



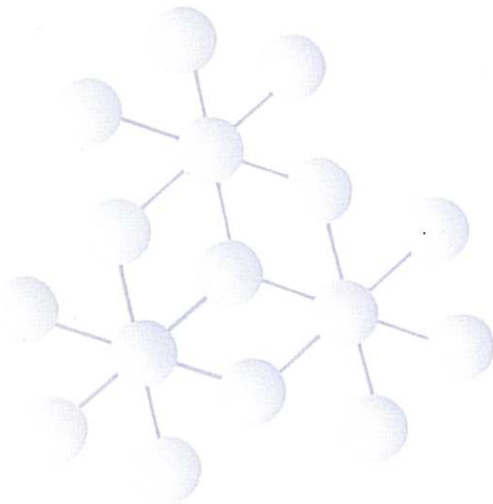
# COUNCIL FOR NUCLEAR SAFETY

ANNUAL REPORT 1989-90



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annual  
report



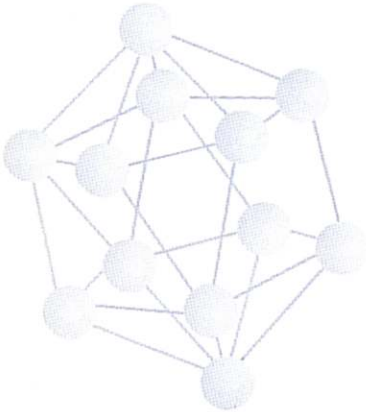
## Chairman's Foreword

The year covered by this report was the first full year of operation of the Council for Nuclear Safety as a fully independent regulatory body.

The Council and its staff have settled down well after this major readjustment in their structure and mode of operation and it is with satisfaction that I observe the considerable progress that has been achieved in meeting the objectives and ideals of the Council that were foreseen earlier, and to which I made reference in my last report. Our responsibilities to the public continued to be met through the dedicated efforts of the managerial, technical and support staff, and expenditure has been contained within the limits stipulated by the Council for the accomplishment of its mission.

No extra burdens nor commitments arose during the year from untoward events associated with the nuclear installations and activities with which the Council was involved, and it has proceeded in devoting its resources to address the imperative of safeguarding the public against nuclear damage. The nuclear licensing process is ongoing in this respect and demands the highest level of diligence and commitment on the part of the regulatory staff. The Council, conscious of the grave responsibility it shoulders, has noted with concern the difficulties that continued to be experienced in recruiting staff of the required calibre.

I am grateful for the contributions from my fellow Council members, and for the enthusiasm and dedication of the Council's staff. I wish to record my appreciation of the encouragement and support received from Mr D W Steyn prior to his retirement from Cabinet, and also of the co-operation and assistance given by the Minister and the Deputy Minister of Mineral and Energy Affairs and Public Enterprises, the Minister of Finance, and the Department of Mineral and Energy Affairs over the year.



*Prof J B Martin, Chairman (seated) and Mr L D Hobbs, Vice-chairman*

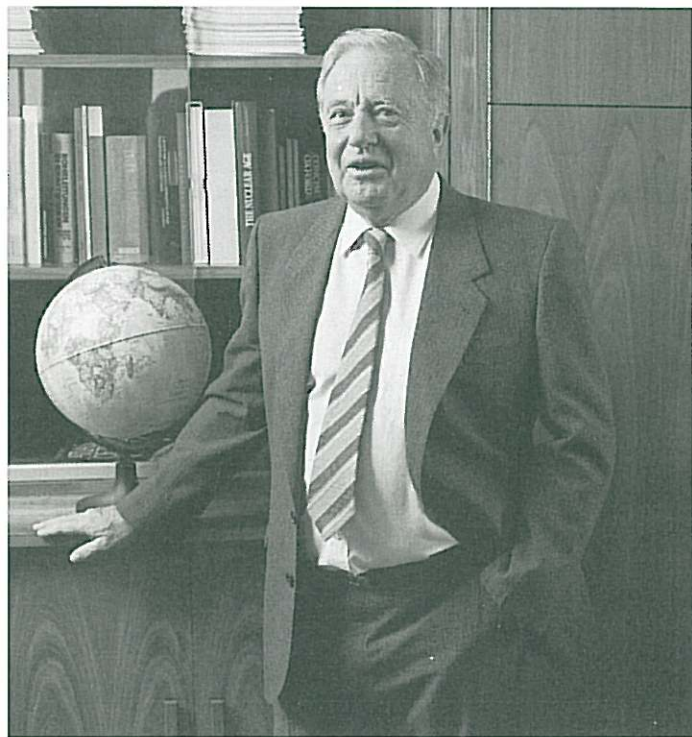


# Executive Officer's Review

At the beginning of the financial year the new Council had been in existence for nine months and had been in its new premises for the last six of these. Although the initial transition phase had been successfully completed much still remained to be done, particularly in establishing autonomous financial, personnel and other administrative systems and procedures. Satisfactory headway has been made across the full spectrum of the Council's activities, laying a sound foundation for its future development.

## Council membership

During the year certain changes occurred in the Council's membership. Following his transfer within his department Mr P J le Roux resigned from the Council and was replaced by Mr SA Gerber. The Council expressed to Mr le Roux its appreciation of his services and constructive contributions to the Council's deliberations. In addition, Mr S W A Hanekom was appointed in succession to Mr J Bosman who had resigned from the Council during the previous year. Thus, at the end of the year the Council consisted of the following members:



Mr J O Tattersall, Executive Officer and General Manager

### Chairman:

#### **PROF J B MARTIN**

Dean : Faculty of Engineering,  
University of Cape Town

### Vice-Chairman:

#### **MR L D HOBBS**

Chairman: Rand Water Board

### Members:

#### **PROF R K DUTKIEWICZ**

Director: Energy Research  
Institute,  
University of Cape Town

#### **MR M DU TOIT**

Chief Director: Development  
Co-ordination,  
Department of Development  
Planning and Provincial Affairs

#### **MR S A GERBER**

Chief Director:  
Environmental Conservation,  
Department of Environment  
Affairs

#### **MR S W A HANEKOM**

Director: Transport System  
Planning,  
Department of Transport

#### **PROF R G HARLEY**

Head: Department of Electrical  
Engineering,  
University of Natal

#### **DR P R LE ROUX**

Director: Radiation Control,  
Department of National Health  
and Population Development

#### **MR H J MATTHYSEN**

Managing Director:  
National Occupational Safety  
Association

#### **DR D REITMANN**

Director: National Accelerator  
Centre, CSIR

#### **MR P SCRIBANTE**

Formerly Director: Mechanical  
Engineering,  
S A Bureau of Standards

#### **DR P D R VAN HEERDEN**

President: SA Medical  
Research Council

#### **PROF A F STEYN**

(co-opted member)  
Head: Department of  
Sociology,  
Rand Afrikaans University



## Council meetings

The Council held six scheduled meetings to enable it to attend to the various aspects of its normal business of ensuring that proper control is exercised over the potential for harm associated with the radioactive properties of materials involved in the nuclear industry, from mining of the uranium and thorium bearing ores to the ultimate disposal of nuclear waste. In discharging its function according to the provisions of the Nuclear Energy Act, No. 92 of 1982 (as amended), the Council must ensure that the risks of nuclear damage are consistent with the requirements of health and safety.

Furthermore, as a matter of policy the Council maintains a continual review of its approach to its task and with this objective it extended a number of its meetings during year to receive presentations on various aspects of the licensing process, following on from presentations given in the previous year. In this respect Mr B C Winkler, Deputy General Manager, spoke to the Council on "*How the Council's Fundamental Risk Standards are Translated into Practically Applicable Safety Criteria*", and Dr N W Dalton, Manager: Evaluation Department, presented a talk on "*How a Nuclear Plant is Assessed*".



*Technical Committee members (left to right):*

*(Above) Prof R K Dutkiewicz, Prof J B Martin and Mr J Leaver*

*(Below) Mr H J Matthysen*

*(Right) Mr P Scribante, Prof R G Harley and Prof R K Dutkiewicz*



public

The Council also took the opportunity of increasing its insight into the views of society on hazards by inviting Miss E Reynolds, of the Rand Afrikaans University, to make a presentation on "The City Dweller and the Environment".

The following members of the Council's staff continued to attend all Council meetings to serve in an advisory capacity.

Mr J O Tattersall  
Executive Officer and General Manager

Mr B C Winkler  
Deputy General Manager

Mr J Leaver  
Deputy General Manager

In addition Mr E L Langford, Manager: Central Services Department, acted as Secretary to the Council.

The Council's Technical and Health Physics Committees, established to give detailed consideration to aspects of the Council's work in specific areas, each met once during the course of the year.



*Council members (left to right): Mr S A Gerber, Mr S W A Hanekom and Mr M du Toit*



*Health Physics Committee members (left to right): Dr P R le Roux, Dr P D R van Heerden and Dr D Reitmann*



*Council members (left to right): Prof A F Steyn and Prof J B Martin with Mr B C Winkler*



## Structure and Staffing

The overall organisational structure of the Council has remained unchanged over the year as is shown in diagram 1.

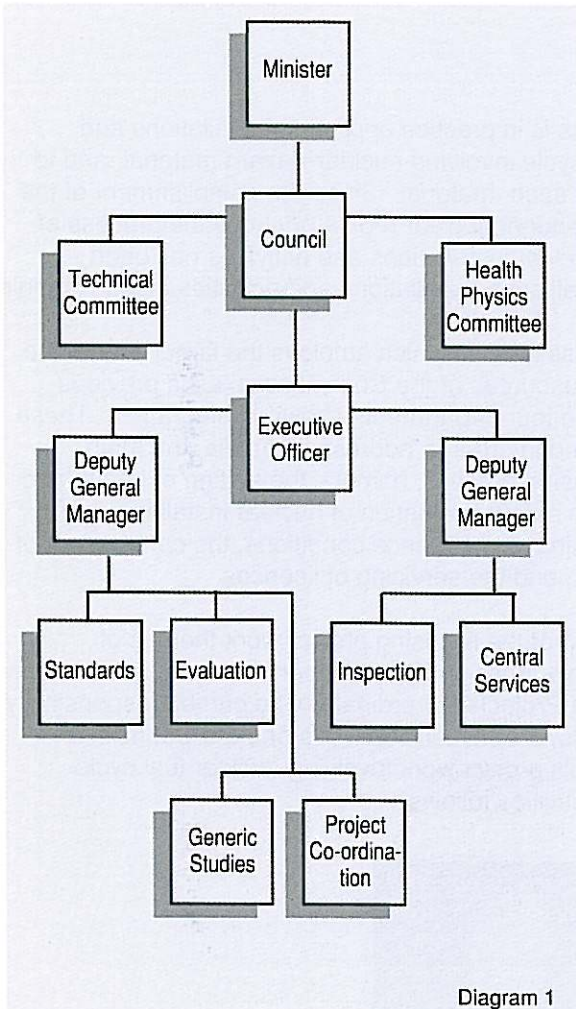
Difficulties have continued to be experienced in recruiting the high calibre staff required by the Council and although limited success has been achieved in filling some of the vacant posts this has been offset by retirements. Consequently the staff complement has remained approximately twenty per cent below full strength. This is of concern to the Council since it has inevitably introduced delays in the application of certain of the Council's regulatory and administrative responsibilities, and has frequently necessitated the overburdening of existing staff.

Communication on all issues affecting personnel is of prime importance and, in recognition of this, consultation with the staff has been enhanced through the formation of a Staff Association.

## Public Relations

It is the Council's policy not only to fulfil its responsibilities in terms of the Nuclear Energy Act in an objective and impartial manner, but also to ensure that the public is made aware of the Council's activities. It has therefore made a positive commitment to provide information about its role by presenting its perspective of the nuclear scene and its standpoint as the nuclear regulator.

With this objective in mind the Council made arrangements to hold its November 1989 meeting in Port Elizabeth because of local interest arising from Eskom's decision to purchase sites for possible future nuclear power plants in the Eastern Cape. After the meeting a



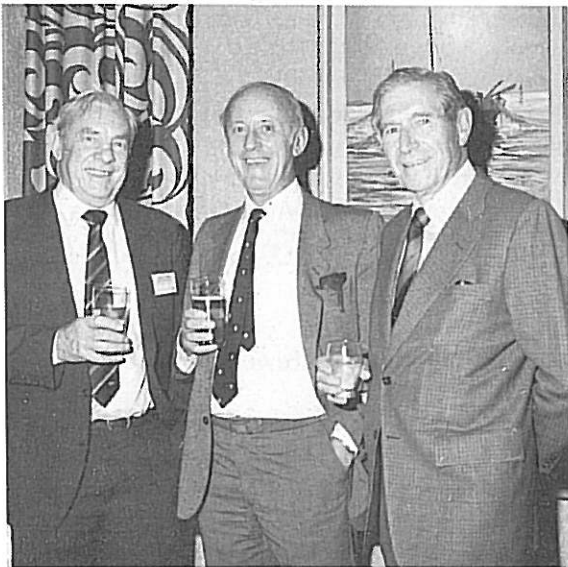
### Farewell Dinner

On the evening of 16 August 1989, a farewell dinner was given in honour of Mr Danie Steyn, the retiring Minister of Economic Affairs and Technology.

risk



*Above, below and below right:  
Prof J B Martin and guests at the University  
of Port Elizabeth*



presentation entitled "The Council for Nuclear Safety: Its Role in the Nuclear Scene" was given by the Executive Officer to an invited audience of civic leaders and local businessmen. The opportunity was also taken by Council members to make an inspection visit to Eskom's Eastern Cape Sites.

Earlier in the year, at a public relations seminar arranged by Eskom for the media, Mr J Leaver, Deputy General Manager, gave two presentations on " Nuclear Licensing ".

## Licensing

The licensing process is in practice applied to installations and activities in the fuel cycle involving nuclear-hazard material, and to certain other uses of such material. Since the establishment of the Council as an independent nuclear regulatory body the process of formally licensing nuclear installations and activities has been extended to include all such installations and activities in the Republic.

The day-to-day licensing work, which employs the larger part of the technical and legal resources of the Council, was, as in previous years, handled by the four departments shown in diagram 1. These have been established in order to address, inter alia, the main functions of the licensing process, namely, the setting of health and safety standards, the safety evaluation of nuclear installations and activities, the determination of licence conditions, the carrying out of statutory inspections, and the servicing of licences.

In the implementation of the licensing project work there is of necessity considerable cross-linkage between these departments and this is facilitated by a Projects Co-ordinator who carries responsibility for scheduling workflows between licensees and the Council. A review of the Council's project work involving nuclear fuel cycle matters and other activities follows.





## Koeberg

Operational control of radiological hazards at the Koeberg power station has been subject to ongoing review. Occupational exposure of site personnel and effluent discharges to the environment have been maintained well within the authorised limits, and monitoring of the environment has confirmed the adequacy of effluent discharge controls.

Notwithstanding the fact that a licence to use a nuclear installation is only granted when the Council is satisfied that the risks imposed by such plants, including the risk of accidents, fall within acceptable limits, the Council also requires that there be adequate emergency preparedness to deal with an accident should it happen. Appropriate emergency measures must be developed and it is required that they be practised regularly by licensees. Such exercises are monitored by the Council and where shortcomings are revealed these are pointed out and the licensee is required to rectify them. A full scale emergency exercise of the Koeberg emergency plan, which is conducted approximately annually, took place in April 1989 and this necessitated the involvement of inspectors from all of the Council's departments. A further exercise to demonstrate the public notification capability was held in November 1989.

Three meetings of the Koeberg Emergency Planning Liaison Committee, on which municipal and regional authorities are represented, were convened by the Council during the year. In view of the property development taking place north of Milnerton, membership of the Koeberg Emergency Planning Liaison Committee has been expanded to include a representative from that municipality.

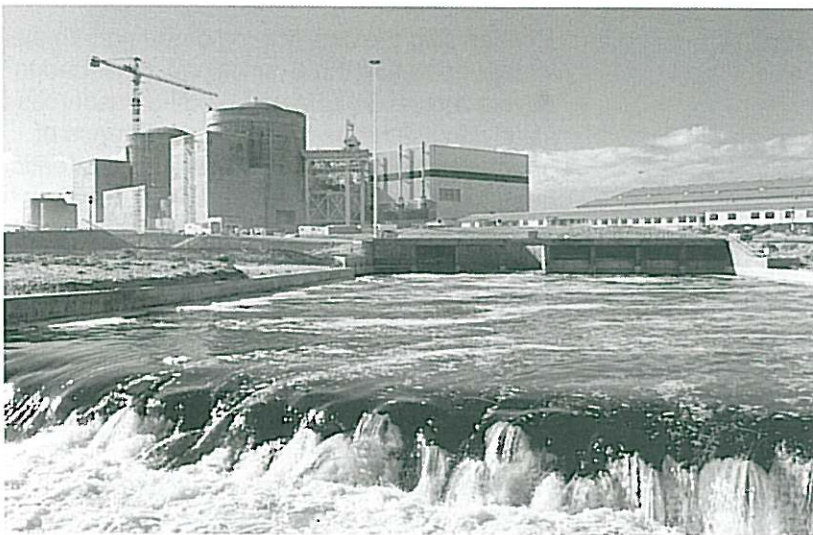


Photo: Escorn

*Cooling water outfall at Koeberg Nuclear Power Station*

The Council has continued to monitor demographic developments in the vicinity of the Koeberg site and has maintained representation on associated planning committees. The impacts of several proposed developments have been assessed quantitatively with a view to ensuring ongoing compliance with the safety standards laid down for Koeberg.

Application of the CAESAR-II piping analysis computer code assisted in the determination of the acceptability, in nuclear risk terms, of main steam line support modifications at Koeberg. Other work on computer codes has included the adaptation of previously used complex mainframe software for use on the Council's mini- and



micro-computers, the evaluation of the RELAP-5 code on which certain of Eskom's safety submissions have been based, the development of a database to provide nuclear safety indicators to staff conducting assessments, and the development of a consolidated, computerised, probabilistic reliability assessment model to be used as an aid for rapid licensing decision making.

Routine technical assessments have been completed in respect of operating occurrences and plant modifications and of amendments to the licence, to the operating technical specifications and to the operating procedures. Various submissions and reports, as required by the licence, have been evaluated.

Technical evaluation of the manufacturing process for the nuclear fuel produced by the Atomic Energy Corporation (AEC) enabled the Council to confirm the acceptability of the fuel for use at Koeberg Nuclear Power Station.

Analysis of control rod wear experienced at Koeberg showed that the condition of the control rods was acceptable, in terms of the Council's safety criteria, provided Eskom complied with its proposals for monitoring and replacement, which were approved by the Council.

Continual review and evaluation of activities that are of special interest have been carried out. Topics such as Waste Disposal, Fuel Handling, Defect Assessment, Seismic Analysis, System Reliability, Physical Security, Reactor Physics, Accident Studies and Probabilistic Risk Analysis featured prominently in the safety assessments and in-depth studies of all licensed nuclear installations.

Recognising the significance of the human element in safe operation the Council has continued to devote a considerable portion of its resources to satisfying itself regarding the competence of operating staff and, in particular, close attention has been given to control room staff at Koeberg who must possess licences granted by the Council before they may manipulate the reactor controls. The Council has continued with its important work of administering competency-based examinations of candidates for reactor control room operator duty, as well as monitoring their training and requalification.

The dynamic circumstances associated with the operating phase of nuclear installations requires that licence conditions be kept continually under review and, where necessary, that they be



*The Koeberg site inspection team (left to right): Mr A P Hanekom, Site Inspector, Mrs E Grobbelaar, Technical Administrator and Mr L H Sands, Chief Site Inspector*

### **Council's statutory inspection function at the Koeberg site**

The function of the inspection staff at the Koeberg site is to be the "eyes and ears" of the Council in all matters relating to nuclear risk and safety at Koeberg. Assurance of compliance with the nuclear licence is obtained through inspections generated by the Council's licence compliance programme, as well as by monitoring of all daily events at Koeberg, with particular attention being paid to systems and components directly related to nuclear risk and safety. The site team reports on and tracks all occurrences and incidents and advises both the Council's head office and the licensee on licence compliance status.

Coverage is maintained by the site team to ensure that all relevant activities are monitored, including planned and unplanned outages, requalification of plant and systems, non-compliance and occurrence reports, modifications, daily plant operations, QA audits and tracking of findings, emergency exercises and special projects such as data collection.

To assist the site team in their vigilance the Council's office has been equipped with data collection, storage and retrieval systems linked to appropriate Eskom data bases at Koeberg. Several in-house programs have been established to simplify the acquisition, examination and dissemination of the vast amounts of data received daily. These activities are supplemented by the team attending on-site meetings, conducting interviews, making ad hoc visits to items of plant and examining logs, reports and on-site records.

Communication is maintained with the Council's head office at Verwoerdburg by telephone, telefax and computer links; in addition head office staff visit Koeberg for special projects.

amended to keep pace with changing circumstances. Over the past year more than eighty such changes to the licence for Koeberg were evaluated by the Council.

The work of the permanently based site inspection staff continued to be an extremely important component of the Council's statutory inspection function. Major activities, above the routine inspection duties, which demanded the full time involvement of the Koeberg site inspection team were the refuelling outage of unit 1 reactor, visual inspection of the control rod guide tube pins, fuel damage monitoring and repairs to plant items.

### **Atomic Energy Corporation (AEC)**

The fuel cycle activities of the AEC have undergone substantial development in recent years and have now reached the stage of production maturity.

Under the previous legislation the AEC, as the regulatory body, was not required to possess a nuclear licence, although it was obliged to conform in full to the provisions for liability, compensation, and health and safety applicable to other bodies to whom a nuclear licence would have to be granted in similar circumstances. As a consequence of the amended legislation the AEC is now subject to the full licensing process, which is applicable not only to its fuel cycle activities but also to nuclear-hazard material associated with its research and development program.

Work proceeded during the year on formulating licence documentation in respect of operational radiological protection, effluent discharge control, environmental monitoring and emergency planning and preparedness for the AEC facilities at the Pelindaba/Valindaba complex and the Vaalputs waste disposal site. The safety assessments of aspects of the uranium enrichment process and the manufacture of nuclear fuel were formally completed in terms of the licensing process and the Council granted a licence to operate those installations. A nuclear licence was also granted to the AEC in respect of the National Radioactive Waste Disposal Facility at Vaalputs.

The nuclear licences contain, inter alia, a quality management requirement and discussions commenced with the AEC on the establishment of a licence compliance inspection system at its sites.

Ongoing review and safety evaluation of the engineering aspects of other nuclear installations operated by the AEC reached an advanced stage.



## Activities involving nuclear-hazard material within the mining industry

### Licensing activities involving nuclear-hazard material within the mining industry

Many of the ores mined in South Africa contain uranium and thorium. Both these long-lived primordial radionuclides decay, through a series of radioactive daughter products, to stable elements. Left undisturbed, the radioactive daughter products build up to secular equilibrium with the parent nuclides and remain in situ within the host mineral deposit.

Three distinct areas of relevance in the mining of uranium and thorium bearing ore can be identified. These are exposure of underground mineworkers to so-called radon and thoron daughter products and radioactive ore dust, exposure of surface workers to radioactive ores and product concentrates, and exposure of the general public as a result of effluent discharges to the environment, waste disposal, and transport of ore, waste or radioactive product material.

In the past few years the Council, in co-operation with the Government Mining Engineer, has been giving attention to formulating a practicable approach to the regulatory control over activities involving nuclear-hazard material in the mining industry.

With the culmination of discussions held over a long period with the Government Mining Engineer and the mining industry, to which reference was made in last year's report, procedures are now being implemented for the licensing of activities involving nuclear-hazard material in that industry. Work progressed on drawing up a series of documents to detail the requirements necessary to ensure adequate control of radiological risks arising from such activities, and on formulating assessment strategies to determine to what extent such controls will be necessary.

### Incidental Users of Nuclear-hazard Material

In addition to activities related to the nuclear fuel cycle mentioned above, a number of incidental users of nuclear-hazard material have applied for, and been granted, nuclear licences.

### Other Activities

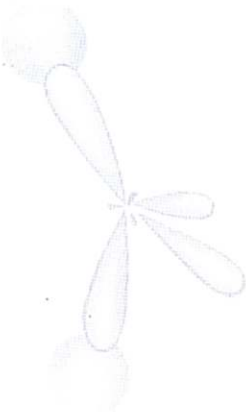
The Council's technical work has also been focused on the updating and upgrading of its accident consequence assessment capability for demonstrating compliance with fundamental safety standards. Work has been carried out on both postulated major accidents with off-site consequences and postulated localised accidents affecting operational personnel. In addition, studies have been made of international developments in accident consequence assessment techniques found necessary in the wake of the Chernobyl accident and proposals have been formulated to incorporate such developments into the Council's assessment process.

An in-house training scheme has been developed for newly recruited staff and deals with the historical development of nuclear power, an introduction to nuclear power and the use of probabilistic risk assessment.

The Council was actively engaged, with the AEC and Eskom, in negotiations with the International Atomic Energy Agency (IAEA) concerning the implementation of IAEA safeguards at the AEC's Hot Cell Complex at Pelindaba and at Koeberg Nuclear Power Station.

Towards the end of the year the responsibility for implementation of IAEA safeguards at South African nuclear facilities – a function of the former Licensing Branch of the AEC which the Council had continued to perform since mid-1988 – was transferred back to the AEC.

Following agreement with the AEC the Council was designated the National Competent Authority for the Transport of Radioactive Material, with responsibility for ensuring compliance with the IAEA Regulations for the Safe Transport of Radioactive Material.





The Council has continued its sponsorship of fracture research programs into environmentally assisted cracking of steels in reactor pressure circuits. The data obtained are presented to the International Cyclic Crack Growth Research Committee, of which the Council is a full member, and have been used to motivate changes to the ASME XI pressure vessel code. The Council is a part shareholder in an international materials database committee, the Electric Power Research Institute (EPRI) Database for Environmentally Assisted Cracking, and is also represented on an International Co-operative Group on Irradiation Stress Corrosion Cracking.

Work has continued on probabilistic techniques applied to aspects of risk management and human factors, and on the application of expert systems to information management and the operating limits of nuclear plant.

In order to streamline its internal procedures and assist all its staff in retrieving information and data necessary to complete their work with the utmost efficiency, the Council has proceeded with the installation of its networked computer system.

## **Participation in Meetings and Conferences**

Nuclear regulation, like the industry it controls, assumes a high international profile. Nuclear safety transcends national frontiers, and workers in this field benefit by exchanging information on aspects of common interest. In order to ensure that the Council's staff can continue to perform their function properly it is of the utmost importance that they be given the opportunity from time to time to meet their peers and attend meetings and conferences both within the Republic and overseas. Not to do so would deprive the Council's staff of the valuable background and stimulus so necessary for the continuing development and implementation of the regulatory function. Within the constraints inevitably imposed by urgent project work and tight schedules the Council encourages its staff to present papers and to participate actively in national and international forums.

From the large number of conferences and technical meetings held each year the Council's management selects some of those that are most pertinent to its immediate needs. During the year six members of staff have attended conferences and technical meetings in Austria, Belgium, France, the United Kingdom, the United States of America and West Germany on different facets of reactor operational safety, and various aspects of health physics, including environmental contamination and monitoring.

studies

At the conference on probabilistic safety assessment (PSA '89) held in Pittsburg, USA, Miss H M Kussman of the Evaluation Department presented a paper entitled "*Dependence of Core-Melt Frequency on Mission Time*".

Mr A C Hall, Manager: Inspection Department, participated in a Technical Committee Meeting on Operational Safety Indicators, convened by the International Atomic Energy Agency in Vienna.

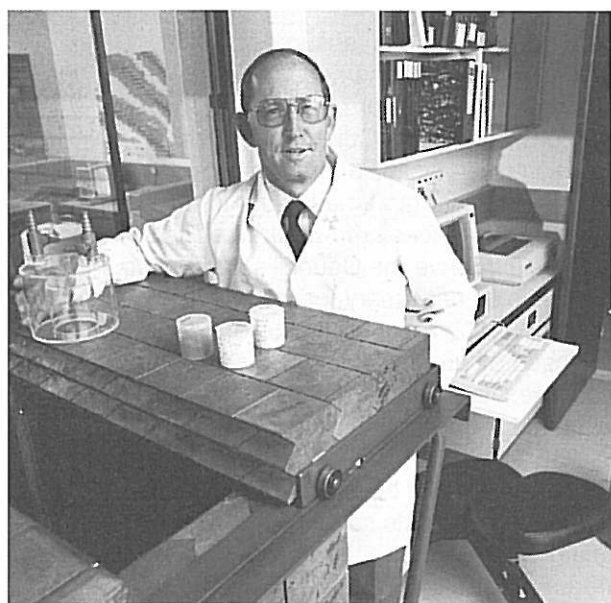
Mr B C Winkler, Deputy General Manager, as Vice-Chairman of Committee 4 of the International Commission on Radiological Protection, attended the regular meetings of the Committee, held in West Germany and the United Kingdom.

Mr J Leaver, Deputy General Manager, was an advisor to the South African delegation to the Twelfth Meeting of Contracting Parties to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, held in London.

Dr K D Bogie, Head: Generic Studies, as the representative of the Council, participated in meetings of the following international committees: International Cyclic Crack Growth Research, Irradiation Assisted Stress Corrosion Cracking, and the EPRI Database for Environmentally Assisted Cracking.

In addition, Mr P E Metcalf, Manager: Standards Department, attended the Fifth Biennial Symposium of the Ground Water Division of the Geological Society of South Africa, held at Mintek, Randburg, and presented a paper entitled "*Limitation of Radiological Exposure to the Public Arising from Water Contaminated with Uranium, Thorium and their Radioactive Daughter Products Discharged from Mining Operations*".

The Council's Evaluation Department organised a national technical meeting on Reactor Physics Codes at which four members of Council staff presented papers.



*In the Council's analytical laboratory*



# Financial Statements

As an independent body the Council has adopted the policy of funding its activities from fees paid by licensees. Payment of fees is being phased in over the next few years with the objective of meeting approximately seventy per cent of the Council's annual budget from this source with the balance being contributed from State funds. The target this year was to obtain forty-two per cent of the Council's income from licence fees, but the payment during the year of fees in arrears increased the overall contribution from fees to fifty-five per cent.

In the event that a substantial amount of important work arising from unusual or unforeseen circumstances needs to be performed in connection with licensees' projects, the Council has determined as a matter of policy that until such time as the associated costs can be recovered from licensees its expenses in this respect will be met from its financial reserves.

The annual financial statements were approved by the Council on 16 July 1990 and were signed on behalf of the Council by:

J O TATTERSALL  
Executive Officer and General Manager, and

E L LANGFORD  
Manager: Central Services Department

## **Auditor-General's report**

The accounts of the Council for Nuclear Safety have been audited in terms of sections 5 and 18(2) of the Auditor-General Act, No. 52 of 1989, read with section 26(4) of the Nuclear Energy Amendment Act No. 56 of 1988 and in my opinion the annual financial statements are a fair representation of the financial position of the Council as at 31 March, 1990 and the results of its operations for the year then ended.



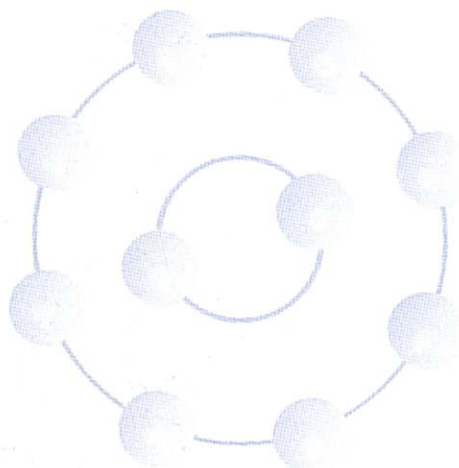
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Auditor-General

Pretoria,  
1990-08-24



# Income Statement for the year ended 31 March 1990



	Notes	1989/90 R	1988/89 R
<b>Income</b>		<b>14 301 534</b>	<b>7 756 137</b>
State contribution		5 785 000	5 386 890
Licence fees		7 883 273	1 406 496
Interest		546 611	79 493
Sundry		86 650	883 258
<b>Less : Expenditure</b>		<b>8 939 824</b>	<b>5 966 406</b>
Personnel expenses		5 420 753	3 362 365
Subsistence and transport expenses		1 560 795	822 957
Consultancy		63 883	39 664
Publications		13 178	1 349
Rent, accommodation		550 046	430 774
Repairs and maintenance		15 230	534
Research contracts		227 920	203 503
Postal, telex and telephone services		104 383	34 033
Consumable stores		43 041	195 557
Provisional expenditure	2	—	78 302
Sundry expenditure	3	413 733	597 181
Depreciation		526 862	200 187
<b>Income over expenditure</b>		<b>5 361 710</b>	<b>1 789 731</b>

**Balance Sheet  
as at  
31 March 1990**

	Notes	1989/90 R	1988/89 R
<b>Capital employed</b>			
Capital	4	180 799	180 799
General fund		7 151 441	1 789 731
		<u>7 332 240</u>	<u>1 970 530</u>
<b>Employment of capital</b>			
Fixed assets	5	2 088 060	981 549
Net current assets		5 244 180	988 981
<b>Current assets</b>		<b>5 294 171</b>	<b>2 069 921</b>
Petty cash - Council for Nuclear Safety		1 000	1 000
Koeberg site office		400	400
Petrol deposit		2 000	2 000
Key deposit		20	20
Bank balance		4 323 889	2 066 501
Sundry debtors	6	966 862	-
<b>Less:</b>			
<b>Current liabilities</b>		<b>49 991</b>	<b>1 080 940</b>
Sundry creditors	7	49 991	1 080 940
		<u>7 332 240</u>	<u>1 970 530</u>

tatements



## Notes to the financial statements

### 1. Accounting policy

#### 1.1 Introduction

The financial statements were compiled on the historical cost basis.

#### 1.2 Fixed assets

Furniture and equipment are valued at cost price minus accumulated depreciation.

#### 1.3 Depreciation of fixed assets

Furniture and equipment are written off on a straight line basis over the expected useful life of the asset.

No depreciation is written off in respect of assets taken over from the AEC.

### 2. Provisional expenditure

Because this represents payments in respect of expenditure of the old Council for Nuclear Safety, which were previously made by the Department of Mineral and Energy Affairs, it is shown separately. For the 1989/90 year provisional expenditure is included in the budget.

### 3. Sundry expenditure

	1989/90 R
Stationery and printing	66 047
Entertainment	8 366
Membership fees, professional associations	6 447
Protective clothing	347
Cleaning services	9 188
Bank charges	4 488

	<b>1989/90</b>
	<b>R</b>
Insurance	18 949
Audit fees	3 705
Rent, office equipment	52 578
Maintenance and service contracts	99 715
Computer time	756
Analytical chemistry	1 831
Medical and whole body count expenses	5 287
Small works	16 314
Software and programs	38 292
Small capital items, each less than R5 000,00	81 423
	<u>413 733</u>

#### 4. Capital

Assets taken over from the AEC	<u>180 799</u>
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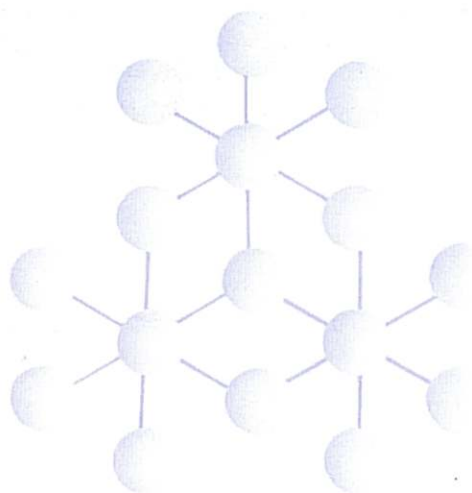
#### 5. Fixed assets

1988/89

R

(Furniture and equipment)

Assets purchased	1 000 937	
Less: Depreciation	200 187	
	<u>800 750</u>	
Less: Depreciation	200 187	<u>600 563</u>
Assets purchased	1 633 373	
Less: Depreciation	326 675	<u>1 306 698</u>
Plus : Assets taken over from the AEC		<u>180 799</u>
		<u>2 088 060</u>



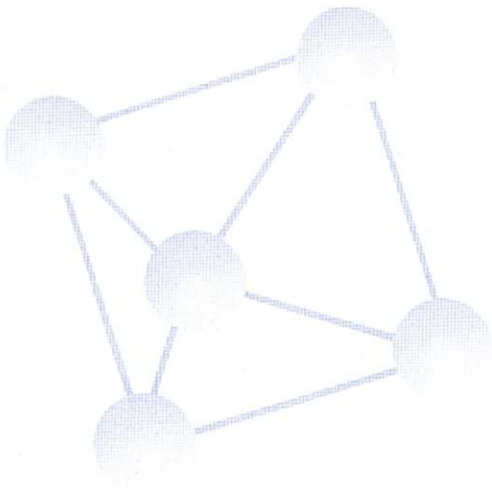


## 6. Sundry debtors

Outstanding licence fees	924 365
Salary advances	1 859
Advances for subsistence and transport	31 202
Debts of present and erstwhile staff members receivable	9 436
	<hr/>
	966 862

## 7. Sundry creditors

Pay as you earn deductions in respect of Council members payable	260
Licensees' security deposits	2 600
Outstanding orders	45 195
Lost cheque written back	1 936
	<hr/>
	49 991



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