Minerva development back on track – p04

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Improved guidelines for onshore pipelines – p14

Fossils rewrite Victoria’s geological history – p18

Walhalla reawakens to a golden future – p20

New exploration blocks fuel boom – p24
CALL FOR CONFERENCE PAPERS
PARTNERSHIPS AND PATHWAYS TO IMPLEMENTATION

The Minerals Council of Australia (MCA) is calling for papers for its Inaugural Global Sustainable Development Conference. The annual event is highly commended by industry professionals and will be hosted at the Hotel Sofitel, Melbourne, Australia between 25-29 October 2004.

The Conference will attract around 400-500 national and international delegates who are actively engaged in the minerals industry’s commitment to sustainable development.

WHY DO YOU NEED TO BE THERE?

In keeping with the MCA’s previous national Sustainable Development Conferences, this Conference focuses on capacity building in the critical aspects of sustainable development practice for industry and its stakeholders.

The Conference offers delegates a unique opportunity to enhance their knowledge and understanding of sustainable development implementation through:

> bringing together leading international specialists in disciplines such as community development, eco-efficiency and industrial ecology, with extensive experience in successful, sustainable project development;

> integrating global, national, regional and local issues through an innovative and structured program – providing delegates with an understanding of the policy and regulatory operating context and methods and techniques to achieve mutually beneficial outcomes with local communities; and

> conducting ‘Masterclass’ workshops, which will provide an opportunity for delegates to engage in a focussed learning environment, and to share knowledge, insights and expertise on sustainability issues – tailored to meet the information and skill needs of minerals industry professionals.

For further information:

Kristy Piper, Conference Organiser
Minerals Council of Australia
Telephone: (+61) 02 6233 0643
Email: ka.piper@minerals.org.au.

www.minerals.org.au
The SEA Gas pipeline came on line just in time to take up the shortfall caused by the devastating New Year’s Day fire at Moomba.

Successful exploration and capital raising have led to a major mine start in Victoria.

Government, farmers and the gas pipeline industry have worked together to improve the guidelines for onshore pipelines.

The rich Maldon field may yield new gold as Alliance Resources steps up drilling.

A rare fossil find rewrites Victoria’s geological history and hints at possible new gold strikes.

Goldstar Resources is using modern techniques and long-lost mine plans to explore new gold deposits.

The Stawell mine shows great promise for development.

New blocks are being released as oil and gas exploration surges.

Exploration in Victoria will be boosted by comprehensive new geological data in Geology of Victoria.

The lure of a large gold resource holds promise for a 2005 start at New Bendigo.
Victoria’s abundant, affordable and secure electricity and gas supplies have not only helped make Melbourne the manufacturing centre of Australia, but have also enhanced our reputation as the most liveable city in the world.

As the Minister responsible for energy industries and resources, I want to ensure that we can all continue to enjoy these benefits.

However, the production of electricity through the burning of fossil fuels such as coal and gas produces large amounts of carbon dioxide (CO₂), a greenhouse gas which contributes to global warming. Recognising that greenhouse induced climate change is one of the biggest environmental challenges we face, I also want to ensure that our continued economic development goes hand in hand with greenhouse gas abatement.

This will be achieved through a number of methods such as the development of renewable energy sources and more efficient energy use.

Coal is used to produce 85 per cent of Victoria’s electricity. It provides a cheap, secure and reliable source of electricity, but it produces 55 per cent of Victoria’s greenhouse gas emissions.

The Victorian Government has already prepared a comprehensive Victorian Greenhouse Strategy and is currently undertaking a major review of energy and greenhouse issues through its discussion paper ‘Greenhouse Challenge for Energy’.

We have committed to investing $8.45 million in the Renewable Energy Support Fund and have commenced a $3 million solar energy retrofit scheme for schools, kindergartens, childcare centres and community health centres.

We have set a target to increase the share of Victoria’s electricity expected from renewable energy sources from the current 4% to 10% by the year 2010. And we will continue to push for the Commonwealth Government to ratify the Kyoto Protocol.

However, Victoria has huge reserves of coal and this, along with gas, will remain our major source of electricity for many years. Therefore, alongside our support for the development of renewable energy we must also support research into finding technologies to reduce greenhouse emissions from power stations and natural gas wells. One such technology may be geosequestration.

Geosequestration is a technology that aims to put CO₂ into deep underground rock structures. In other words, it puts the carbon from the coal and gas back underground.

Victoria is leading the Australian charge in the global race to develop technologies to create coal and gas fired power stations that meet the challenges posed by climate change, and we’ve taken a particular interest in geosequestration.

In September this year the Victorian Government will host the second Carbon Sequestration Leadership Forum when political leaders and scientific experts from all over the world will meet to further discuss the best ways of developing this technology.

Like all new technologies, there are some who say that it will never work. Others say that geosequestration will solve the world’s greenhouse issues.

In reality, geosequestration offers the potential to remove more CO₂ emissions from our skies than any other known technology. However, a lot of research is needed before it is proven to be safe and affordable.

The Victorian Government supports the growth of this technology but wants an open and informed debate on its development.

I recently released a discussion paper on geosequestration at the Zero Emissions Technologies Conference. The paper was prepared to give an overview of how geosequestration could work and the challenges that need to be addressed.

The discussion paper also highlights the benefits to the world if this technology can be successfully developed.

With proper debate, and further investigation of such technologies, I am confident that we can move forward and continue to support both the economy and the environment.

Hon Theo Theophanous
Minister for Energy Industries and Resources
Advances in Mining Technology Conference

WEDNESDAY 5TH & THURSDAY 6TH MAY 2004. ENTERTAINMENT CENTRE, STAWELL, VICTORIA

Mining in Victoria creates wealth for city and rural communities. It also brings rural and regional communities into close contact with the various activities that make up the mining process such as blasting, dewatering, earthmoving, crushing, grinding, mineral recovery and transportation to name but a few. The Victorian Mining Industry strives to minimise the impacts on communities by the use of the latest technology available. It is constantly striving to be a good corporate citizen and return a satisfactory reward to all stakeholders.

The Advances in Mining Technology Conference showcases the advances in technology that are being applied in Victorian mines in 2004. There is significant and exciting progress being made in the gold, coal, mineral sands and extractive sectors. Research and Development of new ideas are occurring in production, rehabilitation and sustainability facets of the Victorian industry.

The Advances in Mining Technology Conference will bring together Mine Operators, University Research Groups, Regulators and Shire Councils to share their knowledge, aims and ambitions to continue and promote the development of the dynamic Victorian minerals industry.

Sponsors: MPI Mines Ltd/Stawell Gold Mine
Department of Innovation, Industry & Regional Development
Orica Explosives

Host: Northern Grampians Shire
Department of Primary Industries

Further Information: Victorian Minerals & Energy Council – Tel: (03) 9629 1851
Email: vcm@vicmins.com.au

CALENDAR OF EVENTS 2004

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<th>Event</th>
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<tr>
<td>Advances in Mining Technology Conference</td>
<td>5th &amp; 6th May – Showcasing the advances in technology being applied in Victorian mines</td>
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<tr>
<td>VMEC Annual Dinner</td>
<td>24th May – To be held at the Melbourne Aquarium in conjunction with the 5th Annual Global Mineral Sands &amp; Pigment Conference</td>
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<td>VMEC Annual Exploration Workshop</td>
<td>30th July – To be held in Ballarat. Details available closer to the date</td>
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<tr>
<td>12th Victorian Mine Rescue Competition</td>
<td>7th &amp; 8th August – To be held in Bendigo</td>
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<td>Sustainable Development Conference</td>
<td>7th September – Information available closer to the date</td>
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<tr>
<td>VMEC Annual Safety Conference</td>
<td>5th October – Information available closer to the date</td>
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THE MELBOURNE MINING CLUB 2004

Luncheons, featuring high-profile industry leaders. Held at the Melbourne Town Hall

- Thursday 22nd April
- Thursday 10th June
- Thursday 12th August
- Monday 27th September
- Tuesday 9th November
- Thursday 2nd December

Cutting Edge Series which highlights emerging small to medium companies. Held at the Melbourne Town Hall

- Tuesday 16th March
- Tuesday 11th May
- Tuesday 20th July
- Tuesday 21st September
- Tuesday 16th November
Minerva on track for 2004

Construction for the development of the offshore Minerva gas field south of Port Campbell in the Otway Basin has resumed after the project operator, BHP Billiton, changed the project’s development contractors. In its recent December quarter report BHP Billiton, which owns 90 per cent of Minerva, said a new managing contractor was appointed in October 2003 to complete the gas plant and engineering. The company said it had changed the contractual arrangements relating to the design and construction of the Minerva development. As a result, procurement and construction activities have resumed at Minerva although the project’s completion schedule has slipped with the first gas now expected to flow late this year.

BHP Billiton reported that the Minerva 3 and 4 offshore production wells had been completed and the subsea trees (control valves) installed. The offshore flowline has also been installed, the company said. In addition, installation of the offshore and shore crossing sections of the gas flow pipeline was completed in November 2003.

BHP Billiton said that the program to tie in the flowlines to the subsea wells would be completed in early 2004. The company conceded that the initial target of first production in the first quarter of 2004 will not be met, and in light of the changes to contractual arrangements, the project’s targets were still being finalised. The Minerva gas field will be a major source of supply for the SEA Gas pipeline linking the Victorian gas grid to the market in South Australia.
Zircon deal can boost sales

Australian zirconium chemical manufacturer Astron is negotiating to acquire the public, but unlisted mineral sands group Zirtanium Ltd, which owns the Jackson and Donald Projects 50 kilometres north-east of Horsham.

The deal, which could make Astron one of the world’s biggest zirconium producers, could speed the development of the Victorian deposits, providing a major boost to the Horsham region. Astron is completing a due diligence exercise ahead of the possible deal.

The Jackson and Donald deposits contain about 16 million tonnes of zircon in a series of large, but fine-grained mineral deposits. Zirtanium is working with the CSIRO on the development of fine-grained mineral sand deposits to produce commercial-quality zircon.

Zirtanium managing director Mark Elliott said, “The company intends to exploit the advantages of its fine-grained products to attract customers from the traditional coarse-grain products.”

“Currently, many purchasers of coarse-grain material require it to be ground down before it can be used in most industries,” Mr Elliott said.

Astron managing director Alex Brown said, “If the acquisition of Zirtanium proceeds, not only would it give Astron a long-term stable supply of top-quality minerals, but it would also provide unlimited potential for expansion, due to the size of Zirtanium’s deposits.”

Astron currently produces zircon in China where it has operated since 1988.

“Although Astron is an Australian company, its Chinese production expansion has been rapid and the company is already a major supplier of zirconium materials and specialty chemicals to Chinese and global markets,” Mr Brown said.

BASS STRAIT

Woodside Petroleum is selling its Bass Strait fields. Australia’s biggest independent oil and gas company, Woodside Petroleum has sold its Bass Strait oil and gas assets to focus solely on developing and expanding its existing Otway Basin gas portfolio.

Sydney-based oil and gas producer Anzon Energy Australia is to buy Woodside’s Bass Strait exploration interests for $65 million.

The small Basker, Manta and Gummy oil and gas fields were initially discovered by Shell while the Kipper gas field was originally discovered by Esso BHP Billiton in a joint venture with Shell, but they were considered too small for separate development. However, the gas pipeline from the nearby Patricia Baleen field may now be used to pump gas ashore from these four smaller fields. The development of the Patricia Baleen field has demonstrated that relatively small gas fields can be developed offshore from Victoria.

Under agreements with Anzon, Woodside will sell its 30 per cent interest in VIC/RL2 containing the Kipper gas field and its 100 per cent interests in VIC/RL6, VIC/RL9 and VIC/RL10, which contain the Basker, Manta and Gummy oil and gas fields. Woodside created an electronic data room for bidding companies to study its Bass Strait assets. Bids closed at the end of 2003.

The Basker, Manta and Gummy fields contain 0.17 trillion cubic feet of gas, 5.8 million barrels of condensate and 27 million barrels of oil collectively while the Kipper field contains 0.4 trillion cubic feet of gas, 8.6 million barrels of condensate and 6.1 million barrels of oil. Partners in the Kipper field include Santos (20 per cent), Esso and BHP Billiton (25 per cent each).

A Woodside spokesman said the development of the Kipper field “looks promising for 2007.”
‘Good faith’ decision
Development of a gold mine in the Cassilis region of Eastern Victoria has moved a step closer after the Native Title Tribunal gave its first Victorian decision regarding the Government and proponent’s obligation to negotiate in “good faith” under section 31(1)(b) of the Native Title Act (NTA) in December.

Mt Gingee Munjie Resources Pty Ltd applied for a mining licence in 1997 over land in the Cassilis area and had been negotiating with Gippsland’s Gunai/Kurnai people since 1998. The Cassilis area has been subject to a large “country” native title claim by the Gunai/Kurnai people since 1997.

Before the Tribunal can arbitrate, the Government and the miner must have negotiated with native title claimants in “good faith”. The Tribunal has now found that “good faith” negotiations had taken place, paving the way for the Victorian Government to grant a mining licence if all other conditions are satisfied.

New DPI structure
Major structural changes within the Minerals and Petroleum division of the Department of Primary Industries have been made with a number of staff taking up new roles within the Department.

In one of the biggest changes the Geological Survey of Victoria and the Petroleum Development branch will be merged. The role of this newly formed branch is to attract explorers and exploration dollars to Victoria and it will continue to provide regional, high-quality geoscience information for the exploration sector.

The new branch, to be called GeoScience Victoria, will be led by Kathy Hill as the Director. The brand name ‘The Geological Survey of Victoria’ will be retained in the area of mapping and regional geology.

Within the department the facilitation functions will join and become part of a new branch to be called Business Development and Technology (BDT).

This branch will assist development projects and be responsible for the department’s emerging technology strategy, including facilitating technology development and transfer in the resources sector. The role of BDT is to reduce obstacles for investors and to encourage new technology and its application to Victoria’s earth resources development.

John Lambert will head the Technology Development function aiming to ensure that crucial research funding initiatives for the division and the coal industry are helped to succeed.

The Technology Development branch will also manage and coordinate minerals and petroleum research and development and interface with industry and other research providers and also provide a strategic approach to each of Victoria’s earth resource commodities.

Roger Buckley will become the Acting Director of the Business Development and Technology branch.

The existing Policy branch will now be called Policy and Legislation. Elda Poletti will be the acting director and Gary Jungwirth will move to the Minister’s office as the Department liaison officer. Phil Roberts has been appointed as Director, Minerals and Petroleum Regulation.

In another major change the Secretary of the Department of Primary Industries, Chloe Munro, has resigned to take up a senior position at Telstra.

Minister salutes 20 years of service
Minister Theo Theophanous congratulated the Registrar to Victoria’s Mining Warden, Mr Ivan Austin for two decades of service to the mining industry.

Mr Theophanous said Ivan has been a source of unequalled information and advice to the Warden.

“The role of the Registrar is to provide a first port of call for many clients,” said Mr Theophanous. “These clients range from the largest mining companies in Australia to the small miner or prospector.”

The Office of the Mining Warden was reinstated in 1983, when Mr Austin was appointed Registrar, to settle disputes in the industry and to advise the industry on their various rights under the law.

The Minister also said that in a recent survey on government services to the mining industry, the Office of the Mining Warden came through with a high level of satisfaction.

“This undoubtedly stands in major part to the efficient administration by the Registrar and Ivan Austin’s courtesy and approachability to the clientele,” Mr Theophanous said.

Award-winning coal model
A new, three-dimensional, model of the vast Latrobe Valley brown coal deposits has received a certificate of recognition at the Association of Consulting Engineers Australia Awards for Excellence in Sydney.

The creation of the model was funded by the Victorian Department of Innovation, Industry and Regional Development as an outcome of the Latrobe Valley Ministerial Taskforce.

GOLD TROOPER RIDES AGAIN
Victoria’s first gold “cop” in more than a century, Detective Senior Constable Patrick Bannan received this car from the Victorian Minerals and Energy Council with the generous support of mining companies. The need for specialist gold police reflects the resurgence in Victoria’s gold industry. Det Sen Const Bannan, left, is pictured with Detective Sergeant Mark McClure and Perseverance Corporation Chief Operations Manager Graeme Sloan.
The next package of data to be released from the Victorian Initiative for Minerals and Petroleum presents a host of new opportunities for the mining and exploration industry.

A wide range of geoscientific products, including geology and regolith maps, geophysical interpretations, GIS CDs, web mapping application updates and digital open-file exploration data, will be showcased at the 16th Victorian Initiative for Minerals and Petroleum (VIMP) data release and seminar in May.

The VIMP program has been a major success over the last eight years creating Australia’s most comprehensive geoscientific data package over the entire state. The program has funded statewide airborne magnetic and other surveys and a vast program of geological mapping right across the state that helped stimulate a major expansion of the minerals and petroleum exploration effort in Victoria.

The results of new geological mapping in the Glenelg area of western Victoria (8 x 1:50,000 scale geological maps and 2 x 1:100,000 scale geophysical interpretation maps) and Buffalo 1:100,000 mapsheet area of north east Victoria (4 x 1:50,000 scale geological maps and a 1:100,000 scale geophysical interpretation map) will be provided with accompanying reports.

New insights into the geology, geophysics, economic geology and landform evolution are provided in each of these areas.

To further target exploration work, a regolith-landform map and report for the Ararat–Stawell area will also be released. The major regolith material has been defined and placed in a landscape context, with additional work on regolith geochemistry over the Mt Ararat copper deposit and the Stawell Big Hill gold deposit.

The release of the interpretation of geophysical data over the St Arnaud 1:250,000 mapsheet area continues the series of basement geology interpretation maps and reports in areas covered by a veneer of sediment to assist in exploration for gold and base metals.

A set of updated GIS CDs covering the state will also be available. These contain the latest geoscientific data in MapInfo and ArcView GIS format as well as surface geochemistry, drillhole and mineral occurrence databases.

The latest version of MapShare, DPI’s web mapping application, will also be released. More data, increased functionality, ease of use and ability to download ESRI shape files for key layers are new features.

Access to open-file Exploration Licence reports will now be easier with the release of all digitised reports on CD. Digital tabular data and scanned reports for all licences back to EL1, dating from 1965, will be available in a set of CDs at minimal cost.

The VIMP seminar will be followed by a field trip to key locations highlighting the geology of the Glenelg region. Geological Survey of Victoria geologists will escort the excursion, explaining the results of their mapping work in the field.

The modelling, created using information from thousands of drill holes, bores and knowledge gained by the coal mining industry over many years was conducted by engineering group GHD for the Department of Primary Industries. Victorian Minister for Energy and Resources Theo Theophanous said the model shows the distribution and quality of the brown coal in a 1,100 square kilometre area between Moe and Rosedale, including the state’s vital electricity generating resource.

It allows fast and versatile assessments and captures 90 years of knowledge that was previously accessible only as paper records. It will be used in assessments of coal utilisation, land use, ground water and subsidence.

Roofs and floors were interpolated for the 16 thickest brown coal seams from over 8,000 bore intersections. And 17 coal quality parameters were interpolated into five million blocks within seams and can be queried to assist with the matching of coal to development opportunities.

Opportunities exist for the continued utilisation of these resources for electricity production, gasification, liquefaction and other coal conversion processes, as well as solid fuel for industrial, domestic and other uses.
Victoria’s role as the most vital gas hub in the national energy market was dramatically underscored on New Year’s Day this year when a major fire at South Australia’s Moomba gas plant cut gas supplies to the South Australian and NSW markets.

In a fire reminiscent of the tragic Longford gas plant explosion in 1998, the Moomba plant, operated by Santos Ltd, was severely damaged halting all gas supplies. But the lessons from the Longford disaster are well learned and the new network of high-pressure interstate gas pipelines allowed Victorian gas to be directed to both South Australia and NSW, easing the fire’s impact on domestic and business gas users.

The SEA Gas pipeline came on line just in time to take up the shortfall caused by the devastating Moomba fire.
The newest interstate gas pipeline, the $500 million SEA Gas line, was commissioned for just one day when the Moomba plant caught fire and the call came to ramp-up the line to full capacity almost immediately. Capable of carrying 340 terajoules (tJ) a day, the SEA Gas line went from commissioning to carrying 200 tJ a day in its first few days of operation, providing a torrid test of its readiness.

The SEA Gas pipeline is a joint venture between equal partners International Power Australia, Origin Energy and TXU, and will ultimately transport natural gas from Victorian offshore fields, including Minerva in the west and Yolla in the east, to meet South Australia’s energy needs.
Both fields will be in production later this year, but in the meantime gas for South Australia is produced from the Western Underground Storage (WUGS) facility near Port Campbell in Victoria’s west.

The WUGS facility, drawing on the former Iona gas field, stores gas acquired from other sources in the underground reservoir for use in periods of high demand such as Victoria’s cold winter.

But with the completion of the SEA Gas pipeline, gas from the WUGS now provides a back-up supply for South Australia which relies on gas for half of its total electricity generation capacity. And because of its high gas demand for electricity generation South Australia also experiences peak gas demands on hot days in summer, creating a year round role for the WUGS storage facility.

TXU Australia’s head of natural gas business, Margaret Wade told Discovery that the WUGS facility was full when the Moomba disaster struck. It can hold up to 12 petajoules of gas which is immediately available for use in periods of heavy demand.

“South Australia’s gas demand is driven by its power station requirements,” Ms Wade told Discovery.

She added that WUGS was filled with gas in anticipation of the start of operations of the SEA Gas pipeline but she said no-one had any idea that the demand would be so strong so quickly.

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The 690-kilometre SEA Gas pipeline completes the south-eastern Australia gas transmission grid linking Sydney, Melbourne and Adelaide.
VICTORIA’S CRITICAL ROLE

Victoria, backed by the massive gas reserves remaining in the Bass Strait fields and the many alternative supply sources now emerging both on and offshore in other parts of the state, is a major player in the national energy market and its ability to meet demand has been proved.

The start of commercial gas flows through the SEA Gas pipeline marks the completion of one of Australia’s most important energy infrastructure projects. The 690-kilometre open-access pipeline from Victoria to Adelaide, completes the south-eastern Australia gas transmission grid linking Sydney, Melbourne and Adelaide with gas supplies from fields in the Cooper-Eromanga Basin and offshore Victoria.

SEA Gas pipeline general manager, Ashley Kellett, said the new pipeline already demonstrated its value in improving the security of future gas supplies across the region. “Furthermore, addition of the new pipeline presents the opportunity for a more competitive gas market for south-eastern Australia,” Mr Kellett said.

“The SEA Gas pipeline will enable gas to be transported from a range of sources by whoever wants to use it,” he said. "The foundation shippers of gas through the SEA Gas pipeline are its joint venture partners, International Power Australia, Origin Energy and TXU, but over time a range of major gas users are expected to take advantage of this alternative conduit for gas into South Australia.”

Work began on the 690-kilometre SEA Gas pipeline in October, 2002. The underground pipeline runs from Port Campbell in south-western Victoria to Pelican Point in Adelaide along a route roughly defined by the towns of Hamilton, Casterton, Naracoorte, Keith, Coonalpyn, Tailem Bend and Gawler.

The pipeline can potentially double the amount of gas available to South Australians, while providing an alternative to gas supplies from the Cooper Basin.

Reticulated gas supplies to industry and towns along the pipeline route are being developed and will be extended if proved economic.

Gas for the SEA Gas pipeline will ultimately be sourced from the BHP Billiton operated Minerva gas field, located 15 kilometres offshore from Port Campbell and the Yolla field, 100 kilometres south of Westernport Bay in Bass Strait. Both fields are currently under development. Initial gas for Adelaide delivered through the SEA Gas line is sourced from the Western Underground Gas Storage facility near Port Campbell.

The SEA Gas pipeline can carry a maximum of 125 petajoules of gas a year but the addition of extra gas compression capacity will dramatically increase its carrying capacity.

Eastern Victoria is already enjoying new economic activity generated by the pipeline project and it is expected to be crucial to the development of more than $A1 billion of new gas field developments while also creating opportunities for regional development along the route.

The Moomba fire had a major economic impact, principally in SA and NSW. Santos Ltd, operator of the Moomba plant, said its profits could be reduced by up to $A30 million as a result of the fire.

And Origin Energy, which had to buy gas from alternative sources says it may lose $A5 to $A6 million. NSW gas utility, AGL Ltd also said it expects to lose about $A5 million before tax because of the gas shortages from Moomba.

In a statement AGL said it had initially reduced supplies to four major industrial users of gas but those restrictions were lifted in mid-January after alternative gas supplies from Victoria were stabilised.
Work has started on the $75 million development of the Fosterville gold mine near Bendigo with the first gold pour expected by mid-next year. Earthworks started at Fosterville in early February to develop site drainage and prepare for the development of an 800,000 tonnes a year ore processing plant.

The Fosterville project, wholly owned by Perseverance Mining Corporation, will become Victoria’s second major gold mine alongside Stawell and is a key part of the resurgence of the Victorian gold industry.

Development of the Bendigo project and potential new mines at Maldon and Ballarat have generated great excitement that Victoria will once again become a major part of Australia’s gold industry. The Fosterville mine development was approved by the company in November last year and a highly successful capital raising generated more than $75 million to fund the mine construction.

CONSTRUCTION STARTS

In its latest quarterly report Perseverance said that refinement of the open pit mine design and contract documentation was well advanced and mining was expected to begin in February. In addition engineering group Aker Kvaerner has been appointed to conduct detailed engineering of the processing plant based on the nominal 800,000 tonnes a year throughput rate and Cullen Mining Services was appointed to supervise the engineering, procurement and construction management of the project. By the start of 2004 Kvaerner had assigned 29 full-time and several part-time staff to the project.

Perseverance said that detailed design engineering is expected to be complete by the end of May. Perseverance has already prepared tenders for the supply of critical and long lead-time equipment items. Those items include the 3.5MW, 6.1-metre diameter SAG mill, valued at $3.6 million, and BIOX reactor agitators, valued at $2.6 million.
The company also said that discussions with local authorities and State Government for the development of a 22-kilometre recycled water pipeline from Bendigo to the Fosterville site were well advanced. The mine plans to use recycled water from the Bendigo gold project for use in its mill.

The Fosterville mine will produce a sulphide ore which will be processed using a patented bacterial leaching process.

**PROMISING EXPLORATION CONTINUES**

While mine development planning has begun, exploration work at Fosterville has also continued. In its quarterly report the company said recent drilling had focused at the deeper Kestrel structural targets resulting in confirmation of the continuity of the structure over 500 metres and the identification of a second parallel structure below the Kestrel deposit.

“The new structure, named Pegasus, displays similar characteristics to Kestrel but with a greater displacement,” the report said.

“It is well mineralised with initial results returning 3.0m at 1.63 g/t Au from 681.7m in Hole SPD100. The same hole returned an intercept of 8.6m at 2.88 g/t Au from 521.2m in the Kestrel position that included 1.0m at 7.78 g/t, indicative of ore grade material in that structure,” the report said.

More drilling of both the Kestrel and Pegasus discoveries is under way and will be coordinated as part of the overall Fosterville site exploration plan. That program will consist of about 43,000 metres at an estimated cost of $4 million and involves three diamond drill rigs and one reverse circulation rig. This is one of the most intensive drilling programs conducted anywhere in Victoria.

In addition to the drilling Perseverance is also conducting a program to examine the stratigraphy (rock sequence) at Fosterville. Perseverance said that improved understanding of the stratigraphic framework has already led to a greater level of detail and confidence in the company’s geological model at Fosterville.

“Mineralised structures can be correlated with greater confidence resulting in improved exploration targeting. This study will also contribute to a better understanding of the mining and metallurgical conditions prior to mining,” the report said.

**NEW TEAM**

Perseverance has also appointed a series of new executives to work on the mine development. Graeme Sloan, who was appointed executive general manager – development in November 2002, has become the company’s chief operating officer with the responsibility for all Fosterville site activities. He has also joined the Perseverance board.

Jozsef Patarica, formerly engineering manager for Placer Dome Asia Pacific, was appointed as engineering manager at the Fosterville mine. Perseverance also appointed Jim Nicholson, formerly contract project manager at the major St Ives gold mine in Western Australia, as the open pit superintendent at Fosterville.
Government, farmers and the gas pipeline industry have worked together to improve the guidelines for onshore pipelines

The rapid expansion of Victoria’s high-pressure gas and oil pipeline network, making the state a vital hub in the national energy market, has sparked an overhaul of the regulations controlling the grid’s development.

The gas pipeline industry began in Victoria in 1969 when natural gas first came into common use following the development of the massive oil and gas fields in Bass Strait. Since then, but particularly in the past decade, new gas fields have been developed in many parts of the state, prompting the construction of many new pipelines as the state’s gas reticulation grid has grown.

So the Department of Primary Industries, in conjunction with the Australian Pipeline Industry Association (APIA) and the Victorian Farmers Federation (VFF), have created new Pipeline Easement Guidelines. The guidelines are designed to provide information for pipeline companies and landowners about their rights and obligations and provide a valuable backdrop to major issues such as land access and compensation processes. Victoria now boasts more than 4,000 kilometres of high-pressure oil and gas pipelines servicing about 1.5 million customers.

GUIDELINES’ SPIRIT OF COOPERATION

Many changes have occurred in Victoria’s pipeline industry over recent years, including the privatisation of Victoria’s gas transmission system and the entry of new industry players who are keen to continue developing Victoria’s essential pipeline infrastructure.

The VFF and APIA created the new guidelines to help pipeline developers and landowners reach amicable agreements about all issues related to the development of pipelines. The aim is to provide an outline of the pipeline development and land access process, including the rights and obligations of both parties and also provide background material on the pipeline industry.

Dr Allen Beasley, executive director of the Australian Pipeline Industry Association, said natural gas transmission pipelines are viewed as “essential infrastructure” for the nation.

He said that, “The successful development and operation of pipeline infrastructure requires close cooperation between the pipeline company and landowners. APIA believes that the relationship between all parties involved in pipeline development is important for both pipeline construction and operation activities. This relationship will be enhanced by a good understanding of the objectives, rights and obligations of all parties well in advance of any pipeline development activity.”

“APIA believes that good communications between landowners and pipeline developers will assist the overall development of gas markets.”

Alex Arbuthnot, chairman of the Victorian Farmers Federation Mining Sub-Committee told Discovery that, “landowners are often the forgotten part of gas infrastructure development in Victoria.”

Pipeliners need farmland to place their infrastructure, but the development of a good relationship with the landowner had not always been a priority. Mr Arbuthnot said, “A successful relationship between the pipeline company and the farmer requires the provision of accurate information about the project, providing fair and reasonable compensation, minimising disturbance during construction and ensuring quick and satisfactory rehabilitation of the land.”

“Maintaining regular contact during the life of the pipeline and advising of intended access to the property is also essential,” he said

Mr Arbuthnot added that the new guidelines outlined the rights and responsibilities of all parties. He said that this important step forward would improve the relationship between pipeliners and farmers.

Victoria’s vast network of onshore pipelines mostly crosses farmland ranging from market gardens, agro-forestry and dairying to open-range grazing and dry land cereal production. And landowners are recognised as critical partners in the safe, efficient and successful delivery of energy through pipelines.

The new guidelines recognise the importance of best practice and a positive relationship between landowners and pipeline companies.

The new guidelines recognise the importance of best practice and a positive relationship between landowners and pipeline companies.
A new round of drilling at the Nuggety Reef at Maldon could be the precursor to the field reopening as the strong gold price and the enthusiasm for Victorian gold mining continues to revitalise the state’s mining industry.

Alliance Resources Ltd took control of the Maldon field and gold processing plant from the former operator, Roxbury Mining Contractors, and has plans to quickly resume mining. The company applied for approval to develop a new decline to access the Nuggety Reef seeking new ore reserves.

In its December quarterly report, Alliance Resources revealed an active three months in which shareholders approved a change of name and appointed new directors and management. John Dunlop remains chairman of the company but Ian Gandel and Tony Lethlean have joined the board and the company raised $2.45 million from the issue of new shares to finance the new exploration program. Mr Gandel’s private company, Abbotsleigh Pty Ltd, has become the major shareholder in Alliance, which joins the rapidly swelling ranks of active gold explorers in Victoria.

NEW EXPLORATION AND MODELLING

Alliance chairman John Dunlop said a major geological review of the Maldon field was now underway, the first time a comprehensive geological model of the field will have been constructed. Alliance plans to complete the model by June.

“The review will include compilation of historical data and modern exploration data into a digital database, interpretation and establishment of a three-dimensional, wire frame model of old workings, geology and gold mineralisation in order to visualise and identify targets for diamond drilling,” Mr Dunlop said.

In the December quarter a six-hole diamond drilling program was started and the first two drill holes found well-developed quartz reefs but assays had not been completed.

At the Maldon gold plant a total of 2,754 tonnes of ore at an average grade of 1.65 grams of gold per tonne were processed producing 104 ounces of gold but the plant has now been cleaned and placed on care and maintenance until new ore reserves can be mined or located from a third party supplier. In the year to June 30 last year the Maldon plant at Porcupine Flat produced 4,884 ounces of gold from two separate milling campaigns with ore sourced from both the Toolleen open pit east of Bendigo and the Eaglehawk open pit at Maldon.

The Maldon goldfield is Victoria’s most productive reef gold field after Bendigo and Ballarat with over 1.75 million ounces of gold produced from ore with an average recovered grade of 28g/t between 1854 to 1926.

From 1988 the previous owner of the Maldon mine produced...
over 55,000 ounces of gold from the Union Hill open pit and between 1994 and 1998 additional drilling and mining took place. A decline was started from within the open pit to cut north through the Eaglehawk Reef and Linscotts Reef extensions, with a plan to mine them and then to turn south to explore through the main reefs under the town of Maldon. But the decline was suspended in 1997 as the gold price declined and capital dried up and eventually the operations were suspended in 1999.

FIELD SHOWS GREAT PROMISE

But Alliance believes there remains considerable potential at Maldon. Earlier work by Alliance from 1994 to 1997 has outlined, “considerable potential for further underground resources within the Maldon gold project, especially in zones immediately south of the old Nuggetty Reef workings and south of the old Alliance workings,” according to Mr Dunlop.

The Nuggetty reef, located north of the Union Hill open pit about 2 km from Maldon, produced 301,000 ounces of gold from about 50,000 tonnes of ore. Drilling intersected the reef down plunge to the south of the old workings with best results of 2.7m at 42 g/t, 0.8m at 80 g/t and 1m at 45.5 g/t gold within a zone which is over 300m long.

Roxbury Mining Contractors completed a detailed study of the Nuggetty Reef’s historical, geological and drilling data which gives considerable confidence that a significant gold resource remains. But like many Victorian gold fields, the “nuggetty” nature of the gold distribution and the limited number of drill holes into the resources prevents the ore resource being quantified using accepted international standards. Now Alliance wants to develop an exploration decline to test the Nuggetty Reef system in the vicinity of the recent drilling.

The proposed decline portal is located well away from the town of Maldon but would allow for two intersections of the Nuggetty Reef system. Alliance plans to develop both underground levels and to mine trial parcels of ore for testing. The new decline could be as long as 1.5 kms and will end up at a depth of about 200 metres below the surface according to Mr Dunlop.

The total exploration decline and trial mining at the Nuggetty Reef is expected to take nearly a year.

The gold plant at Maldon is small by wider industry standards but is built to a high quality, Mr Dunlop said. But he added that a gravity circuit may be installed at the plant to enhance gold recoveries when new ore is located.

Mr Dunlop told Discovery that while much of the large tenement holdings surrounding Maldon had been relinquished while the company was idle it had retained control over the entire Maldon field.

Mr Dunlop said that more than $25 million had already been spent in recent years at Maldon in a bid to locate new ore reserves but said that Alliance was now in good shape to make rapid progress. “Alliance is in better shape than it has been for some time,” he said.

Mr Dunlop is a consultant mining engineer with over 30 years’ experience in the mining industry both in Australia and overseas. He is a director of the Australasian Institute of Mining and Metallurgy and has been a director of Alliance since the company was incorporated in May 1994.
Victoria’s famous golden triangle, which produced some of the world’s richest-ever gold fields, could become a golden square if the geological theory of a Melbourne research scientist is borne out in reality.

The discovery of rare, 500 million-year-old fossils at the bottom of the Stawell gold mine by Dr Rick Squire from the School of Earth Sciences at Melbourne University and Mr Ian Stewart from the School of Biological Sciences at Monash University, enabled them to rewrite the geological history of eastern Australia.

Dr Squire now believes that major new gold deposits, equivalent to the world-class discoveries at Ballarat and Bendigo in Victoria and at Parkes and Cadia in New South Wales, could be repeated, not only in the region between Bendigo and Stawell but further north of Stawell as well.

In a major new work, Dr Squire and his colleague Dr John Miller, propose a theory of the tectonic evolution of east Gondwana, the forerunner of Australia, which establishes clear geological links between the gold and copper deposits at Cadia and Parkes with the fabulous gold deposits at Ballarat and Bendigo and as far west as Stawell.

Dr Squire believes that major new gold deposits could be found in the region between Stawell, Ballarat, Bendigo and Warracknabeal. Speaking to Discovery, Dr Squire said, “If you want to find elephants, you have to look in elephant country.” If he is right Victoria’s new gold rush could become a stampede.

Victoria is already experiencing rapid growth in gold exploration with expenditure in 2002/2003 up 36 per cent to $46.2 million; and the spending is rising fast.

**GOLD IN OLDER ROCKS?**

The geological rethink by Dr Squire was sparked by the discovery of the rare 500-million-year-old marine fossils at the bottom of the Stawell gold mine in some of Victoria’s oldest known gold-bearing rocks. The discovery of the marine fossils has rewritten the text books on where gold might be found in the state.

Dr Squire and Mr Stewart found the tiny microfossils, known as acritarchs, 700 metres below the surface at Stawell in the oldest gold-bearing rocks yet found in Victoria.

“Geologists hunting for gold in Victoria have previously dismissed rocks 500 million years old or older because gold was thought to have formed only in the younger rocks in southeastern Australia,” said Dr Squire.

“These findings provide new exploration options as they indicate it is possible to have world-class ore deposits in rocks of this age or older.”

He says gold-bearing rocks at nearby Bendigo were dated to about 470 million years old and it was thought the rocks at Stawell and surrounding regions were of a similar age. The fossil-bearing rocks at Stawell are now dated at about 515 million years old.

Acritarchs are marine algae less than one-tenth of a...
millimetre in diameter and resemble microscopic sea urchins. They have a translucent core with radiating spines and were common in equatorial oceans 500 million years ago. When the acritarchs were alive the rocks which are now found at Stawell were on the edge of Gondwana near the equator and sitting on the slopes of a submarine volcano, possibly similar to the Hawaiian island chain today.

“The fact that ocean-dwelling micro-fauna are found in the middle of western Victoria gives some insight into how eastern Australia evolved,” said Dr Squire. “These are the first fossils of this age found in the region. Folding, uplifting and other geological activity has squashed, sheared and destroyed most [other] fossil evidence from that era.”

FOSSIL FIND A FIRST

Mr Stewart said the discovery of the acritarch microfossils was significant because no fossils had previously been found in rocks in the area. The discovery helps confirm fission track-dating for these rocks, which is important for mapping gold-bearing deposits and predicting where gold may be found,” Mr Stewart said.

“When I first examined thin slices of the Stawell rock under the microscope, I had no idea what I would find,” said Mr Stewart. “It was exciting to see the acritarchs, because fossils like this hadn’t been discovered before in the older rocks in this part of western Victoria.”

“The species I found have hollow, spherical bodies with prominent radiating spines. Some show a characteristic split, leading to the theory that acritarchs may have been reproductive structures containing spores that would have created a split when released,” he said.

“So far I’ve identified five species and hope to find even more after examining further rock samples from the mine.”

Mr. Stewart has been researching microfossils for many years and is often given rock samples to examine because of his expertise in the area.

The discovery of the acritarch microfossils was significant because no fossils had previously been found in rocks in the area.

DRAMATIC GEOLOGICAL CHANGE

Dr Squire told Discovery that the rocks containing the acritarchs lie immediately above thick layers of volcanic basalt, indicating high levels of volcanic activity at about the same time as the acritarch’s existence. Then about 490 million years ago conditions changed catastrophically, causing a mass extinction of species and a subsequent flourishing of new life.

“We are currently trying to figure what that something was and what effect it had on the extinction of species and the subsequent evolution of life that flourished after it,” says Dr Squire. “Whatever caused the change it dramatically rearranged Earth’s plate boundaries – the edges of the giant

Fossilised acritarchs found at the Stawell gold mine
Walhalla reawakens

Goldstar Resources is using modern techniques and long-lost mine plans to explore new gold deposits

The rich Long Tunnel gold mine at Walhalla has been reopened ahead of a major new underground drilling program which could lead to new gold mining at the picturesque eastern Victorian village.

The revitalisation of Victoria’s gold industry, with major new exploration programs across the state, has now spread to most of the old goldfields. Major new mines are being developed at Bendigo and Fosterville and exploration for new gold deposits is under way right across Victoria’s famed “golden triangle”.

Now the interest has spread to Walhalla where the Long Tunnel mine produced around 1.4 million ounces of gold from ore grading an ounce of gold for every tonne of quartz dug from the underground workings.

OLD PLANS SHINE NEW LIGHT

The Long Tunnel mine operated from 1863 until 1914 when water and a lack of miners forced its closure. But the discovery of plans of the Long Tunnel operation from within the archives of the Geological Survey of Victoria now adds new excitement, indicating that unmined sections of the rich Cohen’s and Empress reefs may still lie within the mine.

All the records indicate the mine was still producing valuable and commercially viable ore at the time of its closure.

Goldstar Resources NL, which recently joined the Australian Stock Exchange, is the latest company to develop a major interest in the Long Tunnel Mine at Walhalla and has also developed an exploration program for the Brankeet project near Mansfield.

Led by former Mt Edon Gold Mines executives, Andrew King and Duncan Greenaway, Goldstar raised $6 million to fund its two year program in Victoria. Mr King told Discovery that community meetings held by Goldstar at Walhalla in December led to local enthusiasm for the new exploration at the Long Tunnel mine.

The discovery of an 1880s plan of the mine from within the archives of the Geological Survey of Victoria has helped the company’s plans. Plan number 1581/L/1 is a long section of the mine and covers the area from south of the Empress Shaft to just north of the Walhalla shaft for the period of mining up until approximately 1880, according to Mr King.

He said, “The plan details intercepts and grades in the old workings together with references to “visible gold”, “good gold”, “quartz in fault”, “quartz lode” and “quartz load with good gold”. “The old mine records state these terms were used by the early miners to mark the location of a potential high-grade shoot.”
Mr King said that information contained in the drawings reveals a variety of ore intersections encountered by the former miners, some of which appear never to have been mined. Goldstar is making more detailed examinations of the mine records to confirm the data, which may point to extensions or repetitions of the main ore shoots which could be exploited today.

Mr King said that the plan refers to a report to the “Railways Standing Committee in the early 1900s of an intercept on 11 level, Long Tunnel Mine of 250 metres grading 12 grams per tonne of unmined ore adjacent to the south side of the Cohen’s Shoot. Mine records accessed to date show that none of this Cohen’s South material was mined through to closure in 1914.”

“This information significantly expands the Empress shoot target … as well as confirming its strike extent,” he said.

Records indicate the mine was still producing valuable and commercially viable ore at the time of its closure

A RICH HISTORY
Goldstar’s Walhalla project, 180 kilometres east of Melbourne, covers 217 square kilometres of the historic Walhalla–Woods Point goldfield which produced over 3 million ounces of gold between 1853 and 1914.

An existing stockwork resource containing 119,000 ounces of gold, already proven at Walhalla, plus the potential for new high-grade reefs and today’s high gold price make the project attractive.

Initially, Mr King told Discovery, Goldstar plans to try and expand the stockwork resource in a bid to underpin a feasibility study to re-open the mine.

Goldstar Resources was listed on the Australian Stock Exchange in late 2003 after raising $6 million from shareholders to fund its gold program which also includes exploration projects in Queensland and Western Australia.

To build its portfolio of gold projects Goldstar sought gold targets in regions of historical production or with existing resources, or those that possessed multiple exploration targets and largely ignored grass roots exploration programs.

Goldstar targeted Victoria, “as it contains some of the last remaining areas in Australia of significant past production not hitherto explored or developed using modern techniques,” it said in its prospectus.
Goldstar now plans to spend almost $4 million on exploration at Walhalla and Brankeet over the next two years in an aggressive exploration program. The Walhalla area contains over 200 historic mines that produced more than 3 million ounces of gold from hardrock deposits between the 1860s and the 1980s, at an average recovered grade of 26.0 grams of gold per tonne of ore mined.

In the Walhalla area 1.5 million ounces of gold were produced between 1863 and 1914, principally from the Cohen’s Shoot, one of the richest individual gold deposits in Victoria. Cohen’s Shoot produced around 1.46 million ounces of gold at an average recovered grade of over 1 ounce (31 grams) per tonne until 1914 and supported a number of mines.

The Long Tunnel Mine at Cohen’s Shoot returned £5,100 in dividends for every £10 invested. The shoot is hosted along the north-trending Cohen’s Shear Zone, which can be traced for over 4 kilometres.

The Empress Shoot, at the southern end of Cohen’s Shear Zone, was overshadowed by the Cohen’s Shoot but still produced 26,961 ounces of gold at an average recovered grade of approximately 10 g/t. This shoot was never followed through on to the Cohen’s Shoot leases because of restrictive conditions but modern geological interpretations suggest the two zones could be closely linked.

MODERN TECHNIQUES SHOW PROMISE
Goldstar Resources believes that the entire 4 km length of Cohen’s Shear Zone remains highly prospective for repetitions of the rich Cohen’s Shoot. Other mines close to Walhalla but outside the Cohen’s Shear Zone produced significant amounts of gold, principally Tubal Cain (33,278 ounces), Happy-Go-Lucky (14,000 ounces), Longfellow’s (10,000 ounces) and Eureka (2,669 ounces).

In recent years modern exploration has barely touched the Walhalla region although Walhalla Mining Company NL and, more recently, Intrepid Mining Corporation NL explored and discovered some potential new ore zones.

Goldstar believes that no exploration has been carried out within the majority of the project area utilising modern techniques.

It plans to concentrate its exploration on the north plunging extension of the Empress Shoot, discovered by old-time miners but which has not been thoroughly examined since. It also aims to examine the expansion of the stockwork resource outlined by Walhalla Mining and Intrepid.

Goldstar is seeking extensions or repetitions of the Cohen’s and Empress shoots, which could generate ore reserves of about 1 million ounces of gold.

In its prospectus Goldstar said, “The Company is confident that the above targets could host combined gold resources in excess of 1 million ounces, at grades similar to those already mined at Cohen’s Shoot. In addition, significant potential exists for the discovery of gold deposits on parallel structures to the east and west of Cohen’s Shear Zone, as well as further regional development with respect to the outlying project areas.”

An aggressive two-year exploration program was mapped out with the aim of bringing the Walhalla project to a pre-feasibility status.

Goldstar plans to spend $1.97 million in the first year and another $1 million in year two to complete a program of underground drilling. This will improve the confidence level and enhance the overall grade of the stockwork resource with the aim of upgrading the resource to reserve status, as well as increasing the overall resource.

Goldstar will also drill in the Empress Shoot and complete a comprehensive resource modelling exercise and test for repetitions of the Cohen’s Shoot in possible parallel structures.

No exploration has been carried out within the majority of the project area utilising modern techniques.

BRANKEET PROJECT
The second major focus for Goldstar in Victoria is the little-known Brankeet project 30 km north-west of Mansfield.

The Brankeet project is prospective for potential heap-leach style, disseminated gold orebodies and lies close to the historic mining centre of Tallangalook where there were a number of scattered gold occurrences. A low-grade, heap-leach gold resource of 1.47 million tonnes at 1.6 g/t has been outlined at the old Meade’s mine by Duketon Goldfields Ltd.

In the Brankeet region a large number of alluvial and hardrock workings were exploited between 1860 and 1938 with an estimated 135,000 ounces of alluvial gold and 11,000 ounces of gold recovered from hardrock mines. In this period, the Tallangalook mine produced 8,615 ounces of gold at an average grade of 3.02 g/t, from both hardrock and alluvial sources.

To the south the hardrock Star of the Glen deposit produced 2,349 ounces of gold at a grade of 18.57 g/t between 1890 and 1894, and the alluvial Collegian Bucket deposit produced 11,012 ounces of gold between 1910 and 1921.

Little modern exploration has been carried out in the region. Goldstar plans a two-year exploration effort at the Brankeet project, which includes a comprehensive data review, geological mapping, reinterpretation of the geophysical data and geochemical sampling. The aim is to locate and evaluate Meade’s style, structures and establish the resource potential of the project area. The exploration budget is $63,940 in year one and a further $33,690 in the second year.

The Geological Survey of Victoria is undertaking regional mapping and mineral deposit studies in an area covering Goldstar’s Walhalla–Woods Points tenements. This project will produce geological maps and develop insights into the regional controls and style of mineralisation in the area.
MPI Ltd has produced the one millionth ounce of gold from its current mining campaign at the mine at Stawell in North Western Victoria.

The milestone came as the company completed its acquisition of 100 per cent of the Stawell Mine and embarked on its first gold production from the rich new Golden Gift orebody. MPI recently bought out its former partner, Pittston Minerals of the US, to assume full control of the mine, allowing it to accelerate development.

MPI managing director Brian Phillips now believes MPI is poised to rapidly increase gold production from Stawell to a rate of about 120,000 ounces a year. He said in a recent statement released to the Australian Stock Exchange that mining had already started on the Golden Gift orebody.

**PRODUCTION TO INCREASE**

In the December 2003 quarter the Stawell mine produced 26,278 ounces at a total cash cost of $A407 an ounce. But development of the Golden Gift orebody, located beneath the current ore reserves will allow a much greater rate of production, although the company has not fully evaluated the extent and shape of the Golden Gift orebody.

Mr Phillips said, “We don’t really understand Golden Gift’s potential yet, but we’re satisfied that the section drill tested to date contains around 650,000 ounces, of which we’ve already converted 90,000 ounces into reserves. With only limited resource definition drilling we should be able to convert a further 200,000 ounces to reserves this year.”

Mr Phillips said that in the longer term, “we believe that there is significant potential in the greater Golden Gift area. Exploration of this area will be a priority of a full scale operating plan,” he said.

**DEVELOPING GOLDEN GIFT**

“We’ve actually been developing within the Golden Gift orebody for several months,” Mr Phillips said. “The first ore has been milled and it lived up to grade and recovery expectations. For the first time, we’ve been able to transfer Golden Gift resources to our ore reserves base.

“Assuming that the acquisition from Pittston achieves the required conditions precedent, MPI moves to 100 per cent ownership on March 1, 2004. We’re confident that the mine can then move ... to a full-scale operating plan, although that decision has yet to be made.”

Mr Phillips said that, “The transition plan will be designed to allow us to catch up on the services that haven’t been developed over the last couple of years and will target a rate of 120,000 ounces of gold per year.”

“If we can move to a full scale operating plan in the second quarter of this year, we could be producing at that rate within 18 months,” he said.
Petroleum booms

New exploration blocks are being released as the search for oil and gas surges

Petroleum exploration in Victoria is nearing record levels with almost $350 million spent in the past two years on a massive data acquisition and drilling program. The rise in spending prompted the release of more Commonwealth and State-controlled exploration acreage in Victorian waters while exploration companies responded with a wave of new seismic surveys, exploration wells and new project developments. But the rise in exploration activity is only just beginning.

The mass of recent seismic surveys is expected to lead to even more exploration drilling activity in the next few years, particularly for natural gas, as Victoria’s role as a major gas supplier to the national energy market grows in importance.

And the new exploration, principally in the offshore Otway and Gippsland basins, has already resulted in a number of new discoveries with more oil and gas found.

Kathy Hill, for the Minerals and Petroleum division of the Victorian Department of Primary Industries said, “In the past 12–18 months, the Commonwealth and the State released new areas for exploration while operators in their newly awarded acreages have carried out considerable exploration activities.”

“The highlights were 2D and 3D seismic data acquisition, the drilling of 11 exploration wells and the granting of a total of eight exploration permits in Victorian adjacent waters, coastal waters and onshore Victoria. An estimated $156.7 million was spent on exploration activities in Victoria in 2002/03 alone,” she told Discovery.

2002/03 ACTIVITIES

The Commonwealth together with the State of Victoria responded to the exploration effort by granting four offshore permits in 2002/03, blocks Vic/P53, Vic/P54, Vic/P55 and Vic/P56 all in the Gippsland Basin. The Victorian Minister for Energy Industries and Resources, Theo Theophanous, also granted four exploration permits in Victoria – one in the onshore Murray Basin, a second in the onshore Gippsland Basin and two offshore permits in Victorian coastal waters in the Otway Basin.

Four Commonwealth offshore areas in the Gippsland Basin were also released for bidding in 2003. Victoria also released two areas in coastal waters in the Gippsland Basin for bidding.

In 2002/03, a total of 2,533 square kilometres of 2D seismic and 3,295 square kilometres of 3D seismic data were acquired including Esso’s 1,000 square kilometre 3D seismic survey around the Blackback field and surrounding areas.

BHP Billiton also acquired 1,000 km² of 3D data in its VIC/P45 permit while Santos Ltd acquired both 3D and 2D data in its newly granted VIC/P51 and VIC/P52 permits. Essential Petroleum acquired 740 km² of 2D data in VIC/P46 and another 140 km² of 2D data in its onshore PEP151 permit.

But drilling is where much of the public attention is focused with the prospect of major discoveries being made. Eleven exploration, one appraisal and 12 development wells were drilled in Victoria in 2002/03, one of the busiest drilling programs in years. Among the exploration wells were two stratigraphic wells in the onshore Gippsland Basin.

DEVELOPMENT AND INFRASTRUCTURE

In addition to the massive seismic and drilling activity, projects valued at close to $2 billion are under development in Victoria.

Construction started at BHP Billiton’s Minerva Field in the offshore Otway Basin while the exciting Bass Gas project in Bass Strait is well under way. And the $500 million SEA Gas pipeline was recently completed and commissioned by December 31 (see separate story).

BHP Billiton started constructing its Minerva field shore crossing in early 2003 and completed onshore pipe laying during the third quarter of 2003, with offshore pipeline laying completed in November 2003.

Construction of the gas processing plant at Lang Lang for the BassGas Project began in the second half of 2003 and both the onshore and offshore pipelines are under construction. The directional drilling of the shore crossing was completed in late 2003.

LOOKING AHEAD

The high level of exploration activities will continue in the next 12–18 months, according to Kathy Hill. More seismic surveys, totalling about 700 km² of 2D and 1,154 km² of 3D seismic will be conducted in newly granted permits.

In Bass Strait Esso and partner BHP Billiton launched one of the biggest ever drilling programs in their Gippsland Basin leases. Several wells will be drilled with a giant jack-up rig capable of drilling from existing platforms and in new locations. Other operators, including Santos Ltd, are also planning to drill exploration wells in their permits in the southern margin of the Gippsland Basin and in the western Otway Basin.

Altogether, at least 24 exploration and appraisal wells are planned for drilling in 2003/04 in the onshore and offshore permits in Victoria.

Field development will also continue. The biggest of these is the major Otway Gas Project incorporating the Geographe and Thylacine gas fields in the offshore Otway Basin. The first gas delivery is expected in 2006.

Much of the Geographe and Thylacine gas is destined for the South Australian energy market through the SEA Gas pipeline, but the large scale of the reserves (more than one trillion cubic feet of gas) make it an ideal back-up for the Victorian market.

In addition the Sole Gas Project in the offshore Gippsland basin underwent the required EES process with the Minister for Planning’s assessment released in January 2004.

In Bass Strait Esso/BHP Billiton started further development drilling of the Turrum oil field.

SECURING GAS SUPPLY

Victoria now represents the key to security of supply in the national natural gas market with high pressure gas pipelines carrying Victorian gas to New South Wales, Tasmania and South Australia.

Kathy Hill said that, “Access to pipeline infrastructure will facilitate development of more remote fields, enlarging the domestic and commercial energy market and the choice of retailers to sell to.”
New geology ‘bible’

Exploration in Victoria will be boosted by comprehensive new geological data in Geology of Victoria

The latest version of Victoria’s geology “bible”, just the third edition of Geology of Victoria in almost 30 years, was released to help explorers uncover the state’s mineral and energy wealth.

The publication, expected to become the standard reference for geologists in the state, was radically reworked to account for the wealth of new information made available in recent years, much of it produced through the Victorian Initiative for Minerals and Petroleum (VIMP).

The Victorian division of the Geological Society of Australia managed production of the book.

In launching Geology of Victoria the Minister for Energy Industries and Resources, Theo Theophanous, said the text would make it possible for industry, “to harness our natural resources for the benefit of the whole community”.

The first edition of Geology of Victoria was published in 1976 to provide the first comprehensive coverage of Victorian geology in a single volume. It became known as the “bible” of Victorian geology. One key aspect of that volume was that it looked backwards in its basic understanding of Victoria’s crustal architecture, which differed little from an account written 40 years earlier in 1935.

Subsequently, knowledge about the structural evolution of Victoria’s crust advanced rapidly in the 1970s creating the need for a second edition by the mid-1980s. The second edition of Geology of Victoria was published in 1988 and provided a radical overhaul of the Palaeozoic geology of the state.

An expanded economic geology section reflected the rising importance of basin analysis for petroleum exploration and of structural geology for exploration for gold and base metals.

Since 1988 there have been major advances in the development of natural resources in Victoria. New coal, oil and gas fields have been discovered, together with major heavy mineral sand deposits, while major new gold reserves were discovered at Stawell, Bendigo and Fosterville. These discoveries reflect the application of new ideas and methods of analysis to a vast amount of newly acquired data.

In launching the third edition, Mr Theophanous said, “The last decade has seen a renaissance in the understanding of Victorian geology, partly as a result of the availability of new analytical techniques and partly as a result of the collection of new geological and geophysical data by the private sector, by academe and by the public sector.”

Mr Theophanous said the new volume was a “credit to the Geological Society of Australia’s Victoria division”, and he paid tribute to the authors who “devoted many hours of unpaid time to ensure that the text lives up to the expectations of the readership.”

“Coupled with new mapping from the Geological Survey of Victoria, this has resulted in significant improvements to many chapters in this new edition,” the minister said.

Mr Theophanous thanked Bill Birch, senior curator at Museum Victoria, for editing the volume.

Geology of Victoria was produced by the Geological Society of Australia, supported by two departments – Primary Industries and Innovation, Industry and Regional Development.

Above left: Minister Theo Theophanous launching the new edition
Above right: Geological Society of Australia (Vic) chairman and contributor to the publication Fons Vandenberg (left) with Museum Victoria curator and editor of Geology of Victoria Bill Birch

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More Bendigo gold

The lure of a large gold resource holds promise for a 2005 start at New Bendigo

The amount of gold within the New Bendigo Gold Project has jumped to an estimated 13 million ounces and could rise to more than 14 million ounces with commercial gold production expected by late next year.

The final decision to resume underground mining at Bendigo now rests on a feasibility study, which was to be completed in February, and a major new capital raising exercise to fund the mine development. Bendigo Mining needs new funding after its major shareholder, Harmony Gold Mining Company, decided not to exercise 360 million options which expired in December.

Harmony told the Australian Stock Exchange that its decision not to exercise the 30¢ options did not reflect adversely on the New Bendigo gold project saying the decision, “was based on commercial reality [because the] options were substantially out-of-the-money.”

Harmony, which owns 31.6 per cent of Bendigo Mining, has confirmed it will work with Bendigo Mining to complete the commercial development of the New Bendigo gold project.

EXPLORATION INCREASES ESTIMATE

In January Bendigo Mining lifted its estimate of the amount of gold in the New Bendigo project after a major review and exploration program. Previously Bendigo Mining estimated there were 12 million ounces of gold in the New Bendigo project but its latest quarterly report to shareholders said it had confirmed a potential of at least 13 million ounces.

“The exploration [program] has also confirmed all of the underlying beliefs about the structure of the entire Bendigo gold field,” the company said.

“Research and exploration confirmed that the ribbon-like reef structure, which produced a total recorded output of 22 million ounces in the old days, continues to repeat itself to at least one-and-a-half kilometres beneath the surface.”

“The exploration also showed that gold contents within the ore were as predicted or better,” said Bendigo Mining managing director Doug Buerger.

He said exploration had met and in many cases exceeded required targets. “For example, on-reef development in one area of the New Bendigo, the Greater Garrard reef, produced 11,000 tonnes of ore containing 14 grams of gold per tonne, with some grades soaring beyond 30 grams to the tonne.”

“The resource potential has recently been re-estimated in view of better information and the company’s improved understanding of the geology. This resulted in the increase in the resource potential from 12 to 13 million ounces,” Mr Buerger said.

The New Bendigo project lies deep below five of the major historical lines of reef which, historically, produced 11.2 million ounces of gold from 22.9 million tonnes of ore. The new resource potential indicated a further 13 million ounces from 28.8 million tonnes of ore indicating that the present resource potential exceeded the amount of gold produced from this part of the gold field in the past 150 years.

“Exploration in 2002/03 focused on gaining access to the shallowest part of the New Bendigo where the company defined an Indicated Resource of 720,000 tonnes at 10 grams/tonne containing 240,000 ounces of gold,” Mr Buerger said.

He said that the size of the reefs in the new ribbons and the amount of gold found were almost exactly as predicted from...
the geological model developed by the company and correlated closely with the historical production records of nearby mined areas.

“The resource grade of 10 grams/tonne is also in reasonable agreement with the predicted grade of 10.9 grams/tonne,” Mr Buerger said.

He added that the new research had also increased the company’s confidence that ore grades would rise to the north of present operations, an area directly beneath some of the richest mines on the Deborah, Sheepshead, New Chum, Garden Gully and Hustlers lines of reef. These were expected to take the entire New Bendigo project area to an average 14.4 grams of gold per tonne of ore.

Mr Buerger said that the feasibility study was due for completion in early February and funding strategies would be announced in March.

Bendigo Mining has fast-tracked its feasibility study to hasten the potential development of the mine.

The rich gold content of the underground resources was confirmed in the December quarter when Bendigo mining developed about 200 metres of underground drives on the S3 ribbon. Two drives, about 30 metres apart, yielded 11,000 tonnes of material grading 14 g/t gold, from within the larger resource envelope of the Greater Garrard reef.

HIGH YIELD REVEALED

Mr Buerger said that in many areas, reef material with large amounts of visible gold was encountered, with ore grades often exceeding 30 g/t Au or one ounce per tonne.

“These are what the old timers would have called jewellery boxes and will be substantial cash generators for the project,” Mr Buerger said.

He added that modelling of the reefs had advanced to the point where some of the information on ore blocks had been passed to mining engineers for reserve estimation and mine planning.

Mr Buerger said that Bendigo Mining was confident of defining about 200,000 ounces of ore reserve to support its first stage of production.

“Detailed mine scheduling has shown the long-term mining rate to be around 30% above that previously estimated in the conceptual study of 2002, to over 1.5 million tonnes a year with a corresponding increase in annual gold production,” Mr Buerger said.

“This will require higher capital funding earlier in the project’s development but gives the best return on capital invested,” he said. “We expect the Feasibility Study will show that, subject to permitting and finance, the company’s objective of commencing production by mid-2005 will be achieved.”
### MINERAL EXPLORATION LICENCES SURRENDERED, CANCELLED OR EXPIRED

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### MINING LICENCE APPLICATIONS

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