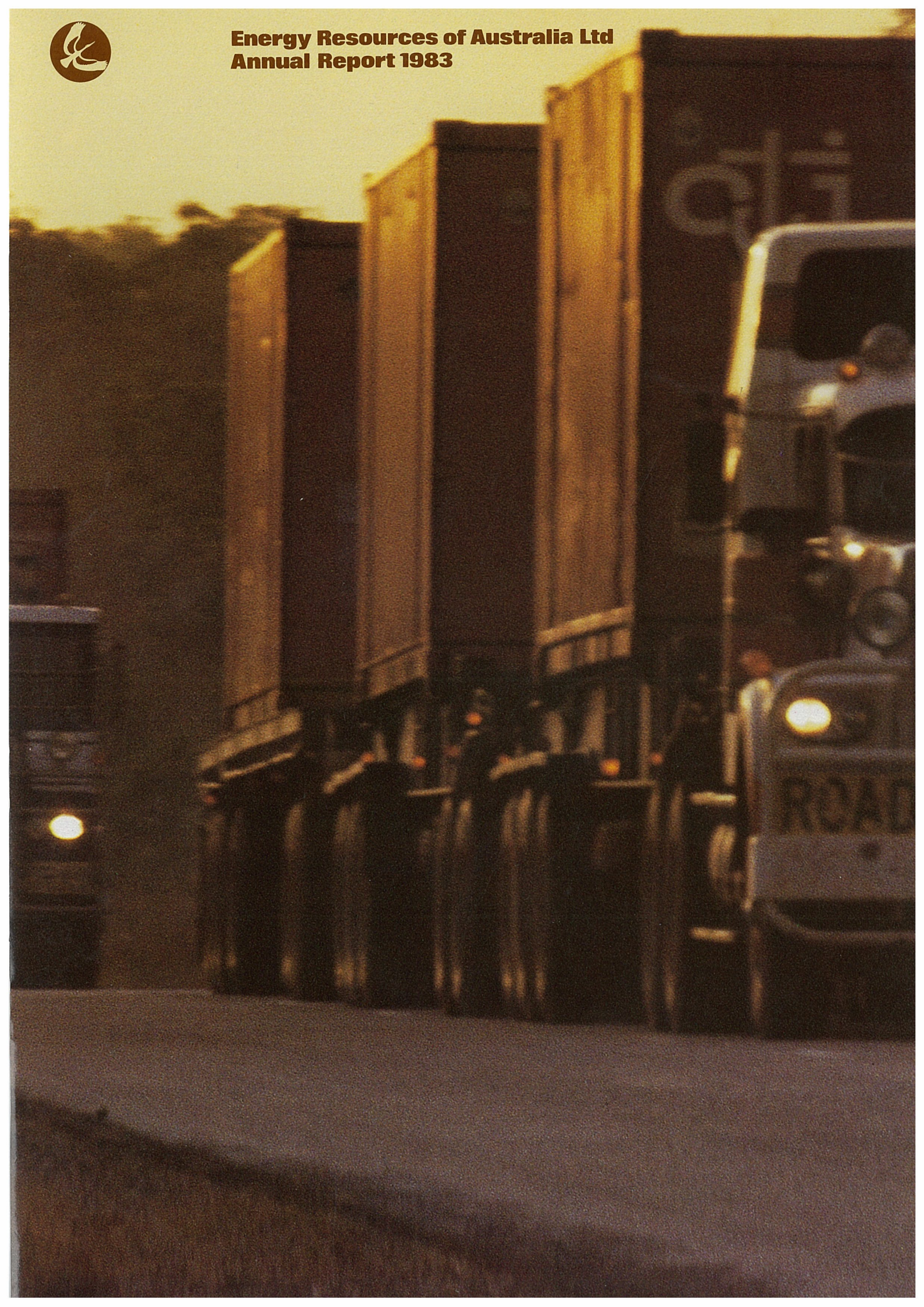
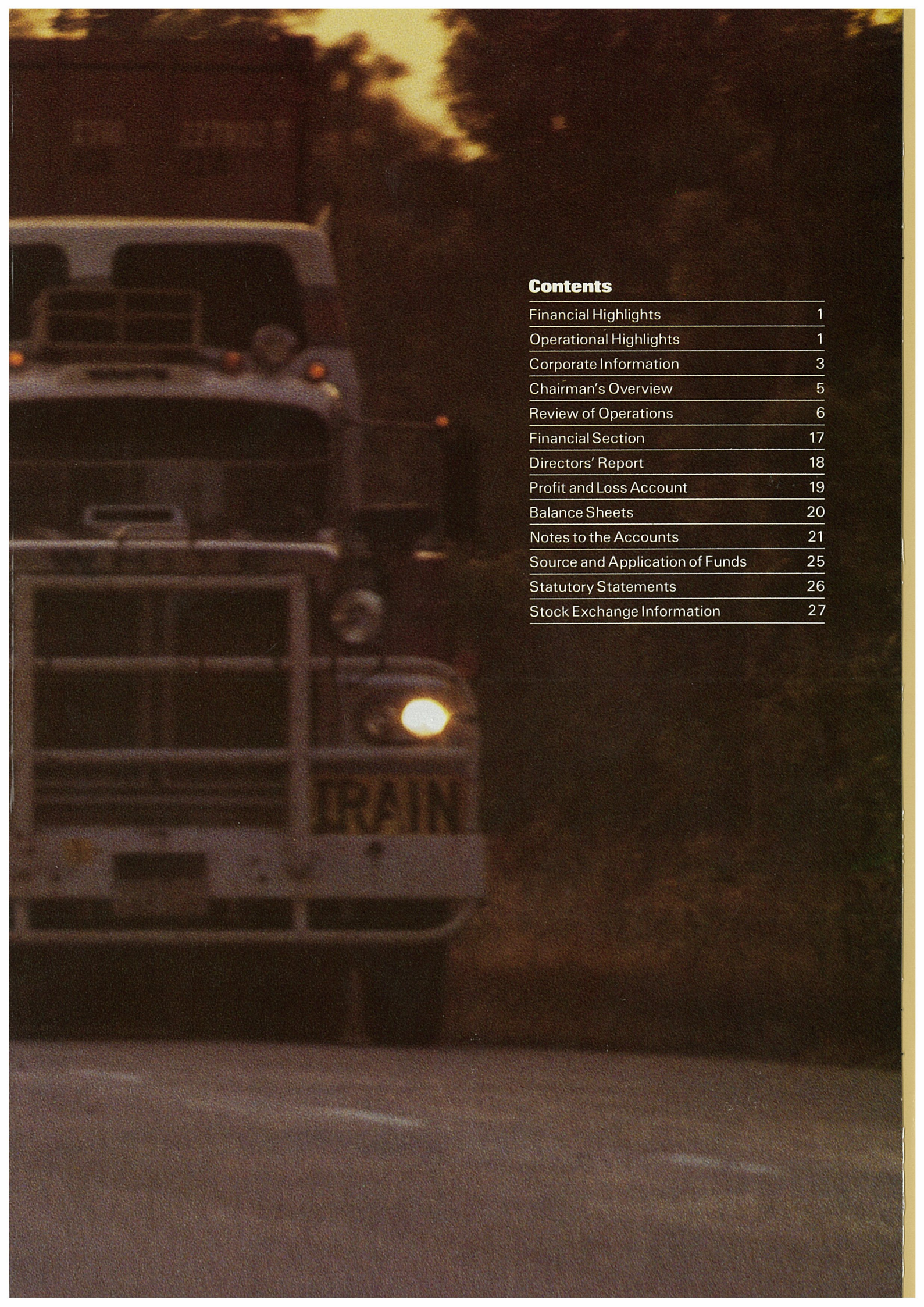




**Energy Resources of Australia Ltd  
Annual Report 1983**





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## Water Management System

The entire mine and plant site is divided into areas: run-off resulting from rainfall on these areas is handled according to the degree of possible contamination. For example, water originating within the mill area flows to Retention Pond 2 from which there is no release to the environment, at least in the early years of the Project.

Water originating within undisturbed areas is permitted to flow into the creek systems; water originating from the upper regions of Coonjimba Creek, where some disturbance of the surface has occurred but no uranium mineralisation is exposed, is collected in Retention Pond 1 and clarified by settling before discharge into the creek is permitted.

The diagram shows the major water retention structures, and their interconnections, which allow the use of water from Retention Pond 1, or bore holes, to supplement supplies in years of below-average rainfall.

### Tailings Dam

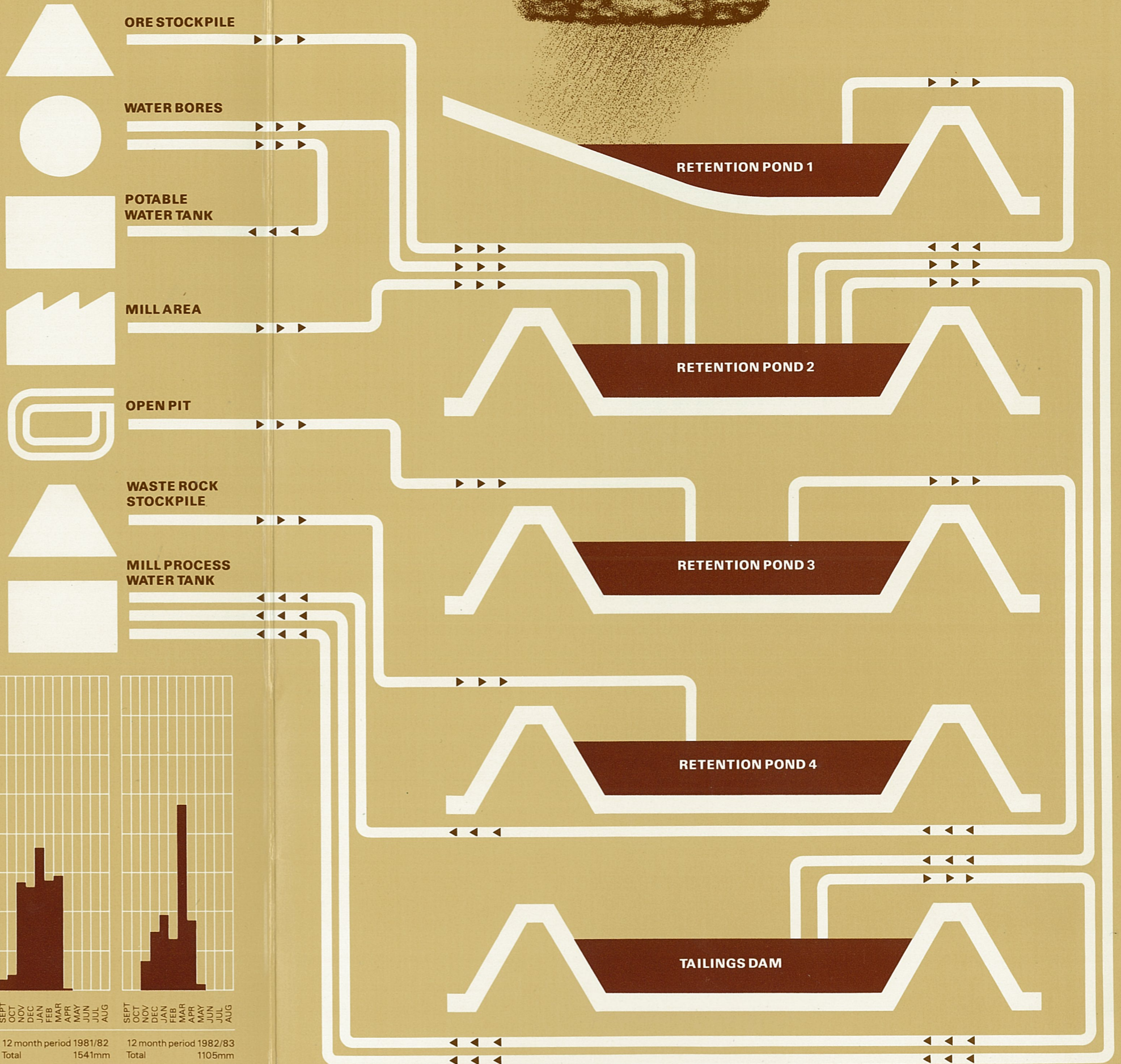
The dam serves both to store tailings which are saturated with water to minimise possible radon emissions and eliminate any potential dust

problem, and to provide a storage and an evaporation area as part of the Water Management System. In the dry season, evaporation from the dam, which has an area of 1 sq. km, can be as high as 10,000 tonnes of water per day.

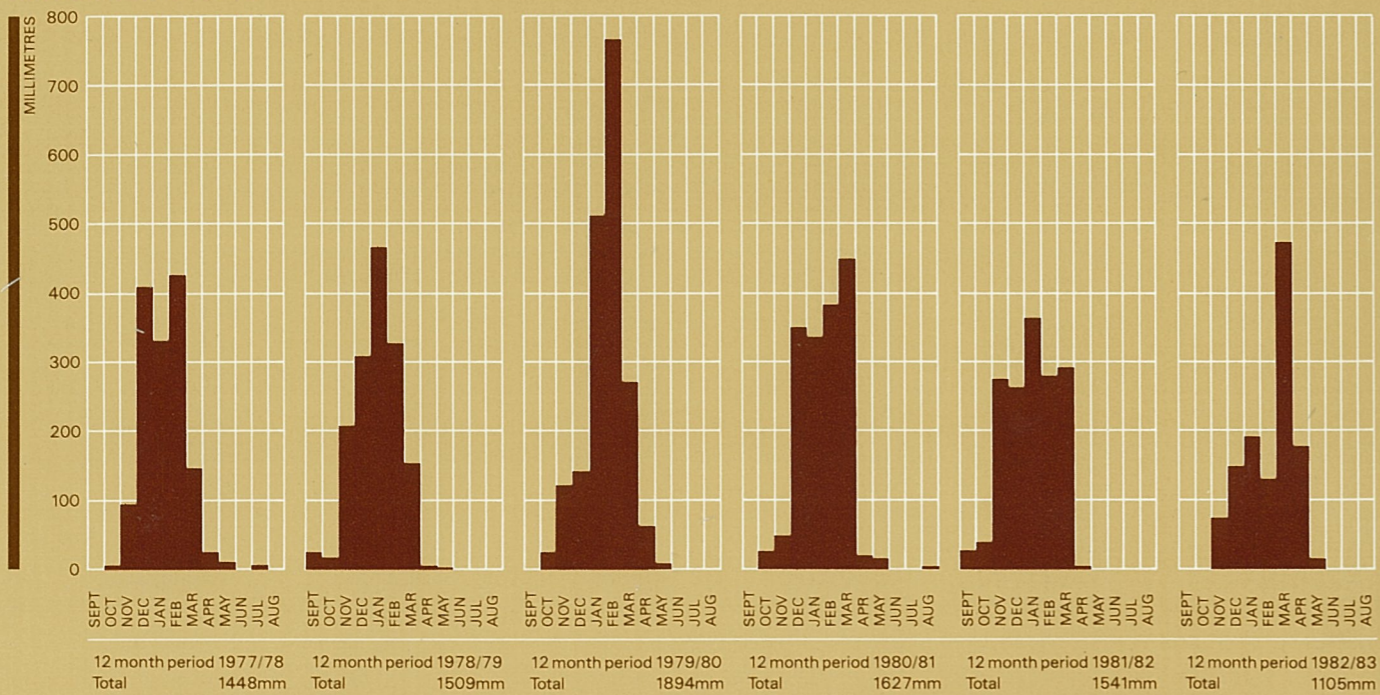
The dam embankment is built in a number of zones. The zone nearest the tailings is constructed of relatively impervious clay material, protected by a layer of coarse rock from the effects of wave action and rainfall. Other zones of earth-fill and rock give structural support to the impervious core and serve to channel the minor seepage through the embankment into the collector system at the toe of the dam from whence it is pumped back into the dam.

At the toe there is also a cut-off trench dug down to a layer of low permeability in the underlying rock and filled with clay material, this serving to reduce seepage under the wall.

In areas where more permeable or fractured zones have been intersected by the trench, cement has been injected under pressure to give a grout curtain and further reduce possible seepage.



## Annual Rainfall



## Financial Highlights (\$'000)

RESULT	1983	1982*
Sales	261,178	145,992
Profit before tax	113,362	45,579
Income Tax Expense	55,969	7,721
Profit after tax	57,393	37,858
Earnings per share	14.0 cents	9.2 cents
Dividend	10.0 cents	4.0 cents
Total Assets	943,456	953,880
Issued Capital	410,000	410,000
Capital and Reserves	458,351	434,458

\* 1982 results are for the 9 months to 30 June, 1982

## Operational Highlights

Above target metallurgical recovery rate –	Page 7
Work well advanced on Stage 2 of tailings dam construction –	Page 10
Improvement in uranium prices in the spot market and growing inquiry for the company's product –	Page 13
Continuing stability in the company's workforce –	Page 14
Township of Jabiru completed and officially opened –	Page 16

## Cover

*Several times every year, usually at night when the Northern Territory roads are mostly clear and are at their safest, large convoys of prime movers and trailers – road trains as they are known – pull out of the Ranger project area at Jabiru and head*

*230km west for the Darwin wharves. There the containers are transferred to ships that carry E.R.A.'s uranium concentrates for processing into fuel for the generation of electricity by overseas power utilities.*

# Uranium Extraction Process

**1** Uranium ore is reduced by three-stage crushing and screening to less than 19mm in size and then, as a slurry in water, by two-stage grinding and sizing so that virtually all the ore particles are less than 0.18mm.

**2** The slurry of ground ore is thickened, then leached with sulphuric acid and an oxidant at an elevated temperature for approximately thirty hours to dissolve about 90% of the uranium.

**3** The resultant solution of uranium is separated from the waste rock and the latter is freed of entrained solution by repeated washing and settling (Counter Current Decantation or CCD). In this process, the solids flow from stage to stage, becoming progressively freer of entrained solution, while wash-liquor moves in the opposite direction, becoming progressively richer in uranium. The uranium depleted solids are neutralised with lime and pumped to the tailings dam.

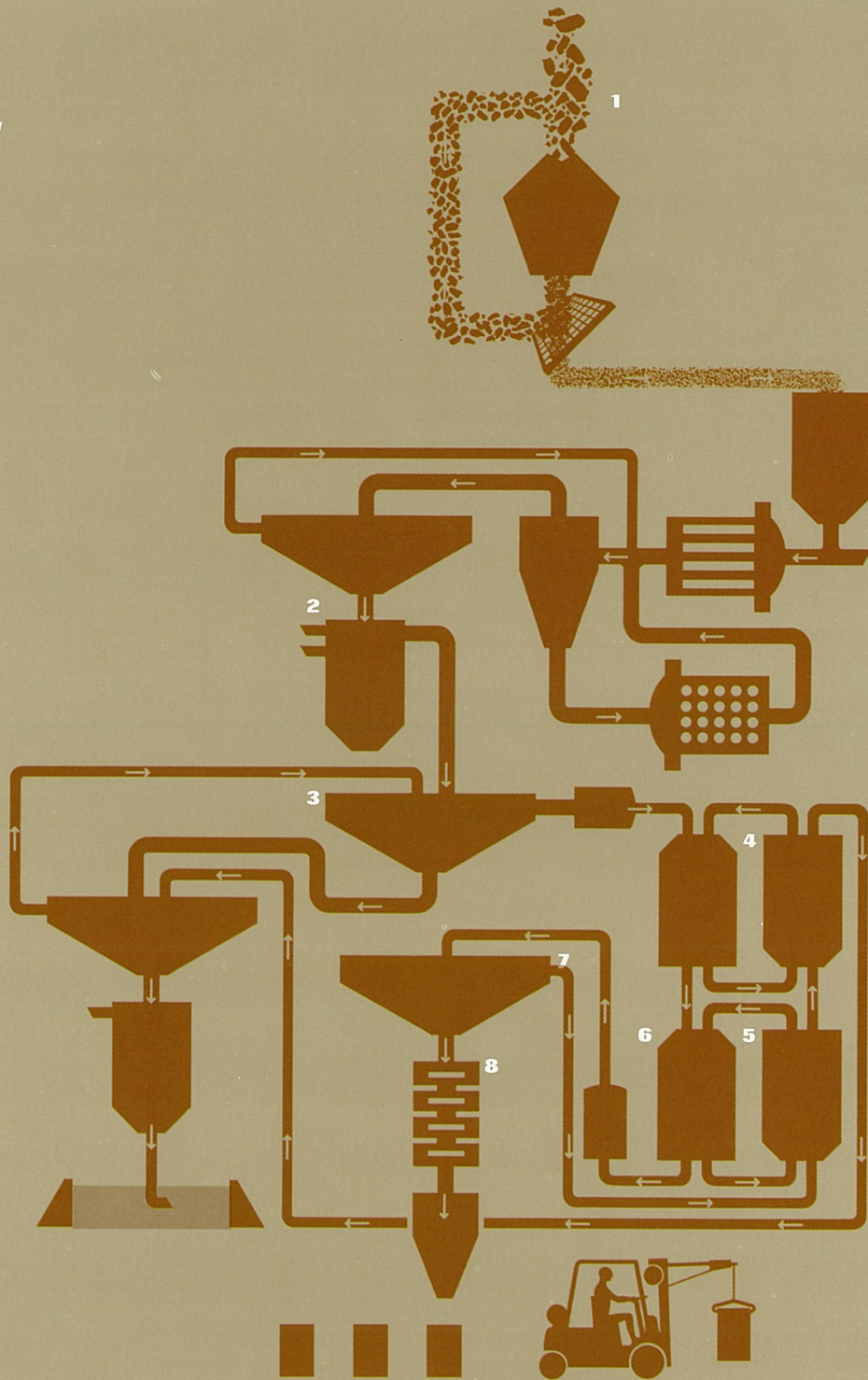
**4** Suspended solids are filtered from the uranium-rich solution and the uranium then separated from other dissolved substances by solvent extraction. This entails vigorous mixing of the aqueous solution, after adjustment of its acidity by the addition of ammonia, with kerosene containing organic reagents which preferentially take the uranium into solution.

**5** The aqueous and organic components of the mixture are then separated by settling. The process is repeated a number of times in a manner analogous to CCD with the aqueous phase moving through a series of mixer/settler tanks and becoming progressively weaker in uranium, while the organic phase moves in the opposite direction, becoming progressively richer.

**6** The next stage of the extraction is achieved by reversing the previous process to strip uranium from the organic phase into a clean aqueous phase after a further adjustment in acidity, the now uranium-free organic phase being recycled to the solvent extraction stage.

**7** Uranium is precipitated as ammonium diuranate from the aqueous solution by the addition of further ammonia and, after washing and thickening, centrifuged to give a bright yellow paste, yellowcake.

**8** In the final stage of the process, the yellowcake is broken down by heating to 600°C to give the dark green uranium oxide,  $U_3O_8$ ; the ammonia which has been driven off being recycled. The product is packed into 200 litre steel drums, each weighing about 380 kg when filled, and these are sealed in standard shipping containers for transportation.



## Corporate Information

Energy Resources of Australia Ltd. (E.R.A.) was incorporated on 8 February, 1980, to acquire all rights to the Ranger Project. The origin of the Ranger Project was the discovery in 1969 of a major uranium orebody 230 km east of Darwin by a joint venture of Peko-Wallsend Operations Ltd. (Peko) and the Electrolytic Zinc Company of Australasia Limited (EZ).

In 1974, under what became known as the Lodge Agreement, the principle of a joint venture between Peko, EZ and the Australian Atomic Energy Commission for the mining and processing of Ranger ore on behalf of the Commonwealth was established. A year later, the Lodge Agreement was elaborated into a Memorandum of Understanding which had two conditions precedent to its affirmation by the Commonwealth. These were consideration of the report of the Ranger Uranium Environmental Inquiry, which had been established earlier in that year, and of a report by the Interim Aboriginal Land Commissioner on any claims by Aborigines in respect of land within the Ranger Project Area.

The first report of the Environmental Inquiry, issued in 1976, concluded that mining, milling and export of uranium, should be permitted to go ahead under strict controls. Following presentation

of the second and final report in 1977, which included recommendations of the Chairman of the Inquiry, Mr. Justice Fox, acting as an Aboriginal Land Commissioner in respect of claims in the Ranger Project Area, the Government announced its decision to permit uranium mining and export under stringent regulations.

In 1978, agreement was reached between the Commonwealth and the Northern Land Council, acting on behalf of the traditional Aboriginal land owners, on the terms under which mining would take place. Shortly afterwards, the terms of the joint venture agreement between the Australian Atomic Energy Commission, Peko and EZ were finalised and Ranger Uranium Mines Pty. Ltd., which is now a wholly owned subsidiary of E.R.A., was appointed as Managers of the Project. Construction work began immediately and progressed steadily until October, 1981 when the mine and mill came into full production.

In the meantime, in August 1979, the Commonwealth announced its intention to sell its interest in the Ranger Project and invited tenders. The successful tender was a proposal which included not only the purchase of the Commonwealth's interest, but those of Peko and EZ through the establishment of a public company,

Energy Resources of Australia Ltd. This company was intended to have a 25% equity holding by overseas interests which were to purchase approximately 75% of the planned initial output. Acquisition of the Ranger interests was completed on 12 September, 1980. Sales contracts, a shareholders' agreement between E.R.A., Peko, EZ and the overseas holders of 24% of the equity, and the necessary project financing arrangements were concluded on 30 September. Public flotation occurred on 18 October. Early in 1981, the remaining 1% equity in E.R.A. available to overseas interests was issued to a major Swedish electric power utility.

Commissioning of the plant started in July, 1981 and full production commenced on 1 October of that year. The plant was officially opened on 20 November, 1981. In its first year of production, despite the settling in problems associated with a new plant, 3,007 tonnes U<sub>3</sub>O<sub>8</sub> were produced, against a design figure of 3,000 tonnes per annum.

Minor site construction continued for a while, together with construction of the township of Jabiru built to service the needs of the Ranger community and the public servants associated with the project. The town was officially opened on 26 July, 1982.

### Board of Directors

A L Morokoff, Chairman  
A C Copeman  
A W Hamer  
K Ito  
(Nominated by holders of 'C' Class shares)  
G B Lean  
G A Mackay  
L W Mueller  
(Nominated by holders of 'B' Class shares)  
Sir Rupert Myers KBE, FTS

### Secretaries

B T Ross  
J D Button

### Chief Executive

B G Fisk

### General Managers

P J Bradfield, *Marketing*  
K B Lewington, *Finance*  
D T Woods, *Operations*

### Registered Office

C/- Stephen Jaques Stone James  
6th Floor, Canberra House,  
40 Marcus Clarke Street,  
Canberra City, ACT 2601  
Telephone: (062) 48 5222

### Principal Office

New South Wales  
20 Bond Street, Sydney, NSW 2000  
Postal Address:  
GPO Box 4039, Sydney, NSW 2001

### Auditors

Coopers & Lybrand

### Bankers

Commonwealth Trading  
Bank of Australia  
Westpac Banking Corporation

### Notice of Meeting

This report is to be presented at the Annual General Meeting of members of Energy Resources of Australia Ltd. in the Ionic Room, The Masonic Centre, cnr Castlereagh & Goulburn Sts., Sydney at 10.30 a.m. on Thursday, 20 October, 1983.

A formal Notice of Meeting and Proxy Form is enclosed with this report.



## Chairmans Overview



It is pleasing to report that the performance of E.R.A. in 1982-83, the first full year of trading, measured up to our expectations. Profit was \$57,393,000 which permitted your Board to declare a final dividend of 5¢ per share in addition to the interim dividend of 5¢ per share declared in February. Production at Ranger continued smoothly without interruption, shipments to our customers were made to plan, and construction of Stage 2 of the tailings dam was started.

Apart from this tangible evidence of success which is documented in the Review of Operations and the Financial Statements, there is another story to tell: that of the less obvious factors which also have a major bearing on the prosperity of your company. These factors may be called 'environmental' in the broadest sense of the word. They include E.R.A.'s relationships with the many diverse groups which have supported it and continue to support it now: its shareholders, customers, financiers, employees and their unions, the traditional Aboriginal land owners at Ranger and the Northern Land Council, the Northern Territory community, and industrial undertakings in other parts of Australia. There is also the environment of public opinion, both in terms of E.R.A. as a corporate citizen of Australia and also in terms of the company's significance and responsibilities as part of the whole international energy industry. This environment, in turn, influences the legislative framework within which we operate.

E.R.A.'s policy is one of co-operation with its environment; a policy of developing good relationships, of openness about its operations and, equally, of not being afraid to defend its actions against uninformed or biased criticisms.

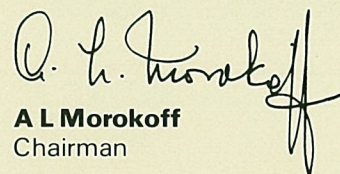
The Review of Operations covers some aspects of this other side of the story, for example: the co-operation

between E.R.A. and the supervising and regulatory authorities on mining operations, water management and environmental protection: the assistance given to local Aborigines in the development of a number of initiatives – a construction company, a programme of collection of indigenous seeds for use in rehabilitation, a hostel, a homemakers' course and pre-school care for children: increasing co-operation between management and other employees on industrial safety and occupational health, and the further development of Jabiru town.

An innovation for E.R.A. is the inclusion with this report of a separate document on the World Uranium Market. This is the first of an occasional series on subjects of particular interest to our shareholders. From that document it will be seen that E.R.A. does not share the pessimistic views of some commentators on the future of the nuclear industry. Portents for a resurgence of growth are there.

Australia is the custodian of a substantial share of the earth's energy resources which can be used for the benefit of all people. There are obligations to less fortunate communities in the world.

E.R.A. sees its responsibility going beyond existing markets and customers. As an important supplier in the total world context, the company recognises that further potential markets exist for  $U_3O_8$  concentrates which can be produced from its existing plant. Any dispassionate, informed study of the world energy scene in 1983 will confirm that the principal conclusion of the First Report of the Ranger Uranium Environmental Inquiry is truer today than when originally expressed in 1977, namely 'The hazards of mining and milling uranium, if those activities are properly regulated and controlled are not such as to justify a decision not to develop Australian uranium mines.'

  
**A L Morokoff**  
Chairman



## Review of Operations

### Trading Results

Net profit after tax for the year amounted to \$57,393,000 after deducting operating expenses and income tax expense of \$55,969,000. Revenue from sales of uranium concentrates totalled \$261,178,000.

In a number of instances the dates of deliveries varied from those scheduled in contracts. Deliveries to some customers were in advance, although in most cases sales proceeds are not received until the dates intended under the contracts. As the administrative arrangements under the bilateral safe-

guards agreement with the Republic of Korea have not yet been put in place, it was not possible to make scheduled deliveries to that country during the year.

As a result of continuing negotiations on price in accordance with the terms of the sales contract, only part of the year's scheduled shipments to Indiana & Michigan Electric Company of the USA were made.

Interest rates applicable to the Euro-dollar project loan fell from relatively high levels early in the year. The 90 day Eurodollar rate at 30 June, 1983 was



### *Training*

*The mine offers a variety of employment opportunities for technical college and university graduates*

*Apprentices work as fitters, electricians and mechanics, whilst others are employed as horticulturalists in the nursery at Ranger.*

*CAI left, apprentice instrument fitter Kevin Woodford works under supervision*

9.8% compared with 15.7% at 30 June, 1982. The benefit from lower rates was partly offset by the adverse effect, on both the project loans, of the reduction in value of the Australian dollar.

The change in value of the Australian dollar was reflected in higher proceeds from sales priced in US dollars. This benefit was limited, however, because a proportion of US dollar sales proceeds was sold forward at different exchange rates and this offset the effect of exchange rate movements on borrowings in US dollars.

### Dividend

A dividend of 5 cents per share was paid to shareholders on 31 May, 1983 and directors have declared a further dividend of 5 cents per share which will be paid on 30 November, 1983 to shareholders on the register at 5.00 p.m. on 21 October, 1983, making a total of 10 cents for the year.

### Mining

Mining of the No. 1 orebody during 1982/83 was largely concentrated on the production of unmineralised material for use in the construction of Stage 2 of the tailings dam. This was

made possible because the initial development of the pit to provide an 85% primary/15% weathered ore mix to the mill had resulted in the accumulation of considerable stockpiles of weathered material. This material was reclaimed more rapidly than anticipated after experience in the milling of the ore showed that much higher percentages of weathered material could be handled in the plant. Consequently, of the total 3.8 million tonnes extracted from the pit this year, only 0.4 million tonnes were ore, 0.6 million tonnes were low grade mineral-

*Induction Courses*  
Induction procedures for new employees include courses on occupational health and various safety demonstrations similar to the one being conducted by fire and safety officer Alan Ryan



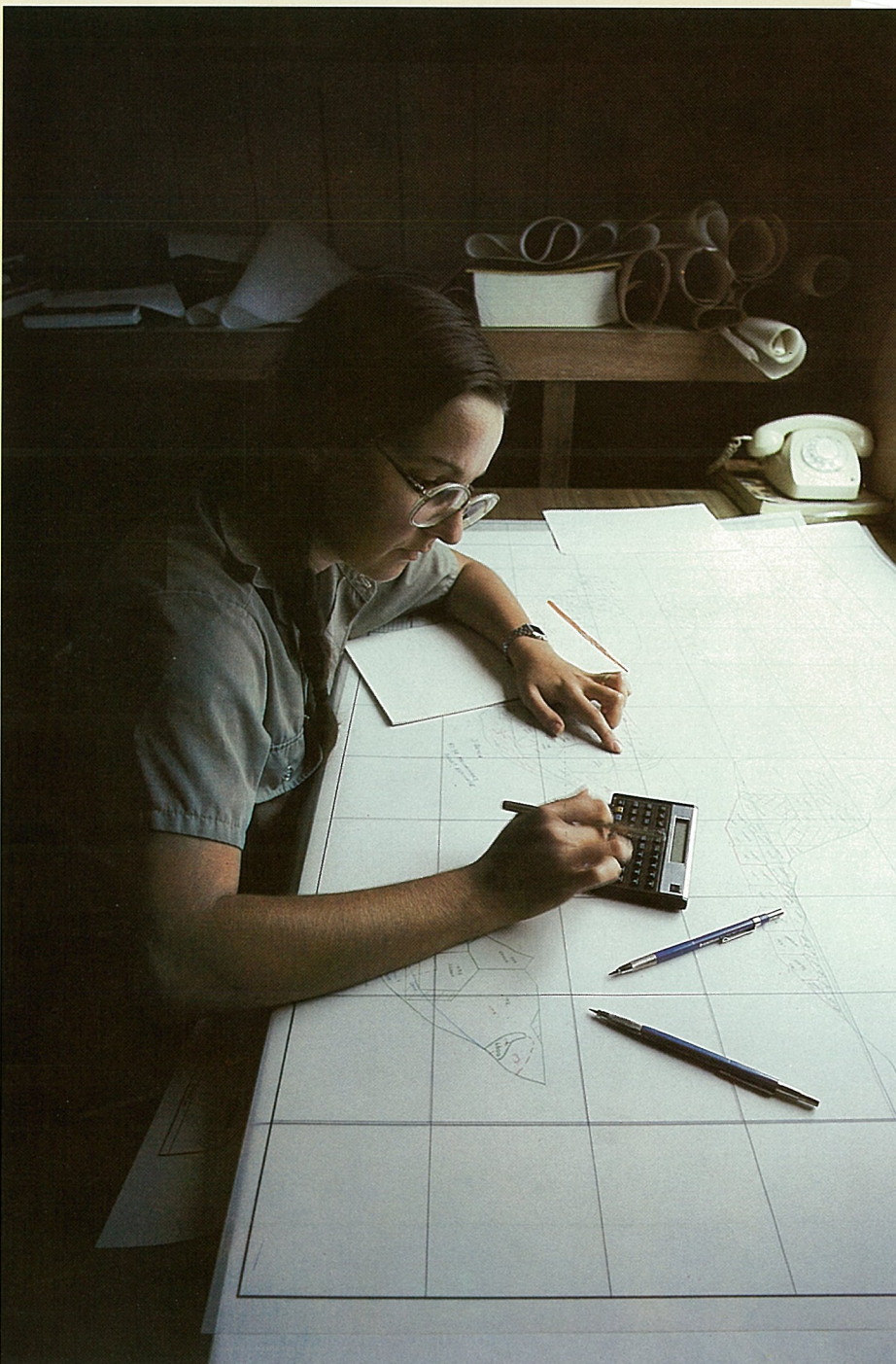
ised material between 0.02% and 0.10%  $U_3O_8$  in grade and 2.8 million tonnes were unmineralised material. Stockpile reclaim slightly exceeded 0.6 million tonnes and 1.0 million tonnes of the unmineralised material were put aside for use on the construction of the second stage of the tailings dam.

Productivity in terms of both manpower and equipment from the mine was satisfactory.

### Ore Resources

E.R.A. has temporarily discontinued exploration within the Project Area until

		1 July 1983		1 July 1982
		TONNES ORE	% $U_3O_8$	TONNES CONTAINED $U_3O_8$
<b>No. 1 Orebody at 0.10% cut-off</b>				
Ore Stockpiles	2,039,550	0.362	7,388	9,813
Proven ore	12,376,200	0.333	41,212	42,855
Probable ore	224,100	0.147	329	329
Total insitu ore	12,600,300	0.330	41,541	43,184
Total ore	14,639,850	0.334	48,929	52,997
<b>No. 3 Orebody at 0.05% cut-off</b>				
Probable ore	35,210,100	0.207	72,838	72,838
Possible ore	7,498,000	0.163	12,213	12,213
<b>Total</b>			133,980	138,048



*Mine Planning*  
 Efficient operation of the open pit to give a steady grade of ore to the mill and minimise double handling, requires careful planning.  
 Mining engineer Joan Bath concentrates on plans for the supply of unmineralised material for the tailings dam construction.

additional sales contracts have been secured. Ore reserves and stockpiles decreased through treatment of ore in the plant and a minor reassessment.

### Milling

Mill metallurgical recovery has been good from the beginning of production. In 1981/82, despite it being the first nine months of operation, a recovery of 88.5% was achieved compared with a design figure of 88.3% for the mix of ore types treated. This recovery improved in 1982/83 to 90.35% compared with the equivalent design figure of 86.2% for the ore mix treated.

During the year production of uranium oxide ( $U_3O_8$ ) in concentrates slightly exceeded 3,000 tonnes compared with 2,332.5 tonnes in the nine production months of the previous year. Tonnage was held exactly to the design figure because a small stockpile had been created in the previous year, but the mill was operated significantly above its design capacity for short periods as part of a continuing programme of testing and improvement.

Product grade was well within specification and agreement has been readily

achieved with customers on the assays of concentrates.

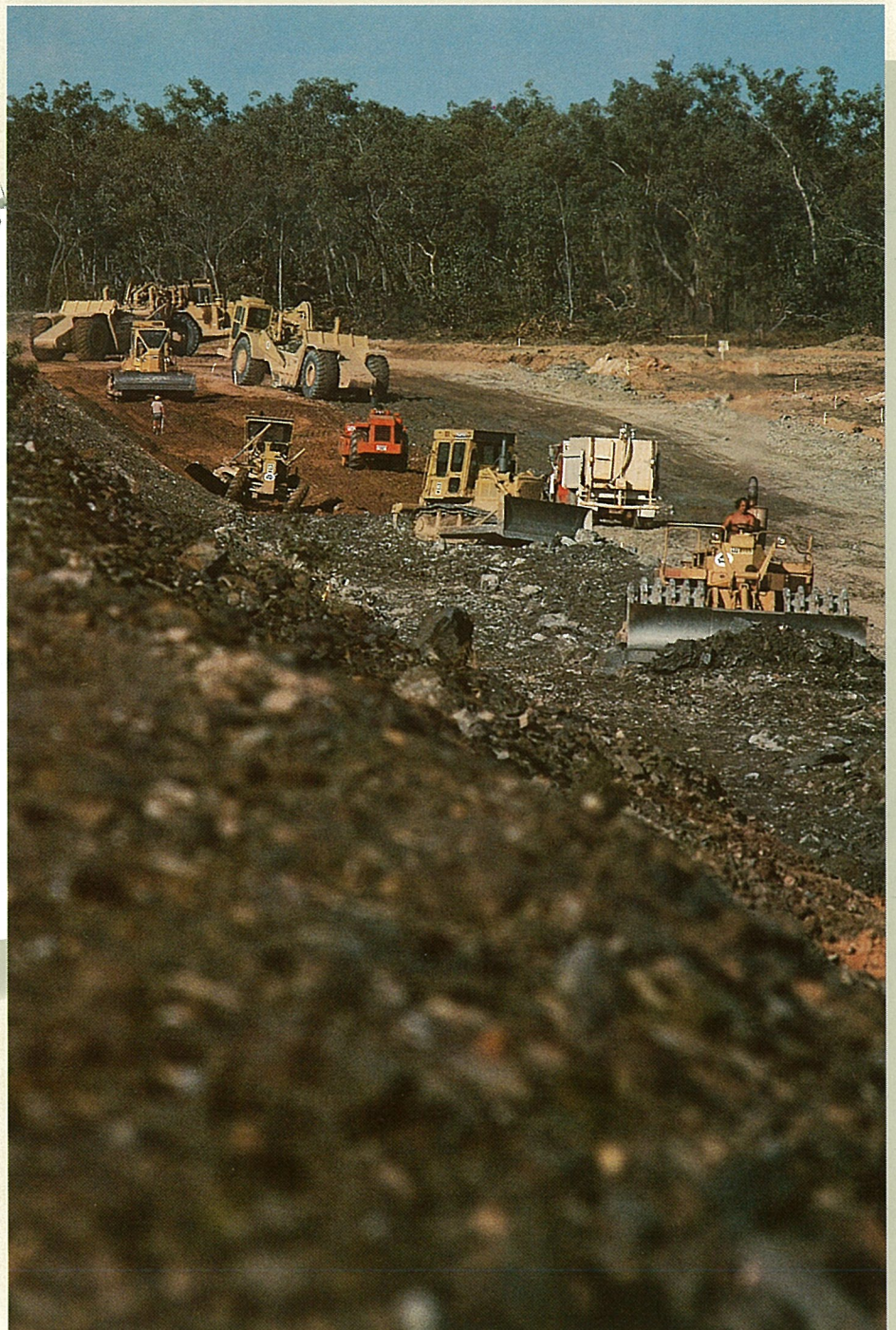
In last year's annual report it was noted that problems had arisen with the adhesion of the rubber lining on a number of vessels in the mill and that replacement of the linings would be necessary. This work has now been completed. No technical problems of any magnitude arose during the year.

Particular emphasis has been given to maintaining high standards of cleanliness throughout the plant and, in particular, in the product handling area.

### Tailings Dam

Stage two of the tailings dam involves the use of a large quantity of unmineralized rock from the open pit to raise the perimeter wall three metres.

Careful placement of selected and graded materials ensures the stability and long-term integrity of the dam





**Tailings Disposal**

The initial capacity of the tailings dam was 6.1 million cu.m. but, in keeping with the operational plans for the Ranger Project, work started in April, 1983 on Stage 2 of the dam to increase its capacity to 9.2 million cu.m. Progress on this work, which entails raising the height of the wall over the whole perimeter of the dam by 3 m., requiring the placement of 632,000 cu.m. of unmineralised material, has progressed satisfactorily. Detailed plans for future increases are under review, taking into account

operational experience and the major role of the dam in the water management system.

**Water Management**

Considerable emphasis was given in the Ranger Uranium Environmental Inquiry and by the Supervising Authorities responsible for environmental control in the Ranger Project Area, to the operation of the water management system.

A major part of the system is the tailings dam which is also used to store excess water for recycling to the treatment plant. Additionally, there are

four other water retention ponds which hold water of various degrees of purity, including uncontaminated water collected at the head of the Coonjimba Creek. Operational levels of this water storage system are strictly controlled to avoid chance over-topping of the embankments during seasonal rains. Water quality is carefully monitored and the movement of water from one retention pond to another is regulated to minimise the total quantity of contaminated water in the system and to keep in the individual storage areas

the water which is contaminated at as high a level of purity as possible.

The variability of rainfall in the region is such that the import of water into the system other than by direct rainfall within its area may be necessary for the maintenance of operations, though under normal conditions, such import is restricted to potable water.

In the 1982/83 year the rains not only started late but they also totalled only 1,100 mm as against a seasonal average of over 1,500 mm. The pattern of rainfall is also very important and, in the previous year,

the relatively even distribution of rain throughout the wet season resulted in a greater proportion of it seeping into the ground rather than running off for collection in the retention ponds. The less than average rainfall led to a shortage of water in the early part of the wet season and necessitated the development of bore holes and the pumping of water from the Magela Creek to maintain plant operations. This work was carried out with the close co-operation of the Water Division of the NT Department of Transport and Works and was

managed successfully so that, when heavy rainfall occurred towards the end of the wet, no danger of over-flow from the retention ponds existed.

In co-operation with the Supervising Authorities an improved computer simulation model of the water management system is being developed to increase the ability to assess the full effects of operating decisions, both long and short term.

#### **Environment**

All operations at Ranger are conducted to very strict environmental standards controlled by various Super-

#### Environment

Left, watched by vegetation officer Alex Armstrong, apprentice horticulturist Liz Sullivan plants seedlings in a waste rock dump

Aboriginal women (centre) use their knowledge of the bush to collect seed for propagation in the company's nursery.

Right, Aboriginal liaison officer Greg Smith talks to participants in the homemakers' course which teaches health care and house keeping skills.





Water Management

Water quality is continually monitored at Ranger to protect the environment and to determine criteria for future release standards.

Laboratory assistant Megan McIntosh is shown collecting samples for testing.

vising Authorities, both Northern Territory and Federal. Three major aspects of the environmental monitoring control are water management (discussed in the preceding section) and the associated water quality; radiation protection, including that arising from air-borne dust; and revegetation and rehabilitation.

High standards of radiation protection are demanded and limits of exposure are set in accordance with the recommendations of the International Commission for Radiological Protection (ICRP). From the ICRP

recommendations the Australian Code of Practice was drawn up for incorporation in the NT legislation. The Code sets annual and quarterly dose limits for workers and the public. It also includes derived weekly limits which, if exceeded, may require corrective measures. Currently, incidents leading to a dust exposure greater than half the derived weekly limit (not allowing for respiratory protection) are reported to the Supervising Authorities for technical assessment.

During the past year, an extensive data collection and monitoring system on

radiation has been fully computerised to enable management to identify rapidly any potential problem and to facilitate production of data for, and reports to, the Supervising Authorities.

Major revegetation continued during the year. Over 40 hectares of Borrow Pits and other disturbed areas are now rehabilitated after establishment of several thousand trees, many of which were grown in Ranger's own nursery. Large quantities of native seeds were also collected by staff and Aborigines for this purpose. Revegetation trials on the waste rock dump are continuing.

The rehabilitation section of the environmental department is permitted to use only plants which are indigenous to the area. To assist in this work, Aboriginal communities were involved during the year in a programme to collect large quantities of seeds of the various species required. The interest and natural aptitude of local Aborigines is of particular importance in the work of rehabilitation.

### Marketing

The world uranium market showed signs of strengthening in 1982-83. This was reflected in an improvement

in spot prices, beginning in September, 1982 and continuing through to the end of the financial year. In that period, the spot price rose from US\$17 per pound to US\$23.50 per pound. While this price is well below the peak of more than US\$40 in early 1980, the trend is, nonetheless, encouraging.

It was significant also that in the period there was a sharp increase in the level of interest from potential customers.

During the year, E.R.A. maintained a strong marketing presence in many of the countries with which Australia has

bilateral safeguards agreements. The possibility of extending existing sales contracts and entering into new arrangements is being actively pursued.

A shortfall in the supply of uranium in the United States followed a sharp drop in local uranium production resulting from the closure of some mines which had become uneconomic in prevailing market conditions. This increased the potential for sales of Australian uranium. Many of the closures are likely to be permanent because of the more favourable

### *Jabiru Club*

*The Jabiru Sports and Social Club, one of the principal focal points of social activity for Ranger people, is now established on its new site overlooking the man-made lake in Jabiru township.*





economics of production in Australia, Canada and South Africa.

During the year there was evidence of increasing competition in the world market. This situation is likely to intensify as Canada proceeds with plans to open further large, economic uranium mines. In addition, increasing supplies are reaching the market from South Africa where production costs are relatively low, uranium being a by-product of gold-mining operations.

#### **Industrial Relations**

Industrial relations at Ranger are substantially better than the bare

statistics of the number of days lost through disputes would indicate, though these figures are better than the industry average. A number of minor stoppages of short duration occurred during the year but resulted in little disruption to production.

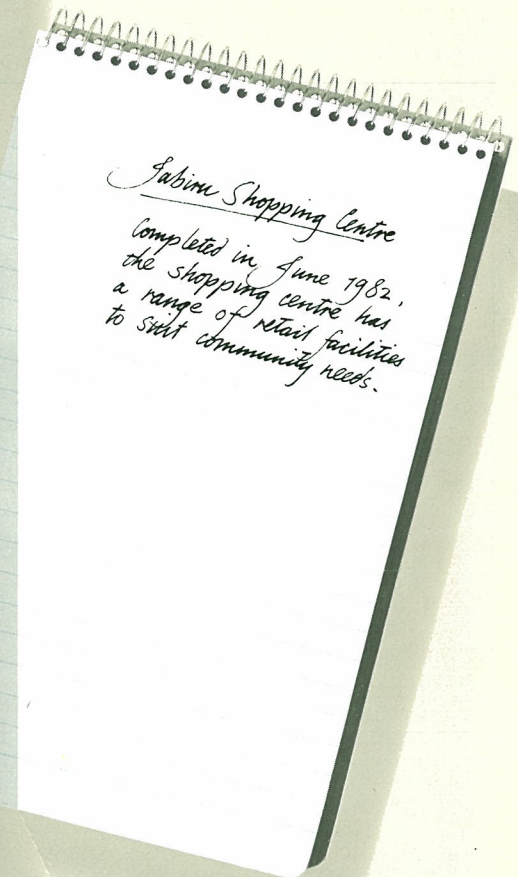
A major cause of disputes was inadequate communication between management and unions, and that problem is being actively tackled.

Renegotiation of the Uranium and Metalliferous Mining (NT) Award, which expired on 25 March, 1983, has been delayed because of the wages pause.

Turnover during the year was 24% of staff and 27% of award workers. These figures compare favourably with others for the NT and it is significant that most of the turnover occurred in a small section of the workforce. This points to an encouraging level of stability among Ranger employees generally, an objective which was a major justification for the creation of the town of Jabiru to the standard achieved.

#### **Industrial Safety and Occupational Health**

The safety and health of employees

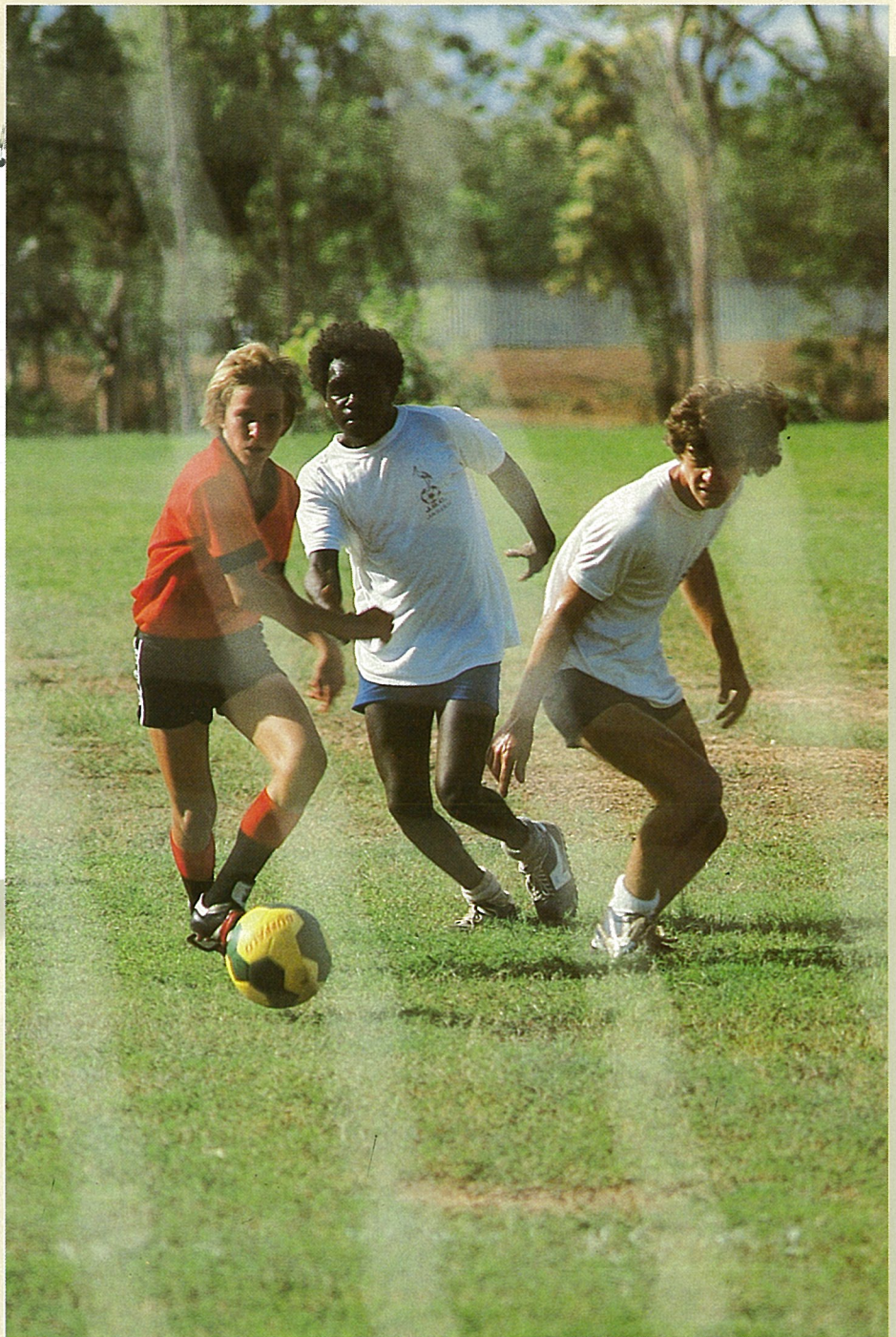


### *Darwin at Play*

*After work or school,  
Ranger people have plenty  
of opportunity for recreation.*

*The first three holes of the  
golf course are open and  
there are facilities for  
swimming, tennis, boating  
and, of course, football.*

*Pictured is Sabira's local  
team (white) playing  
a team from Darwin.*



receives the highest priority from the company which endeavours to achieve standards in excess of those required by regulation. The continuing safety awareness programme involves all employees and starts at their induction. It is continued by attendance at other appropriate courses throughout the period of employment at Ranger. Every level of management has a specific responsibility to ensure that the safety programme is fully implemented and that safety consciousness is encouraged. In conjunction with the St. John Ambulance Brigade, first-aid

classes are conducted and all employees are encouraged to attend. During the year special emphasis has been given to safety and health by the establishment of a joint committee between the unions and management on site. This committee meets monthly to monitor safety performance and to discuss safety procedures. It is charged with the responsibility for investigating improved safety measures, identifying potential hazards and investigating any accident which occurs. Particular care is taken to ensure that

employees are not unnecessarily exposed to radiation above normal background levels and that such exposure is kept to a minimum and lies within the ICRP and Code of Practice limits. This entails the strict control of access to any part of the site where a radiation hazard may exist and appropriate training for those authorised personnel whose jobs entail entry into those designated areas. Detailed records are kept for every employee and are publicised to all employees in summary form each month, while individual employees

have the right to inspect their own records at all times.

### Training

In addition to the training courses mentioned in other sections of this report, the company, in accordance with its agreement with the government, provides orientation courses for employees and dependants on matters relating to the Aboriginal community and the neighbouring Kakadu National Park.

Apprenticeship training is also an important part of the work of the training department. At present there are six first-year and nine second-year apprentices covering a range of trades. Additionally, other training is given to Aborigines, both men and women, to enable them to take up opportunities which are being created for employment in the region.

### Community Relations

Life in an area such as Jabiru has considerable attractions but there are also some aspects which can cause problems which do not exist in most Australian cities and country areas. In addition to the pressures resulting from a diverse population living in a relatively isolated situation, the location of the town within the Kakadu National Park imposes additional

restrictions on residents. For example, the keeping of domestic pets is strictly controlled because of the danger of introduction of feral animals and control is also exercised over the species of plants which may be grown. Encouragement is given to Ranger employees to understand and co-operate with the local Aboriginal community and to participate in assisting the Aborigines to adapt to the changes which are resulting from the development of Ranger.

The local traditional owners, through their organisation, the Gagudju Association, have been assisted in developing a contracting business, in establishing a hostel and in running a homemaker's course for Aboriginal women and a pre-school for their children.

The total amount paid for the year under the terms of the agreement between the Commonwealth and the Northern Land Council as a "royalty-type" payment was \$12,464,000.

### Jabiru Township

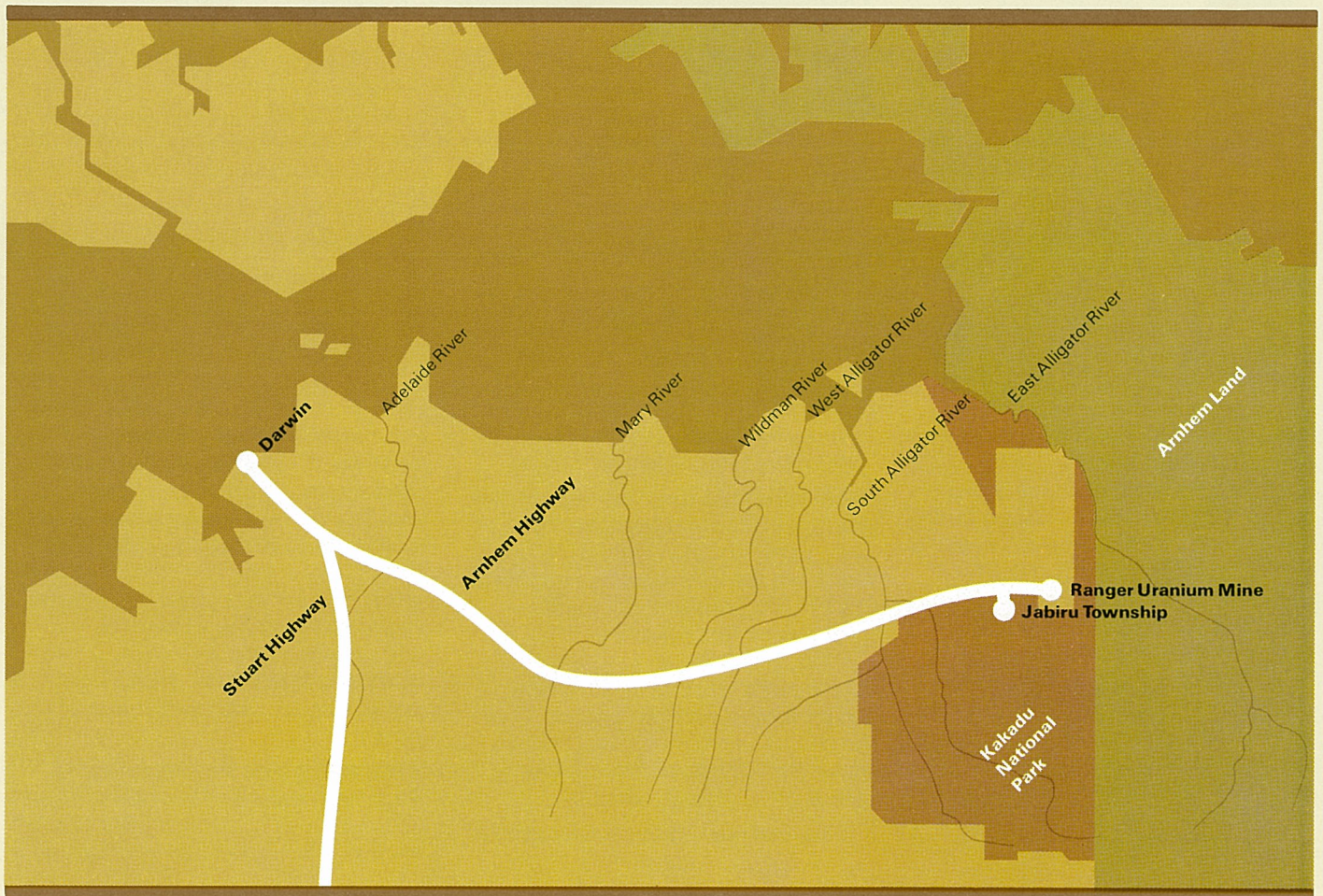
The Jabiru township, which was completed during the year and is now the sixth largest town in the NT, was officially opened on 26 July, 1982. The town is maturing rapidly with residents enthusiastically establishing

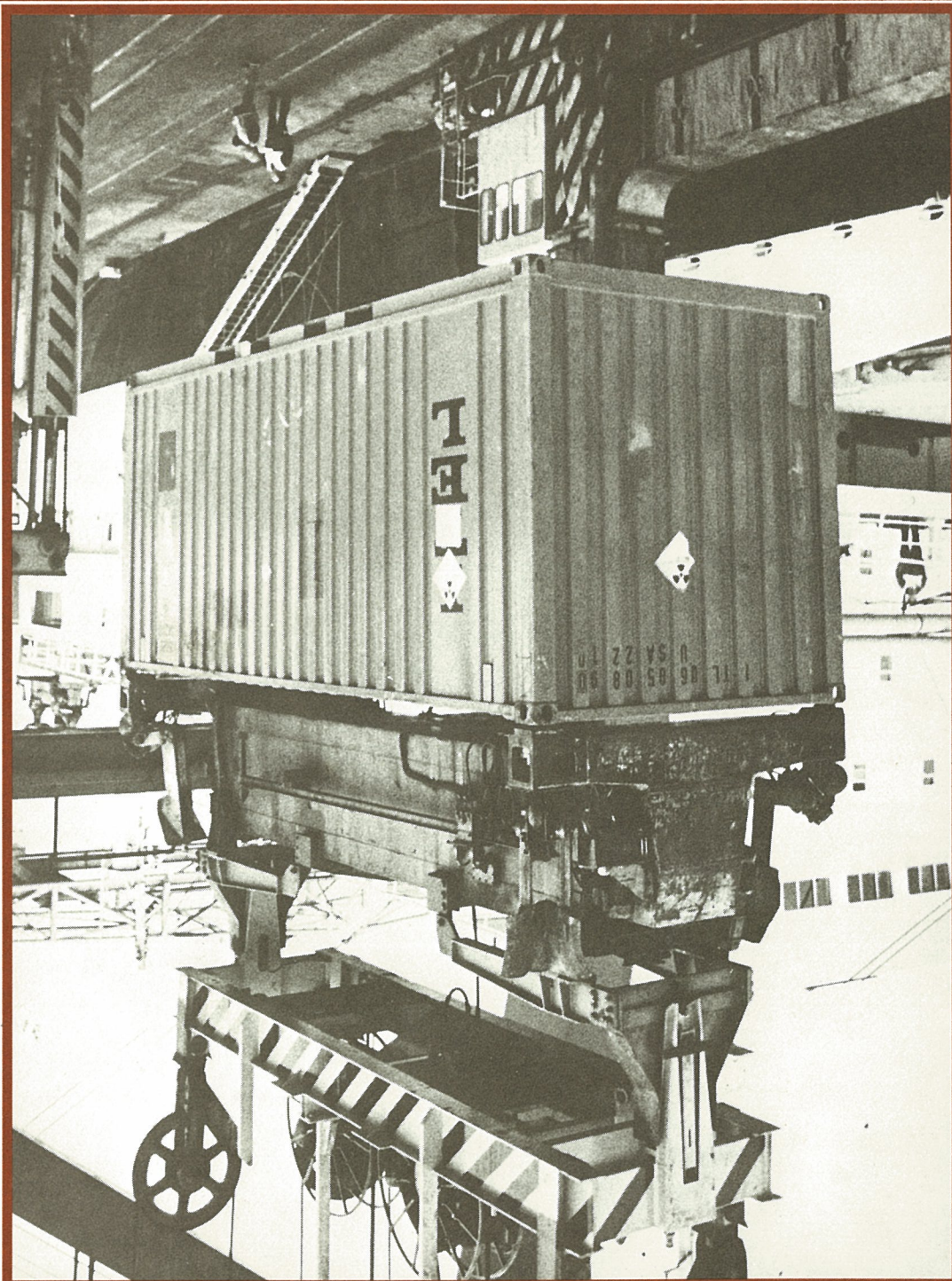
colourful gardens. The Jabiru Sports and Social Club, the main centre for social activity for the population of 1,200, moved early in the year from its original location at Jabiru East to its new site at the top end of the 37.5 hectare man-made lake. This lake provides facilities for water sports and has attracted many birds, including the jabiru, to the area.

Residents have established a golf club and by their co-operative effort have already opened three holes for play.

A Town Advisory Council has been established consisting of five elected members and three appointed by the NT Government. This Council has already begun to take over some civic roles and was responsible for the organisation of celebrations to mark the fifth anniversary of Statehood for the Northern Territory and the opening of the Community Hall on 16 June, 1983, by His Honour Commodore E E Johnston, Administrator of the Northern Territory. It is worthy of note that the residents of Jabiru proposed that the electoral boundaries for the Town Advisory Council should encompass an area of 10 km radius from the town and thereby include the local Aboriginal community at Mudginberri.

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E.R.A.



World Uranium Report 1983

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## **About this Report**

From time to time information is sought by E.R.A.'s shareholders and other interested persons about the company's market potential and performance.

This report, the first in a series E.R.A. intends publishing as supplements to its Annual Reports, addresses this need.

World Uranium Report 1983 focuses on the current international uranium situation, with particular reference to those nations in which E.R.A.'s customers are located.

Figures quoted have been drawn from a number of authoritative local and international sources. It should be recognised that some of these figures are apt to vary from agency to agency, while the changing nature of the industry itself may render certain information out of date.

To give some perspective to the commitment to generate power from nuclear energy in the countries treated in the report, it is useful to note that total installed electricity generating capacity in New South Wales – i.e. coal, oil and hydro power combined – amounts to about 10,000 megawatts (MWe) and in Australia as a whole, to approximately 28,000 MWe.

## The World Scene

**D**espite a host of problems, including world-wide recession, uranium continues to hold its place as the world's most rapidly growing base-load fuel.

In 1982, world generation of electricity from nuclear fuel grew by 9.3%, compared with an increase of 1.9% in that from coal. In the same period, the proportion of electricity generated from oil by power utilities actually fell by 3% and there was also a decline of 1.2% in electricity generated by combustion of natural gas.

Total electricity consumption for 1982 was slightly below that of the previous year but in an increased number of countries nuclear energy was favoured next to coal and above oil by the power industry.

Among other factors of significance to the uranium industry in 1982-83 were:

- Substantial increase in uranium prices on the spot market. After falling to a low of \$US 17 per pound in August 1982, the price rose to \$US 23.50 per pound by the end of the financial year.
- Continued growth in the world's installed nuclear power capacity, now producing about 10% of total electric power generated.
- The closure of a number of uneconomic uranium mines in the United States, leading to the probability that in 1983 US production of uranium oxide ( $U_3O_8$ ) will fall behind domestic consumption.
- Increasing competition from other producer nations, especially Canada and South Africa.
- The forecast by some industry observers that by the end of 1983 world consumption of uranium for power generation will exceed production for the first time in many years.

Continued growth of installed nuclear power capacity is forecast into the 1990's in the free world (world outside communist areas, or WOCA) from 146,000 MWe in 1982 to 370,000 MWe in 1996, representing a compound increase of about 7% per annum. The OECD predicts an even greater capacity, suggesting that by the year 2000 it could be as high as 500,000 MWe.

**T**he International Atomic Energy Agency (IAEA) reports that at the end of 1982 there were 294 nuclear power plants in operation, in 25 nations, with a further 215 under construction. By the year 2000, the Agency estimates

that nuclear power will account for 23% of the world's total electricity production. In some countries the figure is already more than 40%.

Last year throughout the world 21 nuclear power plants were commissioned, six of them in the United States. Five new orders were placed outside the US, all for pressurised water reactors. In the United States, nuclear power generated 12.5% of the nation's electricity in 1982. According to the US Department of Energy, uranium will displace oil by the end of 1983 as America's second (to coal) generator of electricity. Seven new reactors are expected to be licensed in the United States by the end of 1983, with a further 14 in 1984.

Elsewhere in the world there were other significant moves toward greater reliance on nuclear electricity generation. This was especially the case in Japan, one of E.R.A.'s customer countries, and France.

In 1982, Japan increased its installed nuclear capacity by more than 10% and France, already the nation most dependent on nuclear powered electricity, added a further two power plants to bring the total to 32 and continued with plans to double its installed capacity by 1996. By the end of the century, France aims to have 85% of its installed electric power capacity derived from nuclear energy.

**R**easons for developing nuclear power generating capabilities vary according to economic circumstances. For industrialised countries with little or no indigenous energy resources, such as Japan and South Korea, the attraction is that the fuel is readily transportable and relatively cheap. It is also much easier to stockpile uranium concentrates in sufficient quantity to meet supply emergencies than it is coal or oil.

Some nations, too, prefer to use uranium to generate electricity so that they can sell their natural fossil resources to earn export income or conserve them for use in their transport, engineering, chemical and agricultural industries.

The Soviet Union, Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Poland, Romania and Yugoslavia, all of which have ambitious nuclear power programmes, mostly fit into this latter category.

The communist bloc countries are also influenced by the technical difficulties of coal and petroleum production and the high cost of transporting these fuels to remote industrialised regions.

**A**gainst this global background, Australia has almost 25% (approximately 658,000 tonnes U<sub>3</sub>O<sub>8</sub>) of the western world's economically recoverable uranium reserves. The current earnings from the export of uranium, from the only two projects presently operating, E.R.A.'s Ranger and Queensland Mines' Nabarlek, which have combined reserves of 138,000 tonnes U<sub>3</sub>O<sub>8</sub>, are about \$300 million a year in

1983 dollars.

Australia faces increasing competition from other producers, notably Canada and South Africa. Both countries produce at a cost that is competitive with Australia.

Canada's optimism has been demonstrated recently by a decision to begin developing major new resources, while South Africa is able to profit from its ability to produce uranium as a by-product of its large gold-mining operations.

Thus, in 1983 the outlook for the uranium industry is one of increasing demand but also of increasing competition.

### Nuclear Power Plant Capacity of the Western World (MWe)

NATION	1970	1980	1990	2000
Belgium	—	1700	5400	7400
Federal Republic of Germany	900	8500	24,100	34,800
Japan	1000	14,000	37,000	61,000
Republic of Korea	—	600	5500	11,300
Sweden	—	4600	9400	9400
USA	5000	51,000	111,000	116,000
Finland	—	2200	2200	4200
France	1400	12,700	54,800	76,500
UK	4200	6300	10,300	18,100
Other	2500	11,400	48,300	105,300
Total	15,000	113,000	308,000	444,000

Source: NUKEM Market Report 1/83

## Nation by Nation Analysis

*At the time this report was written, E.R.A. had sales agreements with customers in six countries: Japan, South Korea, Sweden, the United States and, from the European Economic Community (EEC), Belgium and West Germany. All countries are parties to bilateral safeguards agreements with*

*Australia, a prerequisite for supply.*

*The following national energy programmes demonstrate that the nuclear fuel cycle is playing an increasingly important role in fulfilling energy needs. E.R.A. customer countries are examined first.*

### Belgium



**B**elgium's proportion of electricity generated by nuclear energy in 1982 was 27.7%. Total installed capacity in five operating reactors was 3,450 MWe.

During the course of the year, two 900 MWe reactors, Doel 3 and Tihange 2, were connected to the grid. Their operation will enable electricity prices to be reduced by

between 0.29 and 0.45 Australian cents per kilowatt hour.

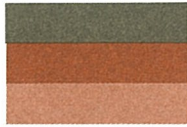
Further development of the nation's nuclear power industry is subject to parliamentary debate. It is thought that at least one 1,300 MWe plant will be needed by 1991 and the government is currently considering taking a 20 or 25 per cent stake in the two 1,300 MWe plants France wants to build at Chooz.

#### E.R.A. CUSTOMER

Synatom Société Anonyme, which buys all the fuel for Belgium's nuclear programme.



## Federal Republic of Germany



**T**oday nuclear energy generates 21% of Germany's electricity requirements. A densely populated and highly industrialised country, its uranium deposits are of limited size with 5,000 tonnes of reasonably assured resources in low grade ore located in the Black Forest and in Bavaria. Although uranium mining is not being undertaken in the country at present, German companies are actively involved throughout the world in exploration for uranium.

In 1961 the first nuclear power station was connected to the German electricity grid. The 15 MWe station at Kahl near Frankfurt has been in operation since then and up to the end of 1982 had generated an impressive 1,800 million KWh.

There are now 15 nuclear power stations totalling 9,350 MWe installed capacity operating in the Federal Republic of Germany. Eleven more are under construction. When these units are in operation, between now and 1988, total installed nuclear capacity will be 22,400 MWe. Licensing is in process for 10 more reactors, and it is expected that these will be in operation prior to the mid-1990's. Total nuclear capacity will then be approximately 34,000 MWe. After 1995 the Government is aiming at a diversified and well balanced energy supply mix based on oil, coal (including lignite), uranium and natural gas. Renewable energy is not expected to exceed 5%, mostly being hydropower.

### E.R.A. CUSTOMERS

Rheinisch-Westfälisches Elektrizitätswerk AG  
Urangesellschaft mbH  
Saarberg-Interplan Uran GmbH

## Japan



**J**apan has a vigorous nuclear power programme. At present there are 25 nuclear power reactors totalling 16,650 MWe in commercial operation, 10 more are under construction and a further three are on order. Total installed nuclear capacity in 1982 was up 10% over the previous year.

The Ministry of International Trade and

Industry (MITI) estimates that Japan aims to have 35,000 MWe of nuclear power capacity installed by 1990, which will maintain its position as having the fourth largest nuclear power programme in the world, after USA, USSR and France. To fulfil programme requirements, three utilities have announced plans to build a 13,000 MWe nuclear station complex on the Noto Peninsular. Two other utilities intend to build a 26,000 MWe power station complex in Aomori Prefecture. In another move designed to speed up the programme, Japan is standardising on 1,300 MWe reactors.

### E.R.A. CUSTOMERS

The Kansai Electric Power Co. Inc.  
Kyushu Electric Power Co. Inc.  
Shikoku Electric Power Company Inc.

## Republic of Korea



**B**ecause its own energy resources are severely limited, the Republic of Korea has had to rely heavily on imported energy sources, mainly crude oil, to feed its rapidly growing national economy.

In 1971 this developing nation's reliance on imported fuel was 46% of total national energy consumed. By 1981 this figure had risen to 74.6% and the forecast is for an even higher percentage in future years. Currently South Korea imports about 89% of its oil, constituting well over half its energy consumption, from Middle East countries.

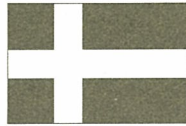
These factors have influenced the South Korean Government to look more and more to a nuclear solution to its energy problems. A firm policy has been developed to build nuclear plants as expeditiously as possible. The Republic of Korea's nuclear power capacity, currently around 6.0% of total installed electricity capacity, is planned to escalate to 39.7% of the total by 1991.

Today, two power reactors are operating, one 587 MWe and the other 650 MWe. A further seven reactors, three of which will have a capacity of 950 MWe each, are currently under construction. One reactor a year will be completed through to 1989. In addition, two further reactors, construction of which has yet to commence, are planned for operation by the end of 1991.

#### E.R.A. CUSTOMER

Korea Electric Power Corporation, which controls all power generating facilities in the Republic of Korea.

### Sweden



Sweden's nine nuclear power stations generated 25,420 MWe net electric power, or 36.6% of total electricity production, in the first nine months of 1982. This was achieved despite five of the nine reactor units currently operating having their annual overhaul extended by between six and ten weeks for additional work to be executed.

A tenth power station, the 915 MWe Ringhals 4, achieved criticality on 19 May, 1982 and will be commissioned by the end of 1983. Two further reactors, now under construction, are expected to be commissioned by the end of 1985.

The Socialist party gained a majority at the September 1982 general election and formed a new government succeeding the minority Centre/Liberal coalition. This change is not expected to lead to any major alteration in Swedish energy policy, which is to rely on nuclear power for at least the next 25 years.

#### E.R.A. CUSTOMER

OKG Aktiebolag, formerly Oskarshamnsverkets Kraftgrupp Aktiebolag.

### United States of America



During 1982 three legislative initiatives were adopted which augur well for the United States' nuclear power future. These were the Nuclear Waste Management Bill, an authorisation bill for the Nuclear Regulatory Commission including several regulatory reform features and the granting of \$181 million to the Clinch River Breeder project. By the end of the year a total of 147 reactors represented the nuclear power commitment in the US. Of these, 83 were licensed to operate, 59 were under construction and a further five were on order. Total installed capacity at 1 January, 1983 stood at 62,376 MWe.

Nuclear generated electricity in the US in 1982 was up 2.3% over the previous year to about 280,000 million kWh.

According to the US Department of Energy, the nation's nuclear power consumption will expand during the period 1980-85 by 80% as many of the nuclear plants currently under construction become operational. In the same period, coal consumption is expected to increase by some 20%, natural gas usage to remain stable and oil consumption to decline by approximately 10%.

It is significant that for the first time the United States will produce, in 1983, less  $U_3O_8$  than it will consume.

In 1980 production was 19,505 metric tonnes  $U_3O_8$  or twice the amount consumed. In 1983 the production estimate is 6,800 metric tonnes while consumption will be 9,000-11,500 metric tonnes. In a few years the annual deficit is expected to be about 11,000 metric tonnes or approximately two-thirds of US consumption.

#### E.R.A. CUSTOMER

Indiana & Michigan Electric Company

### Other Signatory Nations

Of the other nations which are parties to bilateral safeguards agreements with Australia, two occupy leading positions among OECD countries in their commitment to nuclear-powered electricity.

According to the Paris-based Nuclear Energy Agency, Finland now generates over 40% of its electricity from nuclear sources. France's percentage is only marginally less at 38.7% while the United Kingdom currently generates 16.4% of its electricity by nuclear power.

FINLAND had four operating nuclear reactors at 1 January, 1983, two Russian-designed, 420 MWe reactors at Loviisa and two Swedish-designed 660 MWe reactors at Olkiluoto. Feasibility studies are currently being carried out for one or two 1000 MWe reactors for 1990.

FRANCE'S nuclear power programme is the largest in the world after the USA. Total installed nuclear capacity by 1990 is expected to be 56,000 MWe compared with an IAEA figure of 23,355 MWe (32 operating reactors) at 1 January, 1983.

To achieve this growth France plans to start up the equivalent of one 1,450 MWe reactor every four months for the remainder of this

decade. During 1982 two additional power plants became operative and two units were ordered: one of 900 MWe at Chinon and one of 1,270 MWe at Nugent-sur-Seine. In all, 25 plants are currently in various stages of construction.

THE UNITED KINGDOM continues to plan an important role for nuclear power as evidenced by the Department of Energy's recent submission to the Sizewell public inquiry.

There were 32 reactors in commercial operation in the United Kingdom at 1 January, 1983. Installed capacity amounted to 6,700 MWe. A further six units are expected to be connected to the grid by the end of 1983 adding approximately 2,760 MWe.

### **Comecon and Developing Countries**

**M**any Comecon and developing countries are also demonstrating a growing commitment to nuclear power programmes.

Acquisition of nuclear power plant by these countries other than the Soviet Union is largely dependent on suitable financing arrangements. This almost invariably means a barter arrangement with the Soviet Union in which goods and services change hands in return for Soviet-made reactors and a supply of 'leased' fuel.

At present the USSR has 37 reactors in operation and 23 under construction. Figures for total installed capacity vary but the most reliable figure is believed to be 16,896 MWe at 1 January, 1983.

According to the latest report available from the Australian Atomic Energy Commission, a further 45 nuclear reactors are planned over the next 25 years, bringing the USSR's capacity up to around 230,000 MWe by 2010. Current reactor designs are standardised 1000 MWe units being built on a production line at the giant Atommash plant on the Volga River.

THE USSR recently indicated a willingness to open some of its civil nuclear installations to international inspection by the IAEA.

HUNGARY has just commissioned its first 440 MWe reactor and plans a further three plants on the same site. By 1985 the nation will be generating 22% of its electricity from these reactors and the government is considering installation of a further three 1000 MWe units to increase the share of

electricity generation by nuclear energy to more than 50%.

THE GERMAN DEMOCRATIC REPUBLIC has a firm commitment to nuclear power with five operating reactors totalling 1,715 MWe and a further eight (3,280 MWe) under construction.

POLAND is known to have one 410 MWe PWR under construction at Zarnowiec; ROMANIA, after some years of study, has one 600 MWe Canadian CANDU reactor at Cernavoda currently being built and two other reactors on order; YUGOSLAVIA has a completed 600 MWe plant at Krsko operating but not yet fully on stream and it plans installing others totalling 6000 MWe by 2000 to meet an expected fourfold increase in electricity demand.

BULGARIA has three Russian-designed plants already operating at Kozloduy and three more under construction. When completed, these will provide about one third of Bulgaria's electricity.

The developing nations include about 100 countries representing nearly half of the world's population and accounting for about 25% of world economic output and 15% of world commercial energy consumption.

Oil provides nearly 65% of commercial energy supplies in these nations as a group. At present only two nations use coal to any great extent. Traditional sources of energy (e.g. fuel wood, wind and animal draught power) provide an estimated 40% of energy consumption in the group as a whole, the figure being as high as 80% in some of the nations.

Nuclear power is recognised by the governments of many nations as being critical to their economic development. Many have a high population density and little by way of indigenous natural fuel resources, thus justifying the installation of nuclear plant of small size in remote regions for rural electrification or mineral processing application.

Installed nuclear capacity in the group at the end of 1982 totalled approximately 3000 MWe with six reactors in operation. Twice that number are at present under construction and a further 30 are planned.

In addition, THE PEOPLE'S REPUBLIC OF CHINA is known to be considering ordering up to four 900 MWe units in addition to the 300 MWe unit of its own design planned for construction near Shanghai.

## The World's Suppliers of Uranium

Australia is already one of the world's main producers of uranium. The Bureau of Mineral Resources estimates that it has nearly one quarter of the world's readily recoverable uranium resources or 683,000 tonnes U of a world total of 3,051,000 tonnes U.

E.R.A.'s Ranger Mine at Jabiru in the Northern Territory is currently the second largest producing uranium mine in the world. E.R.A.'s latest estimates show Ranger's geological ore reserves to contain some 113,600 tonnes U.

It should be noted that Western Mining Corporation believes that its Olympic Dam project in South Australia could prove to be the world's largest single known resource of uranium. However, the actual tonnage has yet to be determined.

Other major producers of uranium are Canada, various African countries and the United States. Canada has recently emerged as the world's largest supplier. Virtually all of the US product is consumed internally.

The large, relatively high grade deposits

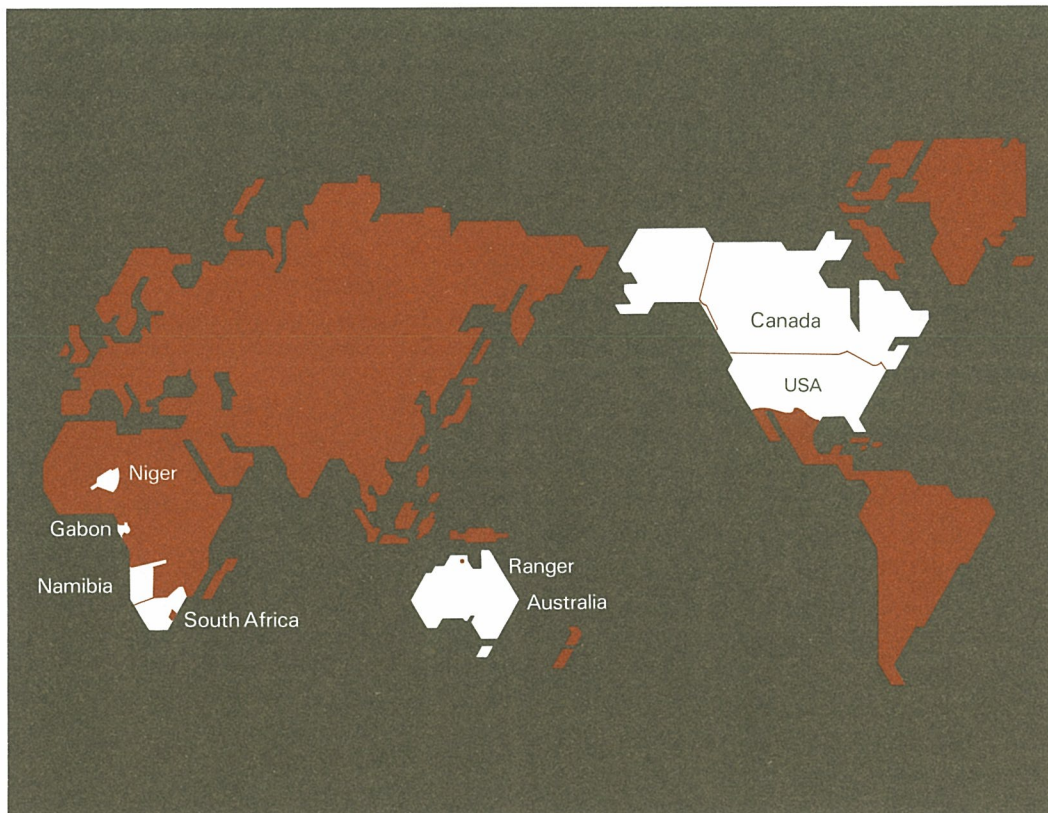
of Australia and Canada have remained economic while a number of smaller, high-cost mines, particularly in the US have, through depressed prices, had to close down. The US has, this year, had to import uranium to satisfy its substantial energy needs. Its unfulfilled future requirement for  $U_3O_8$  concentrates is the world's largest.

Canada has been quick to capitalise on its geographic proximity to the US market, the major customer for the new Key Lake Mine which is scheduled to produce over 5,000 tonnes  $U_3O_8$  per year.

Africa's complex social, political and racial problems make stability of supply difficult to guarantee. Nevertheless, its richest four uranium regions, South Africa, Namibia, Niger and Gabon, continue to supply a large proportion of total world uranium.

Namibia's giant Rössing Mine currently produces 5,500 tonnes  $U_3O_8$  per year or 10% of world production. Uranium produced in Niger and Gabon, providing virtually all those countries' foreign export revenue, goes primarily to France.

### Major Uranium Producing Nations



## Outlook for Australia

**E**nergy Resources of Australia's aim in preparing this report has been to provide factual, up to date information on the worldwide uranium supply and demand situation.

The company is aware, of course, that this does not present the total picture. There are a number of external factors which have a bearing on the uranium industry's future. These include political considerations and treaty agreements between nations. At the time this report was being prepared, the Australian Government's own uranium policy was under review.

These issues are beyond the control of the industry; and how they will finally be resolved is unknown. What is known, however, and is demonstrated in this report, is that both in the developed and in the developing world there is increasing acceptance of the advantages of nuclear power when compared to coal or oil burning facilities. It is also clear that the forward nuclear power station building programme around the world is very large indeed.

Using that criterion alone, the future looks sound for the industry. The report also points to other encouraging signs.

In particular, it is relevant to Australia's position that total world uranium production actually declined last year for the first time since 1974. The fall, of about 3500 tonnes

U<sub>3</sub>O<sub>8</sub>, was largely the result of a 50% drop in the United States output as uneconomic mining operations were phased out.

Even more encouraging is the prediction by NUKEM, the authoritative West German nuclear data source, that this year will see world demand for uranium exceed production for the first time in many years. Moreover, industry observers see little prospect of the electric power utilities continuing to divest themselves of surplus inventories at this stage.

While its importance should not be overstressed, recent strengthening of the uranium spot market must be regarded as a positive sign for the industry. Although this market accounted for a small proportion of the total uranium contracted for sale in 1982, it was nonetheless significant that the spot market price recorded a 35% increase between September 1982 and June 1983 from \$US 17.00 per pound to \$US 23.50 per pound.

Australia is expected to remain a major source of supply of uranium to a world that is becoming increasingly dependent on nuclear-powered electricity.

E.R.A., the largest Australian producer, with a comparatively low cost operation using one of the world's largest resources of high grade ore, is well placed to play a significant role.

## Acknowledgements

Energy Resources of Australia Ltd gratefully acknowledges the contribution by the following agencies in the compilation of World Uranium Report 1983.

Atomic Industrial Forum Inc.,  
Maryland, California, USA;

Australian Atomic Energy Commission,  
Sydney, Australia;

Bureau of Mineral Resources, Canberra,  
Australia;

Financial Times Business Information Limited,  
London, UK;

International Atomic Energy Agency,  
Vienna, Austria;

Ministry of International Trade and Industry  
(MITI), Tokyo, Japan;

Nuclear Energy Agency, Organisation for  
Economic Co-operation and Development,  
Paris, France;

Nuexco, Menlo Park, California, USA;

NUKEM GmbH, Hanau, Federal Republic of  
Germany;

Uranium Information Centre Limited,  
Melbourne, Australia;

Uranium Institute, London, UK.





The Directors have pleasure in presenting their Report together with the Accounts of Energy Resources of Australia Ltd ('the Company') and the consolidated accounts of the Group for the year ended 30 June, 1983, and the Auditors' Report thereon. The net profit after tax for the year amounted to \$57,393,000. A dividend of \$16,750,000 was paid on 31 May, 1983 and the Directors have declared a dividend of \$16,750,000 which is payable on 30 November, 1983. This amount has been included in the accounts for the year. Other than the above and the dividend of \$13,400,000, which was provided in the accounts of the previous year and which was paid on 30 November, 1982, no other amounts have been paid or declared by way of dividend since the end of the previous financial year. The names of the Directors in office at the date of this report are:

- AL Morokoff
- GBlean
- GAMackay
- LWMueller
- Sir Rupert Myers
- K Ito
- AW Hamer
- AC Copeman

During the year Mr WJ Holcroft AO retired as a director of the company. Warwick Holcroft joined the Board in September, 1980 and the Directors would like to express their gratitude for his efforts during his period with the Company. Mr AC Copeman was appointed to fill the vacancy on the Board. The principal activities of the Company and its subsidiaries in the course of the financial year were the mining, processing and sale of uranium concentrate. There was no significant change in the nature of those activities during the financial year. **Transfers to or from Reserves or Provisions** Transfer to provision for depreciation \$14,841,000 Transfer to provision for deferred income tax \$10,535,000 There was no other material transfer to or from reserves or provisions.

**Issue of Shares or Debentures**

No corporation in the Group has issued any shares or debentures during the financial year. No subsidiary in the Group has paid or declared a dividend in favour of the Company since the end of the previous financial year and up to the date of this report.

**Bad and Doubtful Debts**

Before the profit and loss account and balance sheet were made out, the Directors took reasonable steps to ascertain so far as debts owing to the Company are concerned, what action had been taken in relation to the writing off of bad debts and the making of provisions for doubtful debts. The Directors were not aware of any circumstances which would require debts to be written off as bad, or for a provision to be made for bad or doubtful debts. At the date of this report, the Directors of the Company are not aware of any circumstances which would require debts to be written off as bad, or for a provision to be made for bad or doubtful debts.

**Current Assets**

Before the profit and loss account and balance sheet were made out, the Directors took reasonable steps to ascertain whether any current assets of the Company were unlikely to realise, in the ordinary course of business, their values as shown in the accounting records of the Company. At the date of this report, the Directors are not aware of any circumstances that would render the values attributed to current assets in the Group Accounts misleading.

**Charge on Assets**

At the date of this report:

(i) no charge on the assets of any corporation in the Group has arisen since the end of the financial year;

(ii) no contingent liability of any corporation in the Group has become enforceable, or is likely to become enforceable within the period of 12 months after the

end of the financial year being a liability that, in the opinion of the Directors, will or may substantially affect the ability of the corporation to meet its obligations as and when they fall due.

**Items of an unusual nature**

At the date of this report, the Directors are not aware of any circumstances, not otherwise dealt with in this Report or Group Accounts, that would render any amount stated in the Group Accounts misleading. Neither the results of the operations of the Group nor of any corporation in the Group during the financial year were, in the opinion of the Directors, substantially affected by any item, transaction or event of a material and unusual nature. There has not arisen in the interval between the end of the financial year and the date of this report any item, transaction or event of a material and unusual nature which would affect the results of the operations of any corporation in the Group for the next succeeding financial year.

**Director's Benefits**

No director of the Company, since the end of the previous financial year has received or become entitled to receive a benefit by reason of a contract made by the Company or a related corporation with the director, or with a firm of which he is a member or with a company in which he has a substantial financial interest, save and except that Mr. AL Morokoff is a director of a company which provides professional services for the Company in the ordinary course of business.

**General**

As the Company is of the kind referred to in sub-regulation 58(6) of the Companies Regulations, the Directors have chosen to round off the amounts in this Report and in the accompanying Accounts to the nearest one thousand dollars in accordance with section 271 of the Companies Act 1981 and Regulation 58 of the Companies Regulations. Signed at Sydney this 18th day of August, 1983 in accordance with a resolution of the Directors.

AL Morokoff  
AW Hamer

Director  
Director



**Profit and Loss Accounts**

For the year ended 30 June, 1983

Energy Resources of Australia Ltd  
(Incorporated in the Australian Capital Territory)

	NOTE	CONSOLIDATED	PARENT
		1982 \$'000	1983 \$'000

<b>Sales</b>		261,178	145,992
Operating profit before income tax		113,362	45,579
Income Tax expense applicable thereto	9	55,969	7,721
<b>Net Profit</b>		57,393	37,858
<b>Dividends</b>	10		
Dividend paid		16,750	16,750
Dividend payable		13,400	13,400
Retained Surplus at 1 July, 1982		24,458	—
Retained Surplus at 30 June, 1983		48,351	24,458

Profit before income tax includes the following items:

		1982 \$'000	1983 \$'000
<b>Credited</b>			
Interest received/receivable		—	—
subsidary companies		—	—
other		1,691	1,691
<b>Charged</b>			
Amortization of Ranger project rights		5,355	5,355
Depreciation of mine plant, equipment and facilities		11,227	14,841
Directors' emoluments	12	99	99
Royalty type expense	13	3,636	1,821
Payments for Aboriginal interests	13	12,464	6,368
Rehabilitation fund expenses and guarantee costs	13	6,298	3,302
Interest paid/payable		—	—
subsidary companies		—	—
other corporations		48,051	218
Auditors' remuneration		102	144
audit services		102	144
other services		88	88
Other benefits received by the auditors		—	—
Provision for long service leave		76	8
Provision for annual leave		545	394
Amortization of deferred expense	6	943	440

\* 1982 results are for the 9 months to 30 June, 1982. All costs prior to that date were capitalised and therefore have not been included in the figures set out above. See note 1(b).

	NOTE	1983 \$'000	1982 \$'000	1983 \$'000	1982 \$'000
		CONSOLIDATED		PARENT	
<b>Current Assets</b>					
Cash at bank and on hand		45,146	26,055	45,146	26,055
Short term deposits		82,959	56,778	82,959	56,778
Trade debtors		3,317	2,398	3,317	2,398
Other debtors		31,661	27,570	31,661	27,570
Stock on hand	2	163,084	112,802	163,084	112,802
<b>Interests in Subsidiaries</b>	3	—	—	10	10
<b>Fixed Assets</b>					
Ranger Project rights	4	395,285	401,645	395,285	401,645
Mine plant, equipment and facilities	5	358,364	366,333	358,364	366,333
<b>Deferred Expense</b>	6	5,009	5,952	5,009	5,952
<b>Future Income Tax Benefit</b>	9	21,714	67,148	21,714	67,148
<b>Total Assets</b>		<u>943,456</u>	<u>953,880</u>	<u>943,466</u>	<u>953,890</u>
<b>Current Liabilities</b>					
Bank overdraft		2,680	3,143	2,680	3,143
Trade creditors and bills payable		26,518	19,937	26,518	19,937
Secured loans	7	57,179	59,008	—	—
Owing to subsidiary, secured		—	—	57,179	59,008
Other creditors		3,224	4,719	3,224	4,719
Provision for Dividend		16,750	13,400	16,750	13,400
<b>Non-Current Liabilities</b>					
Secured loans	7	293,267	344,270	—	—
Creditors and accrued expenses		83	76	83	76
Owing to subsidiary		—	—	10	10
Secured		—	—	293,267	344,270
Unsecured		—	—	10	10
Provision for deferred income tax	9	85,404	74,869	85,404	74,869
<b>Total Liabilities</b>		<u>485,105</u>	<u>519,422</u>	<u>485,115</u>	<u>519,432</u>
<b>Issued and Paid Up Capital</b>	10	410,000	410,000	410,000	410,000
<b>Retained Surplus</b>		48,351	24,458	48,351	24,458
<b>Total Share Capital and Reserves</b>		<u>458,351</u>	<u>434,458</u>	<u>458,351</u>	<u>434,458</u>

**1 Summary of significant  
accounting policies**

The accounts have been prepared on the basis of historical costs. The accounting policies adopted are consistent with those of the previous year.

**(a) Principles of Consolidation**

The consolidated accounts give a view of the group as a whole. A list of subsidiaries appears in Note 3. All inter-company transactions are eliminated.

**(b) Capitalization of Costs**

All costs including overheads and interest were capitalized from incorporation on 8 February, 1980 until 30 September, 1981, the date of completion of commissioning of the mine and plant. Since the latter date, direct construction costs incurred on the project and plant have been capitalized. The results for the year to 30 June, 1982 therefore only included trading for the 9 month period following commissioning.

**(c) Depreciation and Amortization**

Depreciation of plant equipment and facilities is provided for on a straight line basis as follows:

- (i) individual assets that have a life equal to or longer than the estimated remaining life of the mine are depreciated over a period not longer than the estimated mine life,
- (ii) each other asset is depreciated over its estimated operating life,
- (iii) Ranger Project Rights are amortized over the estimated mine life and in relation to projected revenue from production.

**(d) Foreign Currency**

Amounts payable to and by the group in foreign currency have been converted to Australian currency at rates of exchange ruling at year end. Where, however, forward exchange cover has been obtained the settlement rate has been used.

**(e) Stock on hand**

Stock is at the lower of cost and net realisable value using the average cost method. Cost includes both fixed and variable production costs. No accounting value is attributed to ore in situ or to broken ore within the mine.

**(f) Deferred Expense**

Deferred expenses were incurred prior to the commencement of operations and are amortized over periods to which they relate. The balance of share issue expenses is being written off over the first five financial years of full operation, 1983-7. Marketing expenses are being amortized over the calendar years 1982-6, inclusive of both. Borrowing costs are being amortized over 8 1/2 years from 15 November, 1981 to the scheduled final repayment of the project loans.

**(g) Income Tax**

Tax effect accounting procedures are followed whereby the income tax expense in the Profit and Loss Account is matched with the accounting profit (after allowing for permanent differences). Income tax on net cumulative timing differences is set aside to deferred income tax account and income tax on tax losses carried forward is shown in future income tax benefit account.

**(h) Sales**

Sales are accounted for when product has been delivered in accordance with a sales contract.

**2 Stock on hand**

	1983 \$'000	1982 \$'000
Ore stockpile	6,569	5,086
Stores	11,741	8,621
Work in progress	1,367	613
Finished product U.S.	11,984	13,250
	31,661	27,570

CONSOLIDATED AND PARENT

**3 Subsidiaries -  
1983 and 1982**

**(a) Shares in Subsidiary Companies**

Energy Resources of Australia Ltd	Place of Incorporation		Investment at Cost
E.R.A. (Canberra) Limited	Australian Capital Territory	5	\$45
Ranger Export Development Company Pty Ltd	New South Wales	20	20
Ranger Uranium Mines Pty Ltd	New South Wales	20	20
			\$45

The above subsidiaries are wholly owned. The operations of the subsidiaries did not result in a profit or a loss and no dividends were paid to the parent company.

**(b) Loan to Subsidiary Company**

Unsecured subordinated loan to E.R.A. (Canberra) Limited \$10,000. (1982 \$10,000.)

**4 Ranger Project Rights**

	1983 \$'000	1982 \$'000
Ranger Rights at cost	407,000	407,000
Less amortization	11,715	5,355
Net balance	395,285	401,645

This represents Ranger interests acquired from the former Ranger joint ventures, including rights to receive and sell the concentrates produced from the Ranger Project Area and the benefits of long term sales contracts previously arranged by certain of the former ventures.

**5 Mine plant, equipment and facilities**

	1983 \$'000	1982 \$'000
Plant, equipment and facilities at cost	384,432	377,560
Less provision for depreciation	26,068	11,227
Written down value	358,364	366,333

**6 Deferred Expense**

	1983 \$'000	1982 \$'000
Deferred expense capitalized less amounts written off, Note 1(f), comprises:		
Share Issue expenses	1,215	1,519
Marketing Expense incurred in securing contracts	566	727
Borrowing Costs	3,228	3,706
Total	5,009	5,952

**7 Secured Loans**

	1983 \$'000	1982 \$'000
Due within 12 months		
Project loans	47,261	48,925
Vendor loans	9,918	10,083
Due after 12 months		
Project loans	241,711	283,748
Vendor loans	51,556	60,522
Total	293,267	344,270

**Project Loans**

These loans are covered by first ranking debenture stock secured by fixed and floating charges over the whole of the Ranger project, the sales contracts, and the uncalled capital of the parent company and of E.R.A. (Canberra) Limited. Repayment of principal \$283,747,952 is by equal quarterly instalments until 15 February, 1990.

**Vendor Loans**

These loans are covered by second ranking debenture stock secured by fixed and floating charges over the whole of the Ranger Project, the sales contracts and the uncalled capital of the company and of E.R.A. (Canberra) Limited. Repayment of principal \$60,522,518 is by equal quarterly instalments until 15 February, 1990.

## 8 Foreign currency

The group has sales contracts in US dollars which exceed repayments of borrowings in US dollars.

Forward purchase contracts for US dollars have been entered into coinciding in timing and amounts with the repayment of principal in US dollars due under the Project Loan Agreements. The weighted average exchange rate experienced in drawing down the loans applies in all such contracts and consequently the future repayments will not result in any exchange gain or loss.

The purchase hedging contracts will result in A\$283,747,952 (1982 A\$325,784,000) being required to repay the principal of the loans in US dollars whereas (1982 A\$369,571,000).

The group has also entered into forward currency contracts in US dollars in respect of some future sales proceeds to 1990.

## 9 Income Tax

Income Tax is calculated as follows:

	1983 \$'000	1982 \$'000
Operating profit before income tax	113,362	45,579
Tax calculated at 46%	52,147	20,966
Tax effect of permanent differences:		
decreased income tax expense due to investment allowance	(118)	(15,676)
increased income tax expense due to amortization of Ranger project rights not allowable	2,977	1,789
other items not allowable	963	642
Income tax expense	55,969	7,721

The differences are reflected in future income tax benefits and provision for deferred income tax on the balance sheet.

### Future income tax benefits

At 30 June, 1983 the company had income tax losses amounting to \$47,205,000 (1982 \$145,978,000) which are available against income in future years. These losses have arisen as a result of investment allowance and of timing differences which give deductions for income tax earlier than the time when the related charges are made against book profits.

The income tax benefit attributable to tax losses will only be obtained if –

- 1) the company derives future assessable income of a nature and of amount sufficient to enable the benefit of the deductions for the losses to be realised,
- 2) the company continues to comply with the conditions for deductibility imposed by the law, and
- 3) no changes occur in tax legislation adversely affecting the company in realising the benefit of the deduction for the losses.

The company expects to derive sufficient future taxable income through sales contracts to be assured beyond reasonable doubt of fully utilizing these taxation losses within the prescribed period.

**Provision for deferred income Tax**

The provision for deferred income tax arises from certain costs being allowable for income tax purposes earlier than the time when the corresponding charge is made against book profits. Deductions under Division 10 and Section 51 of the Income Tax Assessment Act were the main factors.

## 10 Capital

Authorized Capital  
500,000,000 shares of \$1.00 each \$500,000,000.

	1983 \$'000	1982 \$'000
Issued and Paid up Capital	307,500	307,500
A Class shares of \$1.00 each	61,500	61,500
B Class shares of \$1.00 each	41,000	41,000
C Class shares of \$1.00 each	410,000	410,000

The B and C class shares rank pari passu with the A class shares except that –

- (1) a total of 75,000,000 A class shares registered in the names of Peko-Wallsend Ltd and EZ Industries Limited will not rank for dividend until E.R.A. resolves, for the first time, to pay out of profits of a financial year dividends of not less than 12.5 cents per share on the whole of the issued capital of the company, including such 75,000,000 shares.
- (2) the B and C class shares have limitations, restrictions and special rights as to conversion, quotation and disposal of shares and voting in specified matters.

## 11 Share premium account

Balance at beginning of period	1983 \$'000	—
Allocated to write down share issue expenses	—	—
Balance at end of period	1982 \$'000	1,640

## 12 Directors' emoluments

There were no Executive Directors of the company;	CONSOLIDATED \$'000	1983	1982
Total emoluments received and receivable by other Directors	99	99	99
No emoluments (excluding salaries) were received by Directors of subsidiaries who are not also Directors of the Company;	—	—	—

## 13 Commitments

(a) Commitments for capital expenditure	1983	1982	1983	1982
(b) Lease commitments	1,891	1,891	2,173	1,027
	501	501	1,891	501
			2,173	1,027
			1,891	501
			1,891	501

Of the lease commitments, \$548,000 is due in the next 12 months. (1982 \$219,000)

(c) E.R.A. is liable to make payments to the Commonwealth as listed below:

(i) amounts equal to the sums payable by the Commonwealth to the Northern Lands Council pursuant to the Section 44 Agreement (Aboriginal Lands Rights (NT) Act). These amount to \$200,000 per annum during the currency of the Agreement.

(ii) amounts equal to the sums payable by the Commonwealth to the Aboriginals Benefit Trust Account pursuant to Section 63(5) of the Aboriginal Land Rights (NT) Act. These amounts are calculated as though they were royalties payable pursuant to the Northern Territory Mining Act and represent 4% of net sales revenue. (1983 \$12,264,000, 1982 \$6,018,000)

(iii) amounts equivalent to sums payable by the Commonwealth to the Northern Territory pursuant to an understanding in respect of financial arrangements between the Commonwealth and the Government of the Northern Territory. These amounts are also calculated as though they were royalties and the relevant rate is 1%.

(iv) amounts equal to 2% (or such other rate as the Minister of State for the time being administering Section 41 of the Atomic Energy Act may determine) of the payments received by E.R.A. in respect of sales of uranium concentrates. These amounts are credited to the Ranger Rehabilitation Trust Fund to provide for rehabilitation of the mine site at the time of cessation of mining operations. (1983 \$5,842,000, 1982 \$1,552,000)

## 14 Contingent liabilities

(a) E.R.A. has given to the Commonwealth Government an undertaking to rehabilitate the Ranger Project Area after cessation of mining operations. To the extent from time to time that the amount standing to the credit of the Ranger Rehabilitation Trust Fund is insufficient to meet the then estimated cost of rehabilitation, this undertaking has been secured by a bank guarantee given by the Commonwealth Trading Bank of Australia. That bank has in turn been indemnified by the Eurobonders and E.R.A. has given the latter a counter-indemnity which is secured by the issue of debenture stock.

The estimated cost of rehabilitation, should E.R.A. have been required to cease mining at 30 June, 1983, would have been \$24,537,975 (1982 \$20,042,000) whilst the balance of the Trust Fund was \$6,821,357 (1982 \$1,569,978). See Note 13(c)(iv).

(b) Claims have been lodged against the company and others by contractors in connection with the construction of the Mine Plant, Equipment and Facilities. To the extent that it is expected that the company may eventually be required to meet these claims, they have been included in these accounts. The maximum additional contingent liability at 30 June, 1983 was \$2,800,000 (1982 \$4,200,000). Any difference between the amount in the accounts and the amount eventually paid will be reflected in fixed assets.

**Source and Application of Funds**

For the year ended 30 June, 1983

Sources of Funds		Application of Funds	
Operating profit before income tax	113,362	142,094	189,731
Add non cash items:			
Amortization and depreciation	22,144	7	106,318
Increase in Liabilities	135,506	7	189,731
Current Liabilities	3,156		
Bank overdraft	12,937		
Trade creditors and bills payable	4,719		
Other creditors	20,812		
Non Current Liabilities	6,581		
Creditors and accrued expenses	7		
Secured Loans			
Increase in Assets	19,091		
Current Assets	16,055		
Short Term Deposits	56,778		
Trade Debtors	919		
Other Debtors	26,181		
Stock on hand	4,091		
Non Current Assets	50,282		
Mine plant, equipment and facilities	16,263		
Deferred expense	518		
Reduction in Liabilities	45,912		
Current Liabilities	105		
Bank overdraft	46,017		
Current Liabilities	6,872		
Bank Overdraft	—		
Secured Loans	463		
Other Creditors	1,829		
Non Current Liabilities	1,495		
Secured Loans	3,787		
Bank Loans	—		
Secured Loans	51,003		
Creditors and accrued expenses	12,751		
Dividends Paid	11,855		
	29,494		
	54,100		
	—		
	189,731		
	30,150		
	142,094		

1982 \$'000

1983 \$'000

**Statement by Directors**

Energy Resources of Australia Ltd  
(Incorporated in the Australian Capital Territory)

In the opinion of the Directors:

(a) The accounts of the Company and of the Group are drawn up so as to give a true and fair view of the state of affairs as at 30 June, 1983, and the results for the year ended on that date of the Company and of the Group as far as they concern members of the Company.

(b) There are reasonable grounds to believe that the Company will be able to pay its debts as and when they fall due.

Signed at Sydney this 18th day of August, 1983 in accordance with a resolution of the Directors:

**A L Morokoff** Director

**A C Copeman** Director

**Auditors' Report to the Members**

In our opinion:

(a) The accounts and group accounts set out on pages 19 to 25, including the Statement of Source and Application of Funds, which have been prepared under the historical cost convention stated in Note 1 together with the Statement by Directors are properly drawn up in accordance with the provisions of the Companies Act 1981 and so as to give a true and fair view of:

(i) the state of affairs of the company and of the group as at 30 June, 1983 and of the results of the company and of the group for the year ended on that date so far as they concern members of the holding company; and

(iii) the other matters required by Section 269 of that Act to be dealt with in the accounts and in the group accounts;

(b) The accounting records and other records, and the registers required by that Act to be kept by the company and by its subsidiaries have been properly kept in accordance with the provisions of that Act or, in the case of the subsidiaries incorporated in New South Wales in accordance with the provisions of the corresponding law of that State.

We are satisfied that the accounts of the subsidiaries that have been consolidated with other accounts are in form and content appropriate and proper for the purposes of the preparation of the consolidated accounts and we have received satisfactory information and explanations required by us for that purpose.

No auditors' report on the accounts of any of the subsidiaries was made subject to any qualification, or included any comment made under Subsection (4) of Section 285 of that Act.

**Coopers & Lybrand** Chartered Accountants  
by **M J Sharpe** Sydney 19 August, 1983



## Stock Exchange Information

Information pursuant to Australian Associated Stock Exchanges Listing Requirement 3c.

### Entitlement to Votes (Article 85)

Subject to any rights or restrictions for the time being attached to any shares on a show of hands every Member present in person or by proxy or by attorney or by Representative and entitled to vote shall have one vote, and on a poll every Member present in person or by proxy or by attorney or by Representative shall have one vote for each share held by him.

### Stock Exchange Listing

E.R.A. shares are listed on the exchanges of the Australian Associated Stock Exchanges. The home exchange is the Sydney Stock Exchange Ltd.

### Distribution of Shareholders as at 25 August, 1983

(a) A Class ordinary shareholders		Equal to 75.0% of the issued capital	
NUMBER OF SHAREHOLDERS	%	NUMBER OF SHARES	%
1-1000	27,368	86.0	11,092,298
1001-5000	3,825	12.0	9,017,787
5001-10000	386	1.2	2,931,622
over 10000	247	.8	284,458,293
	31,826	100.0	307,500,000

(b) B Class ordinary shareholders		Equal to 15.0% of the issued capital	
NUMBER OF SHARES	%	NUMBER OF SHARES	%
Rheinbraun Australia Pty, Limited	25,625,000	41.6	
UG Australia Developments Pty, Limited	16,400,000	26.7	
Interuranium Australia Pty, Limited	15,375,000	25.0	
OKG	4,100,000	6.7	
	61,500,000	100.0	

(c) C Class ordinary shareholders		Equal to 10.0% of the issued capital	
NUMBER OF SHARES	%	NUMBER OF SHARES	%
Japan Australia Uranium Resources Development Co. Ltd.	41,000,000	100.0	
<b>Total Issued Capital</b>			
	410,000,000		

### Register of Substantial Shareholders

Shares held at 25 August, 1983.

Peko-Wallaseid Ltd.	126,945,000
EZ Industries Limited	126,945,000
Japan Australia Uranium Resources Development Co. Ltd.	41,000,000

### Twenty Largest Shareholders

Of A Class Ordinary Shares as at 25 August, 1983

NAME	SHARES HELD	SHARE REGISTRIES
Peko-Wallsend Ltd	126,945,000	<b>New South Wales</b>
EZ Industries Limited	126,945,000	c/- Professional Share Registries
ANZ Nominees Ltd (Melbourne)	3,717,735	(NSW) Pty. Ltd.
CTB Nominees Ltd	2,897,500	4th Floor, 720 George Street,
National Nominees Ltd	2,350,858	Sydney, NSW 2000
Australian Mutual Provident Society	1,953,000	Telephone: (02) 211 5299
The Mutual Life & Citizens Assurance Co Ltd	1,400,000	<b>Victoria</b>
Bank of New South Wales Nominees Pty Ltd	1,295,880	c/- Professional Share Registries
Darling Nominees Pty Ltd	993,204	(NSW) Pty. Ltd.
ANZ Nominees Ltd (Sydney)	643,100	Bishop Connelly & Duncan,
Pendal Nominees Pty Ltd	612,903	3rd Floor, 11 Bank Place,
Provident & Pensions Holdings Pty Ltd	500,000	Melbourne, Vic. 3000
Eagle Star Nominees Ltd	446,500	Telephone: (03) 60 1206
The Colonial Mutual Life Assurance Society Ltd	423,500	<b>Australian Capital Territory</b>
Scottish Amicable Life Assurance Society	397,200	c/- Professional Share Registries
Mepac Nominees Pty Ltd	367,100	(NSW) Pty. Ltd.
National Mutual Life Association of Australasia Ltd	350,000	Houston & Brown,
Local Government Superannuation Board	310,000	3rd Floor, 40 Marcus Clarke St.,
Mogul Mining NL	300,000	Canberra City, ACT 2601
The City Mutual Life Assurance Society Ltd	300,000	Telephone: (062) 49 8515
<b>Total</b>	<b>273,148,480</b>	

The proportion of A Class Ordinary Shares held by the twenty largest shareholders is 88.8%

**Interest of directors** in the share capital of the company as at 21 July, 1983.

	SHARES HELD
A L Morokoff	5,000
A W Hamer	5,000
G B Lean	10,000
G A Mackay	5,000
Sir Rupert Myers	2,000

