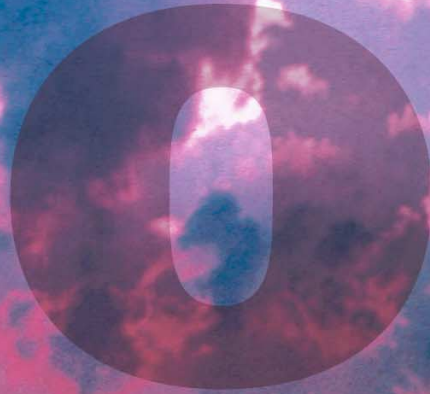


MINERALS & PETROLEUM SOUTH AUSTRALIA



**PRIMARY INDUSTRIES
AND RESOURCES SA**

OFFICE OF MINERALS AND ENERGY RESOURCES



Government
of South Australia



MINERALS & PETROLEUM SOUTH AUSTRALIA

Front cover captions (from top):

Field inspection of a seismic line. (Photo 47682)

Field excursion prior to the 2000 BHEI Conference. (Photo 47536)

Redman 1 drill stem test, Otway Basin. (Photo 45902)

Easterly aerial view of the Olympic Dam processing plant,
1999 (courtesy WMC Copper Uranium). (Photo 47242)

Compiled by Office of Minerals and Energy Resources

Edited by J.F. Drexel and J.E. Hibbert

Designed by PIRSA Publishing Services

Printed by Douglas Press

December 2000

CONTENTS

MINISTER'S COMMENT	4	Exploration licence procedures	33
EXECUTIVE DIRECTOR'S COMMENT	5	Environment Protection and Biodiversity Conservation Act	33
INDUSTRY OVERVIEW	6	Opal legislation highlights	34
In brief	6	Review of the Opal Mining Act	34
South Australian production	8	Extractive Areas Rehabilitation Fund	34
Emerging mineral projects in South Australia	10	Mineral Resources Group, Office of Minerals and Energy Resources	38
Resources Task Force	13	Vision	38
Government's response to the RTF Report	13	Business	38
Resources Industry Development Board	14	Achievements 1999–00	38
SECTION 1: SOUTH AUSTRALIA'S MINERAL INDUSTRY		TEISA	38
Major mineral commodities	15	Geological Survey	40
Metals	15	Mineral Assessment	44
Copper	15	Mineral Policy and Registration	46
Gold	15	Mining Operations	47
Lead–zinc–silver	16	2000–01 programs	49
Iron ore	17	Mineral Resources Group agreed milestones	49
Energy minerals	18	SECTION 2: SOUTH AUSTRALIA'S PETROLEUM INDUSTRY	
Coal	18	Commodities	55
Uranium	19	Gas	55
Industrial minerals	19	Oil and gas liquids	56
Barite	19	Ethane	56
Dolomite	20	Carbon dioxide	57
Graphite	20	Geothermal energy	57
Gypsum	21	Coal seam methane	58
Heavy mineral sands	22	Company exploration and development activity	58
Kaolin	23	Onshore	58
Limestone	23	Offshore	65
Magnesite	23	Legislation highlights	66
Salt	24	Petroleum Act	66
Silica	25	Compliance monitoring	67
Sillimanite–kyanite–andalusite	25	Petroleum Group Public Registers	68
Talc	26	Environment Protection and Biodiversity Conservation Act	69
Dimension stone	26	Native title	69
Granite	26	Petroleum Group, Office of Minerals and Energy Resources	70
Slate	27	Vision	70
Bluestone	27	Role and functions	70
Sandstone	27	Achievements 2000	70
Limestone	27	Policy achievements	70
Marble	27	TEISA	70
Construction materials	27	2001 programs	72
Crushed rock aggregates	28	SECTION 3: OFFICE OF MINERALS AND ENERGY RESOURCES CONTACTS	
Construction sand	28	Organisation chart	73
Clay	29	Office of Minerals and Energy Resources Directorate	74
Precious stones	29	Mineral Resources Group	76
Diamond	29	Petroleum Group	84
Opal	29	SECTION 4: ABOUT SOUTH AUSTRALIA	87
Jade	29		
Company mineral exploration activity 1999	30		
Mineral legislation highlights	33		
Mining (Private Mines) Amendment Act and Regulations	33		
National Competition Policy legislation review	33		
Mining (Royalty) Amendment Act	33		

ridge deposits of St Kilda Formation supply Port Lincoln, and Pleistocene Bridgewater Formation beach deposits are mined near Comaun in the South-East. Thick fluvio-lacustrine deposits from the Tertiary Loxton Sand are mined from exposures in the Murray River cliffs near Berri in the Riverland.

Almost all of metropolitan Adelaide's annual requirements of ~2 Mt of construction sand are sourced from fluvio-lacustrine deposits of Tertiary age located on the eastern flank of the St Vincent Basin. Because of the relatively high clay content of sand in these basins (~15%), ~70% of production is treated by washing to meet specifications. Most of the remainder is dry screened. In the Maslin Beach – Pedlar Creek area, the Middle Eocene North Maslin Sand crops out along the northern margin of the Willunga Embayment. This is the only major source of construction sand south of the city. An equivalent unit in the northern part of the Golden Grove Embayment supplies just under half of metropolitan Adelaide's sand. Further north, remnants of Tertiary fluvio-lacustrine sediments which extend eastwards from Gawler to the Barossa Valley also supply the metropolitan area. During 1991, a Departmental mapping and drilling program between Bute and Ardrossan on northern Eyre Peninsula identified a 60 km long palaeochannel containing sand tentatively correlated with the North Maslin Sand. Pits in this deposit, along with others on southern Yorke Peninsula, now supply an increasing portion of the metropolitan market.

CLAY

Metropolitan Adelaide's supplies of industrial clay comes from two main sources:

- weathered shale deposits of Adelaidean Saddleworth Formation and Woolshed Flat Shale
- fluvio-lacustrine white plastic clay deposits in Tertiary sedimentary basins.

Golden Grove is the centre of the clay brick industry in South Australia and accounts for >80% of the State's clay brick manufacture. The bulk of clay used in brick blends is won from deposits of deeply weathered Adelaidean shale on the eastern flank of the Tertiary Golden Grove Embayment. The shale is blended with white plastic sedimentary clay, which occurs as interbeds within the Tertiary sand sequence, to increase green strength of brick clay blends, improve extrusion characteristics and reduce firing temperatures. During recent years, increasing use has been made of reclaimed fine tailings from sand washing operations.

Total clay consumption in the metropolitan brick industry in 1999–00 was 386 899 t, with an additional 233 121 t being used in cement manufacture.

PRECIOUS STONES

DIAMOND

Exploration in the Springfield Basin, which contains Permian-hosted alluvial diamonds, was carried out by Tiger International Resources Inc. which is now floating a new company, Flinders Diamonds Ltd, to raise capital for further exploration in the region. An additional 56 diamonds were found in 1998 during exploration trenching, bringing the total found to 184. Fresh indicator minerals suggest a close primary source but this has not yet been discovered. The company has also acquired tenements over the Echunga area, a gem-diamond-bearing Tertiary alluvial occurrence immediately south of Adelaide which produced 50 saleable diamonds in the late 1800s, the largest gem reported being 9¼ carat. Exploration has slowed pending a successful float and is then expected to intensify in late 2000 and 2001.

There has been no commercial production of diamonds in South Australia.

OPAL

The estimated production of opal for 1999 was \$37.5 million, down slightly on the previous year's \$38.6 million.

Production at Lambina has once again increased from the previous year, \$5 million up to \$7.5 million, an increase of 50%. This has been offset by a small decline in output from Coober Pedy and a larger fall at Mintabie.

Opalised 'sandstone' processing has now reached a high standard, and Andamooka Opalworld Australia Pty Ltd has set up an initial cutting and polishing facility in China and is negotiating with several overseas companies to provide this unique 'Andamooka Opal Stone'. The company is endeavouring to establish a full processing plant in Andamooka which, in addition to the mining, will include the enhancing, cutting and polishing. Future plans include sale of opal from all other South Australian opalfields through an outlet which would include a workshop for tourist viewing, a retail and wholesale venue, and accommodation for prospective buyers at a prominent locality in Adelaide. Andamooka is renowned for its exceptional quality of opal and the aim of the company is to promote 'Andamooka Opal Stone' worldwide.

JADE

Sale of nephrite jade from the Cowell Jade Province on Eyre Peninsula during 1999 was only 757 kg, as Gemstone Corp. is refinancing and intending to enter into a joint venture to further market its jade.