joint venture with Kimberley Diamond Co has identified 20 anomalies including new targets that may include

pipes infilled with tuffs not detected in aeromagnetic surveys.

- Striker Resources Ltd reported that bulk sampling of its *Seppelt 2* pipe in the North Kimberley had recovered 219 cts of diamonds, including some larger than 3 cts, and that a grade of around 2 cts per tonne for the pipe was indicated.
- A survey by the BHP Billiton FALCON™ airborne gravity gradiometer system over the *King George River* area of the North Kimberley has revealed nine new target areas.
- Thundellara Exploration Ltd reported that a FALCON™ airborne gravity gradiometry survey flown by Gravity Capital/Diamond Mines Australia in the *Phillips Range* around its Aries kimberlite pipe had identified a further 38 potential targets. Kimberlitic indicator minerals have been recovered from two targets.
- Striker Resources Ltd announced that it had acquired 100% of Ashton Mining's exploration tenements surrounding Rio Tinto's decommissioned Merlin Diamond Mine in the Northern Territory. Several drill-ready targets have been identified in close proximity to the former mine site.

PROJECT DEVELOPMENT

Copper

- Straits Resources announced first production from the *Tritton* copper deposit, near Nyngan, NSW, is expected in the last quarter of 2004, with construction to begin in February 2004. Capital expenditure is expected to be about \$39 million.
- Straits Resources Ltd announced that it planned to proceed with the development of the *Whim Creek* project, in the Pilbara region, WA, starting in early 2004. Capital cost is estimated at \$23 million.

Gold

- Barrick Gold's *Cowal* Gold Project, near West Wyalong, NSW, now has a reserve of 66.4 Mt at 1.18 g/t Au (2.8 Moz). A decision on final commitment to mine construction is expected in early 2004. The company was granted a Mining Lease in June.
- Renison Consolidated Mines NL reported that the first gold from its *Quest 29* mine near Pine Creek, NT, was poured in September.
- Giants Reef Mining poured its first gold from its *Chariot* gold project near Tennant Creek, NT. The 125,000 tpa operation will produce around 60,000 oz per annum at cash costs of around \$230/oz, with current reserves giving it a four-year mine life.
- Newcrest Mining Ltd and Sedimentary Holdings Ltd signed the mining joint venture documents allowing the construction of the *Cracow* gold project 2 km west of Cracow, QLD, to start. The capital cost of the project is \$89 million with the first gold production expected in December 2004.
- Dominion Mining Ltd announced that it would develop an underground mine at its *Challenger* gold project in the Gawler Craton, SA. Development is scheduled for March 2004.



Figure 3: Selected mineral development projects, 2003.

Nickel

- BHP Billiton spent \$70 million on a pilot plant for its *Ravensthorpe* laterite nickel project, WA, with the aim of being in production by the second half of 2006 following the completion of a feasibility study in the first quarter 2004.
- Australian Mines Ltd announced that the underground development at its *Blair* mine near Kambalda, WA, commenced in December.
- Western Areas NL will do a bankable feasibility study on its proposed \$70 million *Forrestania*, WA, project with production by late of 2004.
- Construction commenced in April at the *Sally Malay* nickel project following the securing of a \$52 million loan in mid-March. The first concentrates are scheduled to be shipped in March 2004.
- Mincor Resources NL will develop

the *Redross* mine, 70 km south of Kambalda, WA, during 2003–04, at a cost of about \$11 million. The mine has an Indicated and Inferred Resources of 0.345 Mt at 5.01% Ni.

Diamond

- Approval to start development of a \$70 million exploration decline at *Argyle*, WA, was given in late 2003. The 2.2 km decline a about 300 m deep, will test the ore body beneath the existing open pit. Construction is expected to take 18 months with the decline and cost of about \$70 million. Rio Tinto is doing a full feasibility study that may lead to an underground mining decision in 2005. The open pit is expected to be mined out during 2008.
- Kimberley Diamond Co reported further high prices from sales of

diamonds from its *Ellendale 9* pipe in the West Kimberley where it is mining a resource of 30.3 Mt at an average grade of 5.3 c/100t with an average value more than US\$170/ct.

Iron ore

- Rio Tinto announced a \$1.25 billion expansion of its *Yandicoogina* mine in the Pilbara region, WA. The expansion will raise capacity from about 20 Mtpa to 36 Mtpa by early 2005.
- Rio Tinto's *Eastern Range* mine is scheduled to come on stream in 2004 at a cost of \$64 million.
- Portman Limited gave the go ahead for the \$20.3 million mine expansion at *Koolyanobbing*, WA, focused on Windarling and Mount Jackson deposits that are north of the operating Koolyanobbing mine.

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