INVEST MURRAYLANDS
Mining

Copper

Diatomite

Gold

Granite

Gypsum

Ilmenite

Lignite

Leucoxene

Limestone

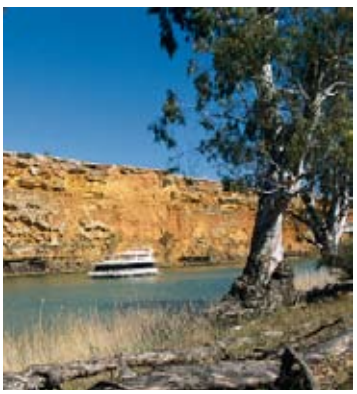
Rutile

Salt

Silver-lead

Zinc

Zircon



Message from the Chief Executive - Brenton Lewis

The Murraylands region is recognised as strategically important in delivering on growth targets within the economy and population of South Australia.

The mining sector has seen consolidation of existing established businesses and the development of new opportunities in a variety of different mining fields. It has also seen value adding opportunities for many other businesses within the region. I would suggest that the value proposition of investing in the Murraylands remains robust.

Message from Murraylands businessman Norm Paterson

Cooke Plains Gypsum has been operating in the Murraylands region for nearly 100 years. With the high quality gypsum site right on major transport routes to Adelaide and the Australian eastern seaboard, the gypsum can be delivered anywhere in the world. Our business continues to reinvest in its operation and people and has found the Murraylands a perfect place to do business.

As Deputy Chair of the Murraylands Regional Development Board, I have the utmost confidence in the mining industry within the Murraylands.

Mindarie Mine - Karoonda East Murray District Council
First shipment of Zircon 2008

Introduction

The RIO Project – Regional Investment Opportunities Prospectus - initiated by the Murraylands Regional Development Board, in conjunction with five regional councils of Rural City of Murray Bridge, Mid Murray, Karoonda East Murray, Southern Mallee and Coorong has undertaken intensive community and industry consultation to identify preferred target sectors for investment attraction. Mining in association with manufacturing has been included among the twelve preferred target sectors for investment across the Murraylands.

Mining is a vibrant and emerging sector in the Murraylands building on a base of long-standing activities in gypsum, limestone road materials, granite and mineral sands. Since 2006 there have been significant new mining explorations and re-development of neighboring mining sites in response to the rapid general expansion of the resources sector emerging from South Australian Government promotion of mining exploration from the 1990s.

As a result of these exploration initiatives new mines are currently under development at three additional sites which collectively create a mining triangle linking Mindarie in the District Council of Karoonda East Murray, Strathalbyn in the District Council of Alexandrina and Kanmantoo in the Mount Barker District Council areas.

The extent of investment and development of this mining sector has introduced new business opportunities for regional manufacturers acting independently or collectively as consortia collaborating for mining construction contracts.

South Australia - Mining Context

From 2002 the Rann Government has promoted mining exploration and development through the Plan for Accelerating Exploration (PACE) Program. Commitment of $22.5million dollars over five years has sent a strong message to the mining industry and underpinned an intensive period of exploration and development. Bipartisan support between political parties has enabled mining companies to pursue exploration without fear of policy changes. As a result South Australia is now regarded as a “mining investment hot spot” which ranked fifth out of 65 jurisdictions across the world in 2007. In 2006 South Australia attracted $191.4 million or 13% of investment capital in the Australian mining sector.[1]

South Australia’s Minister for Mineral Resources Paul Holloway has supported mining as an additional element in the South Australian economy rather than as a replacement for the manufacturing sector which has always played a strong role in economic development.

“The future strength of our manufacturing sector is going to depend on it becoming more specialized and more high tech…I think that we’ll still have a strong manufacturing component, but in specialized areas like electronics and heavy manufacturing, focusing on our strengths in defence and mining.”(Minister, Mineral Resources Development, Paul Holloway 2007)

1 Southern Stars, Feature [Mining], May 2007, p.40-42

SA Department of Primary Industries and Resources, Executive Director, Minerals and Energy Paul Heithersay says the Government is reviewing the State's Mining Act and updating its online geological database.

"It's all about getting companies to the drilling stage as fast as we can and once they find something, we want them to be in a position to get a sustainable mining development going as soon as they can...That's the bottom line". (Paul Heithersay, Executive Director, Minerals and Energy, 2007)

Murraylands Mining - Introduction

Mining in the Murraylands has a long history of quality service to the agricultural and construction sectors. Since the 1920s high quality gypsum has been exported to farming and recreational communities across southern and eastern Australia from Cooke Plains and more recently from mine sites at Meningie. Highest quality black granite from the Black Hill site in the Mid Murray region has embellished commercial and public buildings across Australia. Black granite is currently exported to China for processing then returned to Australia in polished form for the high end domestic and commercial markets.

Extensive mineral deposits are currently under development in both the heart and periphery of the Murraylands. Australian Zircon have taken significant mineral sands including zircon and titanium deposits at Mindarie in the Karoonda East Murray Council District from site development to processing and export of heavy concentrate in 2008. At Strathalbyn, on the south-eastern edge of the Murraylands, Terramin Australia Ltd. has rapidly advanced the Angas Lead-Zinc Project from granting of a mineral lease in 2006 towards commercialisation in 2008. In June 2008 Hillgrove Resources announced that discovery of additional deposits of copper and gold would support rapid re-development of the long-standing Kanmantoo Mine site.

Black Granite

The Black Hill black granite deposit located approximately 110 km north east of Adelaide in the Marne Valley was formed approximately 500 million years ago. The granite is uniform in texture and rich black in colour. There are two commercial quarries located in the Palmer region of the Murraylands. The first commercial quarry began operations in 1947. The second opened as a commercial quarry in 1968. Black granite is sold to all parts of Australia, New Zealand, Japan and America and China. Black granite featured in construction of the former John Martins and David Jones department stores in central Adelaide in the twentieth century. More recently the fine quality black granite embellished the new Parliament House in Canberra. Sienna Brown granite has been used for the cobble stone courtyard in the forecourt of Sydney Opera House. Demand for highly decorative black granite for high end domestic and commercial development across Australia has influenced ongoing development of this quality resource which is currently exported to China for processing. Black granite is imported back into Australia in polished and finished forms. The Coorong Council area has several strands of high quality grey granite yet to be assessed for mining potential smaller deposits are located at Murray Bridge.

Copper & Gold

The Kanmantoo Copper - Gold Project, 55km SE of Adelaide in the Mount Lofty Ranges although on the edge of the Murraylands falls within the industrial and transport interests of the region. Copper mining at Kanmantoo dates back to the 1860s when underground mining delivered tons of quality copper ore to Adelaide and overseas markets over a twenty year period. Kanmantoo Mine emerged again as an open cut mine between 1964 and 1970 delivering quality copper ore in the period of mineral boom. Recent re-assessment of the site by Hillgrove Resources has revealed additional sources of copper ore and a significant zone of gold mineralisation south of the main pit.

Successful pre-feasability assessments have produced positive forecasts of up to 45,000t of copper ore with estimates that processing of concentrate could commence in 2009. In 2008 Hillgrove Resources announced their intention to expand development to include a flotation plant producing copper concentrate that would be transported 60km to Port Adelaide for shipment to overseas smelters.

Diatomite

Diatomite is a powdery non-metallic mineral composed of the skeletal remains of microscopic single celled aquatic plants, called diatoms. Diatoms have the unique ability to absorb water-soluble silica present in their natural environment to form a highly porous, yet rigid, skeletal framework of amorphous silica. The unique properties of diatomite including:- light weight; high porosity; high absorptivity; high purity; multi-shaped; rigidity; inertness - make it industrially useful in liquid filtration; as a multi-functional mineral additive; as a carrier for active ingredients and diluents; as an aggregate and as a source of silica. A diatomite deposit in the Southern Mallee Council region is currently under development.

Gypsum

Cooke Plains Gypsum

Cooke Plains Gypsum deposit borders the eastern reaches of Lake Alexandrina, over a former tidal lake at the mouth of the River Murray. The Cooke Plains deposit is geologically related to the old lake bed where gypsum crystallized and was subsequently blown into dune formation on the south side of the Lake. Low sodium content is due to the natural leaching process.

Gypsum deposits at Cooke Plains were was first discovered in regional surveys in 1876 when land was transferred to perpetual leasehold. First production began in 1914 when 28 tonnes were taken for agricultural use by Mr. W. Cummins. Found to be unsuitable for plaster manufacture the deposit was not worked again until 1925 when it was taken up by several operators mining flower Gypsum for agricultural purposes. Leases were purchased by Mr. D. Smith in 1927. Intensive hand loading into bags and transfer by horses and wagons to the rail head at Cooke Plains continued until first mechanical bulk loading began in 1945.

In 1958 Norm Paterson was appointed manager of the Cooke Plains gypsum mine. Ten years later Paterson began his own transport company, N.D. & M. Paterson with one truck. The names Norm Paterson and Cooke Plains Gypsum are now synonymous with a business built up by Norm Paterson over fifty years of quality product distribution and customer service. Cooke Plains Gypsum now mines 60,000 tonnes a year distributed with a fleet of eleven B-Double Tippers. The family business now managed by son, Preston Paterson trading as Paterson Bulk Transport takes the name Cooke Plains Gypsum on roads serving markets across South Australia, Victoria and New South Wales.

Cooke Plains Gypsum is used in broad acre farming in all southern regions of South Australia and western Victoria. Large quantities are also used in horticulture, mainly supplying vineyards, ovals, golf courses and some fertilizer manufacturers and garden centres in South Australia, Melbourne, Sydney and Brisbane. Gypsum is mined by front end loader followed by on site processing through a screening plant and direct transport to purchasing customers. Gypsum deposits are also located at Blanchetown in Mid Murray Council.

Lignite

Sedan & Coomandook

This deposit contains 184 million tonnes of Lignite (low-rank brown coal of Middle to Late Eocene age distributed widely in Tertiary sedimentary basins) with 2 main seams between 5-8 metres thick at an average depth of 50 metres. Coal deposits are also located at Coomandook.

Meningie Gypsum

In 1998 push-tube coring of 15 former lake sites south of the township of Meningie has indicated a gypsum resource totalling 1.3Mt, almost 60% of which is of plaster grade. Approximately 1Mt. of this resource is contained in the Clanto deposit 4km south of the town. Production commenced at Gemlake, 6km south of Meningie, in 1998. Elephant Lake deposit, 12 km north east of Meningie, contains 1.4Mt at 91.8% gypsum. Meningie Gypsum Pty. Ltd. produced a total of 6600t from high deposits in 2002. (Ref. PIRSA minerals/ gypsum website 2008)

Meningie Gypsum Pty. Ltd. was founded in 1997. The Company holds mining and exploration rights over millions of tones of high grade gypsum. The mine is located approximately 150km from the City of Adelaide near the township of Meningie in The Coorong District Council region.

Meningie Gypsum Pty. Ltd., was established with the specific aim of developing the Meningie deposits of gypsum by mining, stockpiling and treatment. The gypsum deposit which is 1-2 metres thick with no overburden, occurs as former lake bed deposits. Gypsum deposits are extremely fine-grained high quality meeting specifications for agricultural purposes. Further treatment renders this gypsum suitable for cement, glass and plaster manufacture. Local, interstate and overseas markets are currently being developed. Greg Moorhouse of Agricola Mining is now responsible for bulk bag sales of Meningie Gypsum. (Ref. www.meningiegypsum.com.au – 2008)

Ashville

Drilling of the Warnes and Lihou deposits approximately 35 km from Tailem Bend by Olliver Geological Services has outlined 5Mt of gypsum at 73-88% $CaSO_4.2H_20$. (Ref. PIRSA Minerals 2008)

Mineral Sands

Zircon, Rutile, Ilmenite, Leucoxene

Australian Zircon - Mindarie

In mid 2008 Australian Zircon NL's Mindarie Heavy Mineral Project in the Murray Mallee, 150 km east of Adelaide moved into the production phase. Development of the mine and production facility commenced in 2007. Overall employment estimates identified approximately 120 positions including professionals, skilled and semi-skilled laborers involved in plant operations, maintenance, earthworks, surveying, administration and site rehabilitation. The proposed mining operation operates with ore pumped as slurry from the mine site to the primary concentration plant, located on the site of the mineral separation plant. After processing, tailings are returned to the mine site by pipeline for dewatering and mixing with overburden and backfilling into the pit. Australian Zircon Annual Report 2007 announced the completion of the exploration and construction phase with optimistic forecasts for the future. Chairman of the Board, John G. Branson congratulated the Company on a seamless transition from exploration and construction to the production phase. First shipments began in 2008 with ore railed to Port Adelaide for overseas markets. (Ref. Earth Resources Information Sheet, August 2006; Australian Zircon Annual Report 2007.)

Salt - Langhorne Creek

Salt is mined by Mulgundawa.

Terramin Australia - Angas Lead-Zinc Project

In 2008, Terramin Australia Lead-Zinc Project, located at Strathalbyn, 60 km from Adelaide on the edge of the Murraylands is rapidly moving to full production. The Angas zinc and silver-lead deposit was discovered in 1991 by Alberfoyle Resources Limited, but on its analysis of the regional geology, was deemed not large enough to warrant further exploration and possible development. Terramin acquired the licences in 1997 and commenced an intensive drilling program to further define the mineral reserves.

In April 2007, PIRSA approved Terrramin's Mining Rehabilitation Plan (MARP) allowing construction to begin on the $64m Angas Lead-Zinc Mine. Annual ore throughput at the Angas zinc project, when fully operational in 2008 is expected to ramp up to 400,000 tonnes, producing 60,000 tonnes of zinc and 24,000 tonnes of lead-copper concentrate annually. It is anticipated that there will be a high level of precious metal entitlements (gold and silver) net to Terramin as a by-product of the concentrates once processed through the smelter. Mining operations will commence in October 2008. The Angas Project provides a major boost to the regional economy. The mine will provide 103 permanent jobs in the region including 63 at the mine site. A $29m per year boost for the local economy has been estimated in a study by the SA Centre for Economic Studies (ref. PIRSA MINERALS http://pir.sa.gov.au/public_notices/mineral_resources_developmen_in_south)

References

PIRSA MINERALS http://pir.sa.gov.au/public_notices/mineral_resources_developmen_in_south

AUSTRALIAN ZIRCON ANNUAL REPORT 2007

EARTH RESOURCES INFORMATION SHEET, M39, August 2006

BLACK HILL WEBSITE

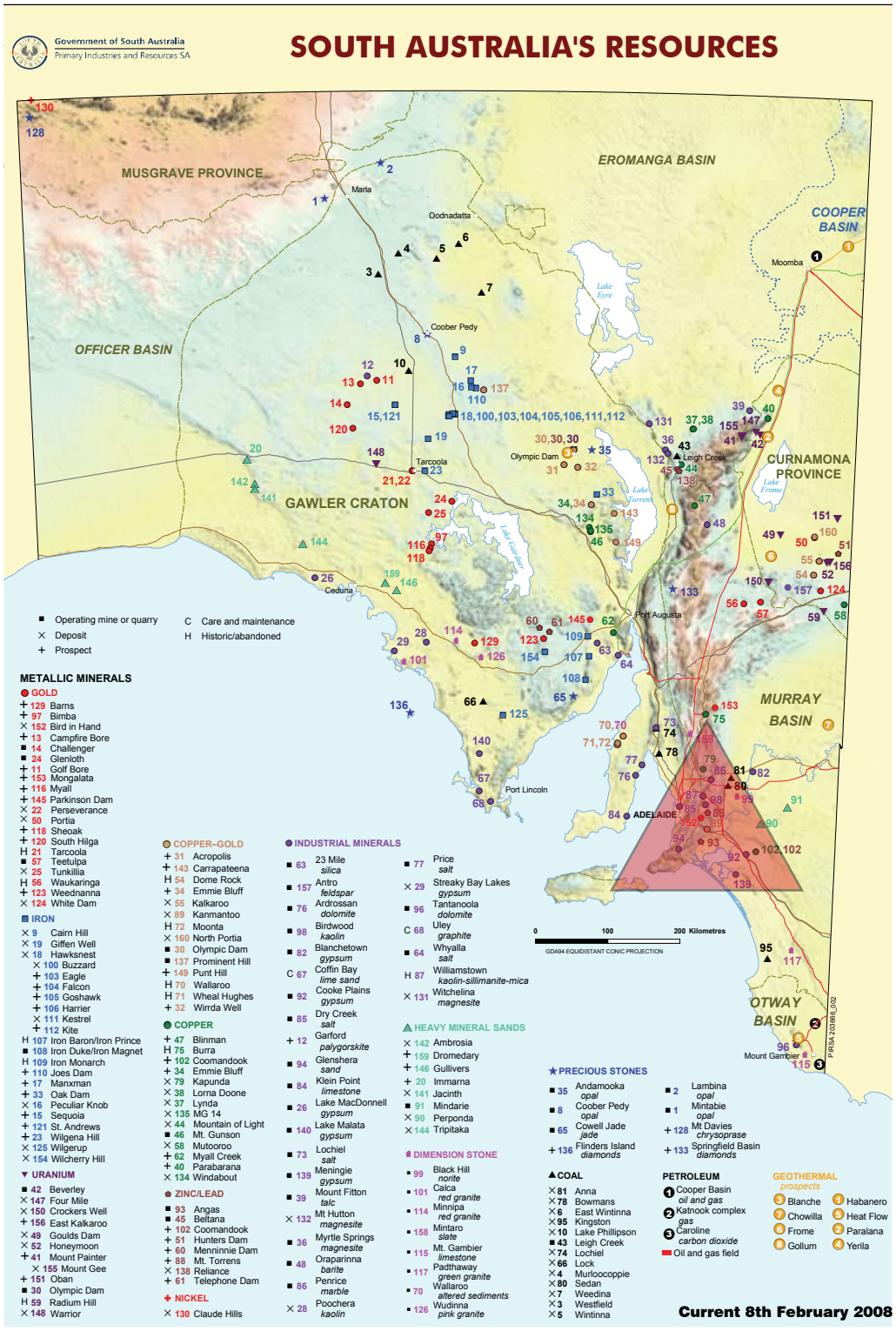
HILLGROVE RESOURCES WEBSITE

MENINGIE GYPSUM WEBSITE

COOKE PLAINS GYPSUM RESEARCH PAPERS

Disclaimer: basic information in this handbook has been compiled as an introduction to the mining activities in the Murraylands. Further intensive research must be undertaken to support decision making.

THE MURRAYLANDS MINING TRIANGLE
South Australia



Current Major Murraylands Triangle mining Operations

- **Black Hill** - Granite
- **Cooke Plains** - Gypsum
- **Geranium** - Diatomite
- **Mindarie** - Zircon, Rutile, Leucoxene, Ilmenite
- **Kanmantoo** - Copper & Gold
- **Langhorne Creek** - Salt
- **Meningie** - Gypsum
- **Sedan** - Coal
- **Strathalbyn** - Zinc, Silver & Lead

Major businesses currently servicing the Mining Industry

- Australian Portable Camps
- Bowhill Engineering
- Jacksons Australia
- Horwood Bagshaw
- Paterson Transport
- Transport Industry




WHERE IS THE MURRAYLANDS?

South Australia

5 Regional Councils

- Rural City of Murray Bridge
- Mid Murray
- Karoonda East Murray
- Southern Mallee
- Coorong

12 Target Sectors

- Alternative Energy
- Education
- Housing
- Intensive Animal Production
- Aquaculture/Horticulture/ Viticulture
- Food Processing
- Manufacturing & Mining
- Retail
- Recreation & Retirement
- Transport Logistics
- Tourism
- Water Use & Re-use

RIO regional investment opportunities

A PROJECT OF THE MURRAYLANDS REGIONAL DEVELOPMENT BOARD INC

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