Department of RESOURCES AND ENERGY

Annual Report 1990–91

TASMANIA

Department of Resources & Energy

Department of Resources and Energy

Report for the year ended 30 June 1991

The Hon. Michael W. Weldon MHA
Minister for Resources and Energy

Dear Minister,

I am pleased to submit for your consideration and presentation to Parliament the second annual report of the Department of Resources and Energy, for the year ending 30 June 1991.

The year has seen the introduction of the new mineral royalties system, the continuing development of the Agency's role in energy matters and in the management of the water industry in Tasmania, and further progress in our corporate planning activities and in developing the Agency's structure.

I am particularly pleased to report that, despite a difficult economic climate, all staff have shown a willingness to adapt to changing circumstances andmeet the challenges that face the Department.

G. A. Kennedy
SECRETARY

DIRECTORY

Corporate Services Division

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Gordons Hill Road
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Tasmania 7018
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Energy Resources Division

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Division of Mines and Mineral Resources

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Smithton

Nelson Street
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Devonport

Stony Rise Complex
Telephone (004) 24 0221

Irrigation Schemes

Cressy	(003) 97 6174
Derby	(003) 54 2455
South East	(002) 62 4210

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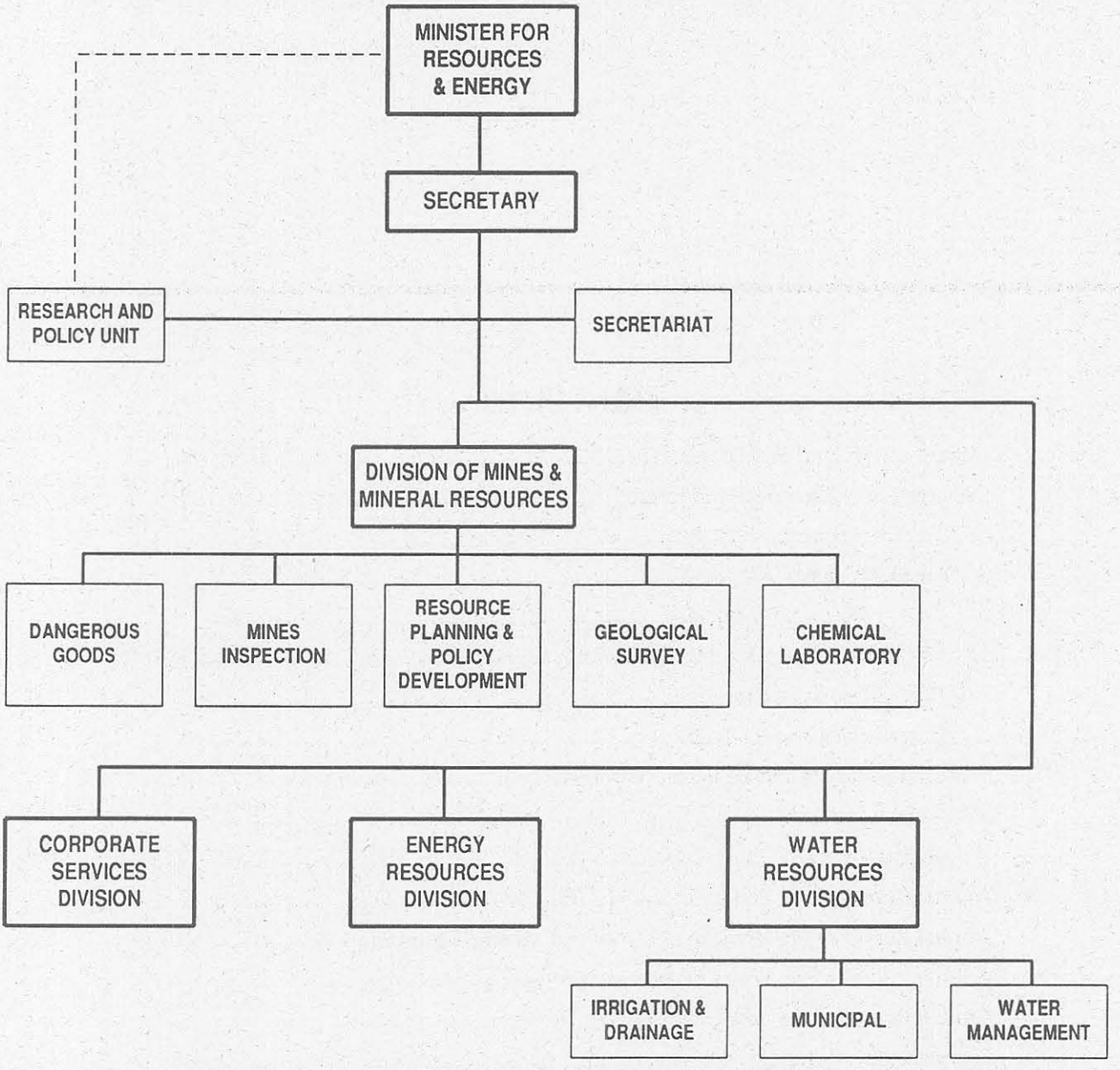
ORGANISATION CHART — DEPARTMENT OF RESOURCES & ENERGY



SENIOR OFFICERS

G. A. Kennedy, Secretary

Division of Mines and Mineral Resources

M. R. Hargreaves	Deputy Secretary, Mines & Mineral Resources
R. Billingham	Chief Inspector of Mines (to 14.6.1991)
W. E. E. Lake	Chief Inspector of Dangerous Goods
A. J. Reeves	Manager – Resource Development (to 20.5.1991)
D. Zani	Chief Chemist

Energy Resources Division

A. J. Reeves	Deputy Secretary, Energy Resources (from 21.5.1991)

Water Resources Division

W. M. Jordan	Deputy Secretary, Water Resources, and Chairman of RWSC
B. J. Boon	Senior Engineer (Irrigation & drainage)
B. J. Cash	Senior Engineer (Municipal)
M. J. Giblin	Senior Engineer (Water Management)

Corporate Services Division

G. H. Jennings	Director (from 1.1.1991)

Research & Policy Unit

Dr P. Burns	Director

THE DEPARTMENT OF RESOURCES & ENERGY

THE DEPARTMENT

The Department of Resources and Energy is the Agency through which the Tasmanian Government gives effect to policy in relation to mineral, water and energy resources.

The Agency was established on 17 July 1989 as part of the Government's initiative to create a more effective, efficient and responsive State service.

Our commitment is to encourage and guide the responsible development, management and use of mineral, energy and water resources for the benefit of the Tasmanian community.

The objectives which flow from our mission are:

1. To promote sustainable development, management and use of mineral, water and energy resources.
2. To increase the benefit to the community from mineral, water and energy resources.
3. To promote responsible environmental practices in resource and energy management.
4. To promote safe and healthy practices in all areas of responsibility.
5. To provide the highest standards of service and be responsive to the needs of Government, industry and the community.
6. To inform and involve the community in the policy process.
7. To develop and maintain the skills, motivation and professionalism of our people.
8. To exercise sound financial management in all areas of responsibility.

HEAD OF AGENCY'S REVIEW

The year has been one of steady development and consolidation for the Department of Resources and Energy. Progress has been made in co-locating all divisions in the Rosny Park building and, despite the financial constraints that face this and every other Government Department, services to our clients have been maintained and, in some areas, improved.

The Department has made significant contributions to two Ministerial Councils, the Australian and New Zealand Minerals and Energy Council (ANZMEC) and the Australian Water Resources Council. We are represented at Standing Committee level and on a range of working parties and committees.

Contributions have also been made through these Councils and at a Departmental level to the development of the Prime Minister's Ecologically Sustainable Development policy initiatives.

In the revenue area there was a pleasing result in the Geological Survey Branch. Revenue increased from $160 000 in the 1989–90 year to $379 000 in the 1990–91 financial year.

The year has been a difficult one for the mining industry, with all producers adversely affected by a combination of high exchange rates and low commodity prices. The continued decline in mineral exploration in Tasmania is also cause for concern.

During the year the Minister for Resources and Energy launched a Code Of Practice for the mineral exploration industry which is designed to provide, in one comprehensive document, the procedures to be followed in obtaining exploration approvals.

The training role of the Department in the Dangerous Goods area has been increased and will result in improved performance and standards of shot-firers and in the transport of dangerous goods.

The year has seen substantial progress in the development of a corporate plan for the Department. A mission statement and corporate objectives have been developed, strategies for meeting the objectives determined, and program performance targets and indicators are being evaluated. The Department's corporate plan, which has involved many staff members in its preparation, is expected to be completed by late 1991.

The Department, with the assistance of other Government Agencies, commenced a two-year study to review water allocations in the South Esk River and tributaries late in 1990–91. This is a major study and will involve review of requirements for existing users such as the HEC, irrigators and urban water supplies, as well as potential requirements for environmental and other purposes.

Work is now nearing completion on the construction of a 7 ML/day package water treatment plant and associated pipelines to service the Hadspen/Prospect Vale area of the North Esk Regional Water Scheme. The

plant is expected to be commissioned prior to the 1991–92 summer.

Stage 2 of the South East Irrigation Scheme was completed in 1990–91 and water is now available to both Stage 1 and Stage 2 of the scheme.

Formal flood plain mapping programs have been initiated jointly with the Municipalities of Huon and New Norfolk for the Huon River and River Derwent respectively. Flood maps for the towns of Huonville and New Norfolk will be produced and available in 1991–92.

The Department is chairing a joint Government, Local Government and industry committee to resolve water pollution problems resulting from dairy effluent in streams in the Circular Head Municipality.

An Inter-Departmental Committee, chaired by the Secretary of the Department, produced a report on State energy options. The report is a foundation document for the development of a State energy strategy, the first stage of which will be the determination of the preferred option for a new source of electricity supply.

A pre-feasibility study commissioned by the Government in 1990 concluded that the supply of natural gas to Tasmania for electricity generation and for industrial use could be an economic undertaking, but that the results are sensitive to demand and to the cost of gas.

A consortium of the Hydro-Electric Commission, Comalco (Bell Bay) Aluminium Limited, and the Minister for Resources and Energy was established at the Department's initiative in June 1991 to further investigate the feasibility of a natural gas development. The consortium is chaired by the Department of Resources and Energy.

ENERGY RESOURCES DIVISION

FUNCTIONS

The Department of Resources and Energy is responsible for the provision of advice to government on all aspects of energy policy. The Secretary of the Department is also a Commissioner of the Hydro-Electric Commission and a Member of the National Grid Management Council.

The Division of Energy Resources was created in May 1991. The aim of the division is to provide the Minister with independent advice on all aspects of energy policy, in particular taking account of the commercial goals of the Hydro-Electric Commission and the social and economic needs of the community.

The key issues in energy policy in the immediate future are:

- The consideration of new electricity supply and demand management options
- The feasibility of the establishment of a natural gas industry in the State
- The commercialisation of operations of the Hydro-Electric Commission
- The impact of a national and State response to "Greenhouse" issues on energy production and use
- The costs and pricing of energy in Tasmania

The Hydro-Electric Commission has, until recently, been the principal source of energy policy advice. The HEC is, for the time being, continuing to provide resources for the Department's work on energy matters. The commercialisation of the operations of the HEC is likely to place increasing demands on the Department to be fully resourced to meet its obligations to Government and the community.

DIVISION OF MINES AND MINERAL RESOURCES

FUNCTIONS

The functions of the Division of Mines and Mineral Resources are summarised as follows:

Existing Resources: Assure the State of the maximum utilisation of its currently-known mineral resources through effective administration of mining tenements and inspection and monitoring of the mining and mineral-processing industries.

Undiscovered Resources: Encourage discovery of new resources by the generation of fundamental geoscientific data, and by the effective administration of the Exploration Licence and Offshore Permit Tender systems.

Environment: Minimise any environmental effects associated with exploration, mining and mineral processing within the State.

Health and Safety: Safe working practices in the mining and mineral-processing industries and in the transport, storage and use of dangerous goods are promoted and improved by inspection and education.

Scientific Services: Provide a high level of scientific expertise to advise industry, government and the public on geological mapping, geochemical surveys, geophysical surveys, drilling, groundwater studies, landslide studies, urban geotechnical data, site investigation, ore reserve assessment, metallurgical and chemical testing, mineral prospectivity, and any other specialised advice associated with geology, mining and metallurgy.

RELATED PROGRAMS

To carry out its functions, the Division of Mines and Mineral Resources administers the following programs:–

(1) Maintenance of a high level of safety and health in the mining and mineral-processing industries by inspections, construction approvals and monitoring programs, and by promotion of health and safety training and programs.

(2) To minimise, through inspection, the potential for any negative effects associated with the manufacture, packaging, handling, storage and transport of dangerous goods which affects public safety.

(3) Development and implementation of mineral policies which maximise the social and economic returns from mineral development through advice to Government on the resource impacts of land use proposals, facilitation of approvals for exploration and mining tenements, and monitoring of royalties and cost recoveries.

(4) Monitoring and regulation of the mineral exploration industry by assessing mineral tenement applications, renewals, tender submissions and exploration reports.

(5) Provision of a detailed historical record of all mineral exploration conducted in Tasmania and a comprehensive collection of drill core for further examination, testing and analysis by the mineral exploration industry.

(6) Provision of up-to-date multi-purpose geological maps of the State with supporting explanatory notes and bulletins.

(7) Investigation of the engineering properties of soils and rocks for use in land-use planning, landslide zoning, and subdivision design and approvals.

(8) Investigation of the location, quality and extent of the groundwater resources of the State.

(9) Provision of systematic regional coverage of gravity, magnetic, seismic, physical property and other geophysical data for use in mineral exploration and geological mapping.

(10) Promotion of oil and gas exploration within Tasmania and its offshore waters by continuing investigation and evaluation of petroleum resources, and provision of petroleum exploration data bases.

(11) Provision of chemical analysis services of rocks, ores, soils and waters for Government, industry and the public.

(12) Continuation of the Mount Read Volcanics Project to progress regional knowledge of this prospective area and to promote mineral exploration.

ANZMEC

The Department has representatives on Standing Committees, Working Groups and Sub-Committees of the Australian and New Zealand Minerals and Energy council (ANZMEC). The purpose of the groups, which consists of a representative from each State, New Zealand and the Commonwealth Government, is to develop consistent regulations for the the mining and petroleum industry in respect to legislation, access to land for exploration and production purposes, allocating and charging of mineral rights, environmental matters, and reduction in associated regulations.

At present the Department is represented on the Standing Committee of Officials and the Standing Committee of Mineral Royalties; the On-Shore Mineral Royalties, Off-Shore Mineral Royalties, On-Shore Petroleum Royalties and On-Shore Mineral Legislation Working Groups, as well as the Off-Shore Petroleum Legislation and On-Shore Petroleum Legislation Sub-Committees.

WATER RESOURCES DIVISION

The functions and related programs of the Water Resources Division, which incorporates the Rivers and Water Supply Commission, are summarised below. Further details are provided in the Rivers and Water Supply Commission's Annual Report, which is published separately in accordance with the requirements of the State Authorities Financial Management Act and Audit Act.

FUNCTIONS

Drainage: Ensure the natural drainage systems of the State are properly managed to protect the riverine environment and surrounding infrastructure.

Water Use: License persons to take water from rivers and lakes and prevent unlawful takings. Establish priorities in times of shortage and provide efficient management of water use.

Water Supply: Manage and maintain domestic and irrigation water supply schemes as well as Drainage and River Improvement Schemes.

Water, Sewerage and Drainage: Oversee Local Government performance of its functions in the delivery of water, sewerage and drainage services, and ensure that Municipalities are providing an efficient and effective service to their ratepayers.

RELATED PROGRAMS

To carry out its functions, the Water Resources Division (WRD) administers the following programs:

(1) Regulation, control and supervision of the preparation of schemes for and the construction of any works or installations constructed by a Municipality for the purpose of supplying water or of providing sewerage or drainage facilities to or in any area or place.

(2) Implementation of the directions of the Minister for Health on fluoridation of public water supplies by arranging for the addition of fluoride to water supplies and testing of fluoride concentration in those water supplies.

(3) Investigating requests from Municipalities seeking financial assistance from the Government under Section 40 of the Water Act 1957 and providing advice to the Minister for his consideration when determining subsidies to be paid to Municipalities for the construction and operation of their water and sewerage undertakings.

(4) The WRD operates hydrometric stations to provide data on the State's water resources. Investigations are also carried out into water resource use and allocation of water rights for irrigation and industrial purposes.

(5) The WRD regulates the construction of dams for all purposes other than mining and those operated by the HEC to ensure they are constructed in such a manner as to be safe and not interfere with the rights of other water users.

(6) The following schemes are managed and operated by the R&WSC as part of the DRE's programs:–

Water Supply

- North Esk Regional Water Supply
- Prosser River Water Supply
- Togari Water Supply

Irrigation

- Cressy–Longford Irrigation Scheme
- Winnaleah Irrigation Scheme
- South East Irrigation Scheme

River Improvement

- Montagu River Improvement Scheme
- Western Creek River Improvement Scheme
- Lobster Rivulet River Improvement Scheme
- Rubicon River Improvement Scheme

Drainage Schemes

- Furneaux Drainage Area
- Day Point Drainage Area
- Welcome River Drainage Area

Each of these schemes is self-funding. Details of their operations are contained in the Rivers and Water Supply Commission Annual Report.

In addition, the Rivers and Water Supply Commission owns the West Tamar Water Scheme which is managed and operated by the Beaconsfield Council on behalf of the Commission. It also operates the Prosser Scheme, which supplies water to Orford and local industry.

(7) The Department of Resources and Energy is represented on various agencies of the Australian Water Resources Council including Standing Committee, Water Resources Management Committee, Financial & Corporate Management Committee and Water Technology Committee, as well as being Tasmania's representative on the Australian National Committee of the International Commission on Irrigation and Drainage.

CORPORATE SERVICES DIVISION

FUNCTIONS

The role of the Corporate Services Division is to provide a range of administrative support services that contribute to the overall efficiency of the Department. These support services include accounting and financial services, records management, personnel, word processing and general administrative support.

- The Accounting Section meets the needs of both Consolidated Revenue Funded activities and the commercial activities of the Department. It encompasses payroll, debt recovery, expenditure, accounting controls, sales and cashier activities, and manages the departmental vehicle pool.

- Personnel Services is a key activity in the department, ensuring accurate and timely processing of all entitlements and recruitment activities. The area also has responsibility for building maintenance and security.

- At present there are two Records Management Sections, one located in the Water Resources Division in the Marine Board building and the other in the Mines and Mineral Resources Division at the Rosny Park offices. Both Sections are computerised and are moving to a common records management system.

- The Financial Section is responsible for financing the Department's commercial activities, management of loan funds, and reporting on local government water, sewerage and drainage schemes. The section also manages the Consolidated Revenue budgeting process for the Department.
- Word Processing services for the Department are based at Rosny Park and at the Marine Board building. The section provides services to all areas of the Department, producing documents ranging from simple letters to complex technical reports.

Administrative support services for Department-wide activities are also provided and include liaison with the Minister's office, maintenance of legislation, Parliamentary questions, inventory control and purchasing activities.

JOINT RESEARCH AND POLICY DEVELOPMENT UNIT

The Research and Policy Development Unit is a joint research unit serving the Minister, the Departments of Construction, Police and Emergency Services, and Resources and Energy, and the Hydro-Electric Commission. The Director of the unit is the only permanent member but there is scope for secondments from the three departments and the HEC for particular projects.

Specific Resources and Energy work carried out by the unit during 1990–91 has included:

ENERGY MATTERS

- Ministerial briefings on energy matters and assistance to the Minister in meetings.
- Consultant selection and project management for the Tariff Review Inquiry, Stages 1 and 2.
- Assistance to the HEC in matters related to the commercialisation process, asset revaluations, and rate of return accounting.
- Site investigations for possible small-scale hydro-electric schemes.

WATER AND SEWERAGE MATTERS

- Ministerial briefings on water and sewerage matters and assistance to the Minister in meetings.
- Review of water plan and sewerage subsidy scheme.

APPEAL MECHANISMS

Acts administered by the Department contain a number of mechanisms to review administrative decisions. They are as follows:–

Mining Act 1929 — Part 11 and 12
Appeals to the Warden of Mines.

Dangerous Goods Act 1976
Appeals against an inspector's decision to the Chief Inspector.

Mines Inspection Act 1968
Appeals against an inspector's decision to the Chief Inspector.

Ground Water Act 1985
Appeals to the Ground Water Tribunal.

Water Regulations — Reg. 5(3)
Objection to the Commission to proposed CWR issues (or dam permit).

Water Act —1957

Section 35(3)–(12)
Objection to the Commission to proposals for water works schemes.

Section 54(1)–(4)
Objection to the Commission to river improvement schemes.

Section 75B(1)–(5)
Appeal to the Supreme Court against order issued under 75A.

Section 100M(1)–(13)
Appeal to a Magistrate against order issued under 100K.

Section 116A
Removal of order made under Section 116A for removal or modification of storage works by the Supreme Court.

Section 119(2)
Counter petition to the Governor against proclamation of a drainage trust.

LEGISLATION ADMINISTERED BY THE DEPARTMENT

Aid to Mining Act 1927
Australian Titan Products Act 1945
Clyde Water Act 1898
Cressy–Longford Irrigation Act 1969
Cressy–Longford Irrigation Water Act 1972
Dangerous Goods Act 1976
Gas Franchises Act 1973
Groundwater Act 1985
Hobart Regional Water Act 1984
Iron Ore (Savage River) Agreement Act 1965
Irrigation Clauses Act 1973
Lakes Sorell and Crescent Conservation Act 1901
Macquarie Water Act 1892
Mineral Resources Act 1951
Mines Inspection Act 1968
Mining Acts 1929 and 1958
Mount Cameron Water-Race Act 1926
Mount Read and Rosebery Mines Limited Leases Act 1916
North Esk Regional Water Act 1960
North-West Regional Water Act 1987
Petroleum (Submerged Lands)Act 1982
Ringarooma and Cascade Water System (Agreement) Act (Repeal) Act 1987
Rossarden Water Act 1954
Sewers and Drains Act 1954
The Hellyer Mine Agreement Ratification Act 1987
Thomas Owen and Co. (Australia) Limited Act 1948
Water Act 1957
Waterworks Clauses Act 1952
West Tamar Water Act 1960

ANNUAL REPORTS OF THE DIVISIONS OF THE DEPARTMENT OF RESOURCES AND ENERGY

REPORT OF THE ENERGY RESOURCES DIVISION 1990–91

The Energy Resources Division was established in May 1991 to implement the Government's commitment that energy policy advice would be provided by the Department of Resources and Energy. The position of Deputy Secretary, Energy Resources has been established, and the Division's immediate and primary aim is to promote the investigation of the feasibility of the supply of natural gas to Tasmania. In other matters of energy policy the Division is being assisted by officers of the Hydro-Electric Commission.

STATE ENERGY POLICY

In July 1990 the Premier approved the establishment of an inter-departmental committee, chaired by the Secretary of the Department of Resources and Energy, to ensure the development of a widely-based energy policy. The role of the committee was to make recommendations on the development of a comprehensive energy strategy for Tasmania, paying particular regard to:

- overall national energy policy objectives,
- current energy use patterns and the State's energy resource base,
- implications of World Heritage Areas and environmental considerations for the development and use of energy resources,
- the role and relative responsibilities of different agencies in the development and implementation of energy policy,
- the role of energy in facilitating the implementation of the State's development strategy,
- identification of any major impediments, institutional and other, to the implementation of energy policy,
- any other relevant matters.

The committee adopted the following key objectives for development of an energy strategy:

(1) Long-term stability and security of energy supply.

(2) Optimum development and use of energy resources.

The Report of the committee was submitted to the Minister for Resources and Energy in May 1991.

The Committee concluded that new sources of energy supply will be required in the relatively near future to meet the State's broad policy objectives; that industrial development opportunities would be enhanced by the introduction of natural gas; and that a robust yet flexible strategy offering the greatest benefit to the Crown could be developed, notwithstanding that a significant portion of Tasmania's indigenous fossil and renewable energy resources lie within World Heritage Areas or National Parks.

The recommendations of the report endorsed studies into energy supply options currently being carried out by the Department of Resources and Energy and the Hydro-Electric Commission, and recommended further investigation of renewable resources, new coal-burning technologies, the use of alternative fuels, energy efficiency, and co-generation.

NATURAL GAS INVESTIGATIONS

An inter-departmental Steering Committee was established in 1990 to oversee the investigations into the economics of supply of natural gas to Tasmania. This committee included representatives of the Department of Resources and Energy, the Hydro-Electric Commission, the Tasmanian Development Authority, and the Department of Treasury and Finance.

ANZ Capel Court Corporate Services (ANZ Capel Court) was appointed to assist the committee in its evaluation of the options and the potential for developing a natural gas industry in Tasmania. The ANZ Capel Court report, submitted on 17 December 1990, concluded that results of the investigations were sufficiently encouraging to warrant commissioning a feasibility study into the supply of natural gas for electricity generation and for Tasmanian industry.

In June 1991, a consortium of the Minister for Resources and Energy, the Hydro-Electric Commission, and Comalco (Bell Bay) Aluminium Pty Ltd was established to further these investigations and to commence negotiations with potential suppliers of natural gas. The objective of the consortium is to complete these investigations by December 1991, to be integrated with an evaluation of other electricity supply options for consideration in early 1992.

REVIEW OF THE TARIFF POLICIES AND PROCEDURES OF THE TASMANIAN HYDRO-ELECTRIC COMMISSION

A Tariff Steering Committee under the chairmanship of the Economic Adviser to the Premier was established in 1990 to oversee a study of the Hydro-Electric Commission tariff policies and procedures. The committee engaged the Tellus Institute of Boston Mass. for the Stage 1 consultancy. The report, *Stage 1 — Situation Analysis* (the "Bartels Report") was submitted in August 1990, accompanied by the terms of reference for the Stage 2 consultancy. Expressions of interest have been sought for the Stage 2 consultancy, and the appointment of consultants was imminent at the close of the year.

REPORT OF THE DIVISION OF MINES AND MINERAL RESOURCES 1990–91

OVERVIEW

Fluctuations in the value of the Australian dollar and in the international price of local commodities have had an extremely negative effect on the viability of Tasmanian mining and mineral processing industries during 1990-91.

In the year being reported upon:–

- the value of zinc fell 35% from $A2480 to $A1600 per tonne;
- the value of lead fell 32% from $A1180 to $A800 per tonne;
- the value of copper fell 6.5% from $A3150 to $A2950 per tonne, following a recovery in the first quarter to $A3700 per tonne;
- the value of tin maintained its depressed level throughout the year at approximately $A9300 per tonne.

These low values have had a fundamental effect on the value of production of metallic minerals in the State.

At the same time, the reduction of activity associated with the recession has adversely affected the value of production of construction materials and non-metallic minerals in the State.

However, given the challenge presented by these circumstances, the industry has performed creditably to maintain the value of production much closer to 1989-90 values than suggested by the price reductions.

These down-side effects have been partially offset by increases in production at Hellyer (+24%), Pasminco - Rosebery (+6%) and Pasminco Metals - Risdon (+15%).

During 1990-91 the total value of metallic minerals was reduced by 14.7% from $556M in 1989-90 to $474M. Total Tasmanian mineral production was reduced by 13.4% from $620.3M in 1989-90 to $537M. Finally, the added value to imported ores input by the mineral processing industry was reduced by 15.8% from $739 in 1989-90 to $622M.

The total value of the State's mining and mineral processing industry was maintained at over a billion dollars, even though it was reduced by 14.6% from $1359M in 1989–90 to $1160M during the report year.

The industry continues to expend capital on mines and works, to improve productivity and reduce costs, and to improve environmental performance.

It is pleasing to report that the Division contributed a "notional" profit to Government during 1990–91 (i.e. receipts to Government directly attributable to mining and mineral resource activities exceeded Divisional expenditure). In the report year total Divisional expenditure, including administration costs, was $6.198M, whilst receipts totalled $6.766M, giving a surplus of $568,000. In 1989–90, total expenditure was $7.080M and receipts totalled $7.877M providing a surplus of $797,000.

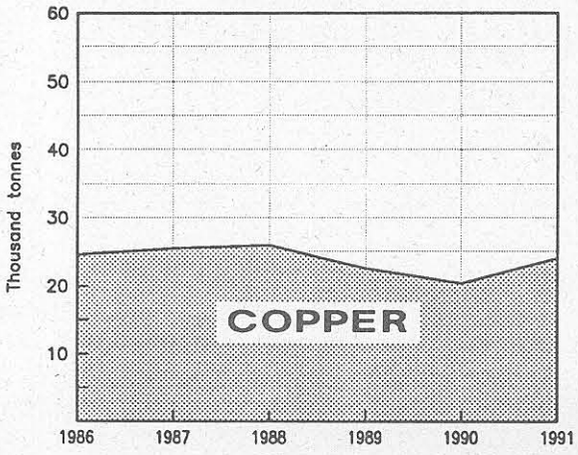
The reduction in receipts in 1990–91 was largely due to reductions in rents and fees from mineral lands, down by 13.3%, and mineral royalties, down by 16.3%.

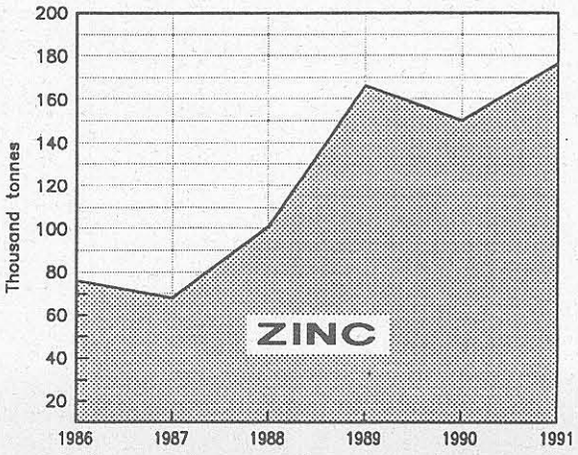
The reduction of receipts from rents and fees is of particular concern, as it highlights a continuing

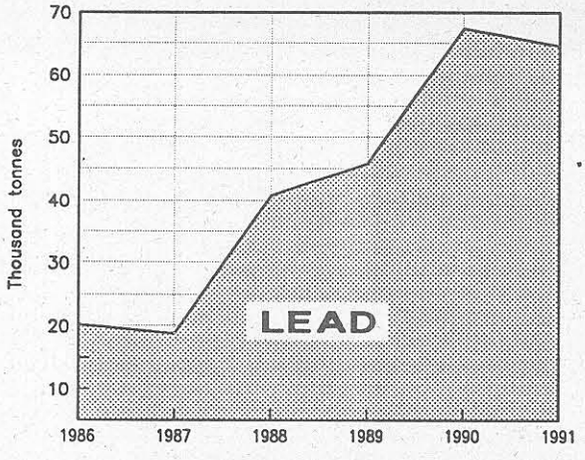
Table 1

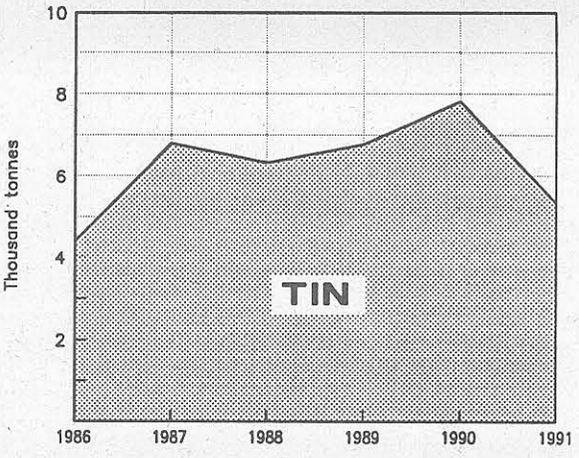
VALUE AND PRODUCTION OF PRINCIPAL MINERALS

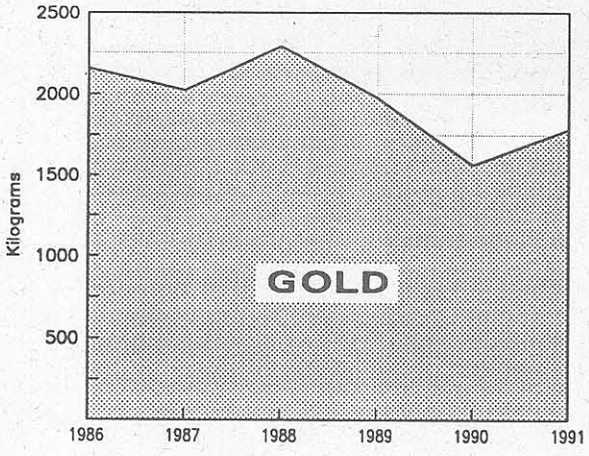
Commodity	*Quantity*	*Value ($M)*
Copper (tonnes)	24 283	55.29
Gold (kg)	1 773	23.83
Iron ore pellets (tonnes)	1 488 668	57.25
Lead (tonnes)	64 880	39.77
Silver (kg)	165 121	22.25
Tin (tonnes)	5 386	33.16
Tungsten as tungstic oxide (tonnes)	870	5.96
Zinc (tonnes)	176 804	211.32
Coal — run of mine	560 589	-

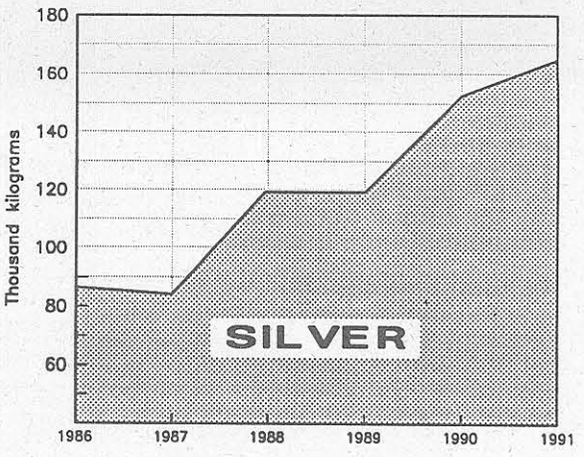

Thousand tonnes
60
50
40
30
20
10
COPPER
1986
1987
1988
1989
1990
1991

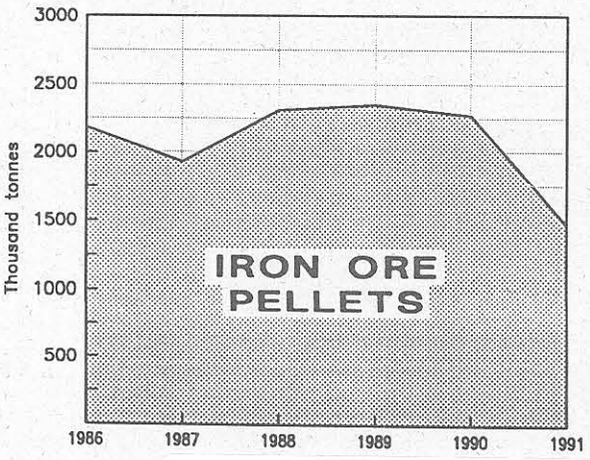

Thousand tonnes
200
180
160
140
120
100
80
60
40
20
ZINC
1986
1987
1988
1989
1990
1991

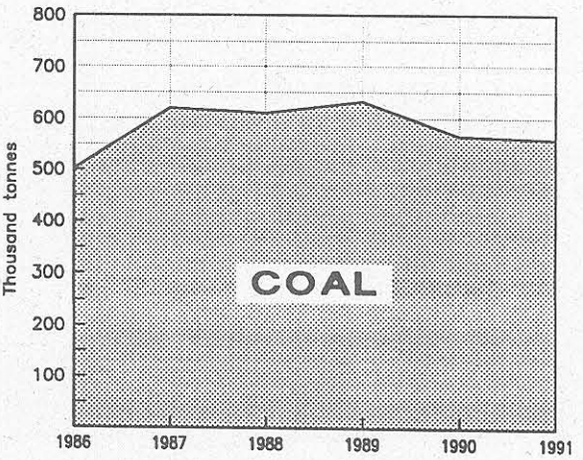

Thousand tonnes
70
60
50
40
30
20
10
LEAD
1986
1987
1988
1989
1990
1991

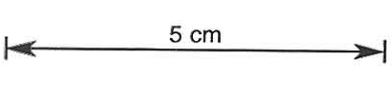

Thousand tonnes
10
8
6
4
2
TIN
1986
1987
1988
1989
1990
1991


Kilograms
2500
2000
1500
1000
500
GOLD
1986
1987
1988
1989
1990
1991


Thousand kilograms
180
160
140
120
100
80
60
SILVER
1986
1987
1988
1989
1990
1991


Thousand tonnes
3000
2500
2000
1500
1000
500
IRON ORE
PELLETS
1986
1987
1988
1989
1990
1991


Thousand tonnes
800
700
600
500
400
300
200
100
COAL
1986
1987
1988
1989
1990
1991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downturn in exploration activity within the State. This reduction can be in part equated to the world-wide downturn of exploration activity associated with falling metal prices. However the downturn in exploration appears also to be associated with the exploration industry's visualisation of sovereign risk in this State.

On currently known reserves, most of Tasmania's major mines will have reached the end of their life by the year 2000. Intensive exploration is essential to preserve the viability of the West Coast mining industry by the discovery of new ore bodies.

Tasmania has not been regarded as a gold province and did not share in the exploration boom of the late 1980s, promoted by the surge in the gold price. Exploration expenditure in this State suffered, with the rush of funds to gold concerns interstate. The State did, however, maintain its market share of base metals exploration expenditure. 1988–89 saw a drop in this market share in Tasmania, partly due to the scheduled turnover in exploration licences on highly prospective ground as a result of Government initiatives to re-allocate rights, which in many cases had been held for more than 20 years. The 1989–90 season was expected to be a record year, as intensive exploration was scheduled to follow the acquisition of land by companies offering high-value work programs in the competitive bidding for new ground.

However while companies maintained good faith in adhering to the work programs offered, exploration expenditure was reduced as companies dropped all but the most prospective ground. This unfortunate trend has continued to the present, with the area held under exploration licences for metallic minerals being reduced from 11 959 km^2 in March 1989 to 5660 km^2 in March 1991. During the same period, areas which have become available for tender have been largely ignored by the industry. In the 6 months to 30 April 1991, 1409 km^2 were made available but only 9 km^2 were taken up.

Reasons cited by industry for this include the impact of land-use proposals on the availability of land for exploration. Australian companies are increasingly investing in overseas exploration, and Tasmania must compete for exploration funds not only with other States but also with international prospects.

REVIEW OF DIVISIONAL ACTIVITIES

The year in review has been one of achievement for the Division, even with the constrained budget environment. There have been numerous examples of innovation and improvement in productivity and service delivery using the same, and in some cases reduced, staff resources.

As part of the budget process an effective reduction of Geological Survey funding of $700,000 was required. This reduction was planned to be achieved by an expenditure reduction of $400,000 and an increase in receipts from consultancy services of $300,000. The reduction of available funds had a marked effect on the availability of funding for travel, helicopter hire and the employment of temporary field assistants, and so seriously curtailed the geological mapping programs in isolated areas, such as south of Macquarie Harbour. Consequently activity was essentially constrained to the economically-important areas of Zeehan and Alberton, with limited involvement in other areas.

The requirement to earn a further $300,000 from consultancy in the current economic climate has presented a real challenge. Earnings in 1989-90 were $160,000, so the target for 1990-91 was $460,000. Receipts for geological consultancies during the year were $379,000 or 82.4% of the target which, given the state of the industry, was an excellent result. The Survey will be required to earn a similar amount in 1991–92.

Within the Resource Planning and Policy Development Branch a Code Of Practice for the mineral exploration industry was produced and launched by the Minister on 10 May 1991. During the year, following a re-organisation of the Divisional computer systems, a second Sun work station was made available for development of the Geographic Information System.

The Mines Inspectorate has increased its atmospheric sampling and occupational health surveying role on mines and works following recruitment of another technical officer and the upgrading of the Divisional XRD at Rosny. In response to the continued efforts of management, employees and the Inspectorate, to improve safety within the industry, accident statistics continued to trend downwards, with this year's accident frequency rate being the lowest on record.

The Dangerous Goods Inspectorate has also increased its training role, following changes to the regulations. The largest area of increase would be the training, examination and licensing of shot-firers, with the number of permits issued being increased by 175%. Other activity included the development of a training course for drivers transporting dangerous goods, Agricultural and Veterinary Chemicals Association training courses, and Chartered Institute of Transport seminars.

The Chemical Laboratory was transferred from Launceston to Hobart in November and metallurgical services were discontinued. Staff were able to be housed in existing modern laboratory facilities at Rosny and a new sample preparation area has been built in the Mornington complex.

The Launceston facility has been largely taken over by the Department of Roads and Transport, with the metallurgical pilot plant being leased by EMF Consultants, who are providing such services to industry.

RESOURCE PLANNING AND POLICY DEVELOPMENT

ENVIRONMENTAL SECTION

A Code of Practice for the mineral exploration industry was produced during the year and was officially launched by the Minister for Resources and Energy on 10 May. The code is designed to give both explorers and interested parties an outline of the current procedures which must be followed to obtain exploration approvals, and at the same time give useful, practical information on the expected standards of exploration activities. The code also details the controls and monitoring procedures which are currently in place.

Monitoring of exploration works continued throughout the year, with an increasingly larger proportion of exploration approvals being submitted to the Mineral Exploration Working Group. This reflects the larger area of Tasmania now regarded as comprising environmentally sensitive land.

RESOURCE DRAFTING

The concept of having all 'Land Tenure' accurately recorded remains a priority, with the section maintaining a high profile in the development and storage of information for planning in the mining, government and public arenas. The Geographic Information System continues to be developed for this purpose, and its extended use includes the detailed information required for mining tenement mapping, drawing of lease diagrams, other land tenure mapping, and the development of special projects.

The section dealt with more than 3500 property searches, resulting in an income of $106,640. This area has the potential for growth now that public awareness exists for information on landslide, groundwater and mining tenement data.

COMPUTER SERVICES

A new computing environment has been established to cater to the growing demands for improved information management, manipulation, retrieval and dissemination. The new environment is designed to give the Department flexibility and control over its information resource with the objective of providing enhanced services and products to the public and clients.

The new computing system is to cater for administrative functions such as record management, debtors, receipting, invoicing, etc; and to fulfil the role of corporate database server. This common database platform allows for the integration and sharing of information throughout the Division and the Department.

Database developments to date include the Accounts Section debtors database (DEBTORS); the Dangerous Goods Section dangerous goods database (DGOODS); and the Registrar of Mines tenement database (REGIS). These databases have been constructed as an integrated system to allow for central administrative and financial procedures. Future database developments will also adopt this integrated approach.

The Division has also adopted and implemented a strong network policy which allows for the sharing of hardware and software resources as well as catering to the requirements for information sharing.

Progress has been slow with the development of the Division's Geographic Information System (GIS) due mainly to a lack of available staff. Priority is being given to the digital capture of the 1:250 000 geology and an investigation into GIS automated cartography. It is intended to employ a GIS specialist to implement and co-ordinate the many proposed projects, using the two GIS workstations now available.

COURT OF MINES

Tasmania is divided into four mining districts, each with a Warden of Mines. The wardens, who are magistrates, hear disputes arising under the *Mining Act 1929*. The wardens at June 1991 were:

- Mr. M. A. Hannon, Central Mining District and Southwestern Mining District
- Mr. P. T. Dixon, Northwestern and Western Mining District
- Mr A. G. Shott, North and Northeastern Mining District

Cases referred to the warden during the year consisted of:

C. I. Clark v Beaconsfield Operations Pty Ltd. Objection to Mining Lease application 60M/90. Application out of order.

C. I. Clark v Beaconsfield Operations Pty Ltd. Objection to Mining Lease application 4M/91. Objection withdrawn.

The Wilderness Society v The Shell Co. of Australia Ltd. Objection to Exploration Licence 26/90. Application withdrawn.

S. Parsons and Others v Capricorn Mining Ltd. Objection to Retention Licence 9002. Objection withdrawn.

Paraclete Resources Pty Ltd v Oceania Tasmania Pty Ltd. Application for forfeiture of Mining Lease 27M/82. Application for forfeiture withdrawn.

MINES INSPECTION BRANCH

The Mines Inspection Branch has responsibility for:

- monitoring working environments at mines and metallurgical works to ensure the health and safety of employees;
- assisting with the processing and monitoring of mining leases; and
- provision of an efficient drilling service for the Geological Survey and other Government agencies.

Staffing the branch at the beginning of the year were five mining engineers, one mechanical engineer, one electrical engineer, two industrial chemists, two technical officers, one drilling superintendent and nine drilling-crew members. One of the industrial chemists retired in April and has not been replaced, and the mining engineer strength was depleted by one in June when the Chief Inspector resigned.

Mines Inspection Section

GENERAL

The Mines Inspection Section is charged with administration of the *Mines Inspection Act 1968* and Regulations. In addition, the section provides assistance to other branches of the Department and other agencies in connection with the administration of other legislation, principally as follows:

- Dangerous Goods Act
- Mining Act
- Environment Protection Act
- Industrial Safety, Health and Welfare Act

Routine and special inspections are carried out to ensure that safe and healthy practices are established and maintained in mines, quarries, metallurgical works and underground operations of the Hydro-Electric Commission.

During the year, inspections covering 820 days were carried out and 136 certificates of competency were issued (see Table 4). Approvals were issued in respect of 73 diesel engines for use underground and for a number of plans and proposals connected with mining, shaft sinking and tunnelling operations. Complaints from the public concerning blasting and other mining operations, and from employees concerning unsafe work practices, were investigated and remedial measures were established wherever necessary. Occupational health surveys and monitoring programs were undertaken at mines, quarries and works.

REPRESENTATION ON OUTSIDE ORGANISATIONS

The Section was permanently represented on the following committees:

- Tasmanian Dams Safety Committee
- Chamber of Mines Occupational Health Committee
- Pasminco Metals–EZ Cadmium Committee
- Asbestos Advisory Committee
- SAA Committee ME/18 Mining Equipment
- SAA Committee EC/33 Mines Electrical Equipment
- SAA Committee MS/11 Hazard Zoning

The Chief Inspector occupies a permanent seat on the Industrial Safety Health and Welfare Board.

HEALTH AND SAFETY TRAINING AND COMMITTEES

The Mines Inspection Section continued to give lectures on legislation, occupational health and general safety as part of the training of workers' safety representatives. Inspectors continued to attend safety committee meetings at mines and works.

MINE RESCUE

An inspector regularly attended meetings of the Mine Rescue Committee and officiated at the annual mine rescue competition which in 1990 was held at Que River.

LEGISLATION

Mines Inspection Amendment Regulations (No. 2) 1990 were made and gazetted in December 1990, increasing the penalties for offences and making provision for daily penalties in respect of continuing offences.

Mines Inspection (Medical Examinations) Regulations 1991 were made and gazetted in May 1991, providing for medical examinations of persons employed in or at a mine or works to be arranged by the manager in accordance with directions given by the Chief Inspector of Mines.

At year end, a Bill was before Parliament entitled *Mines Inspection Amendment (Registration and Notification of Construction) Bill 1990*. This would require fees to be paid for registration of each operation and for construction and demolition work undertaken above a certain threshold cost.

No progress was made with the complete revision of the Mines Inspection Regulations because of other priorities in the office of the Parliamentary Counsel.

PROSECUTIONS

A company pleaded guilty to committing an offence under Section 48(1) of the *Mines Inspection Act* and was fined following a fatal accident in 1987. Complaints against two of the company's employees were dropped.

A complaint was laid against a company following a person suffering fatal injury by falling from a scissor platform. Dismissal of the charge in court followed, on the grounds that the machine was not a self-propelled vehicle as required by the complaint.

The complaint against the four persons involved in the misfire explosion at an Anthony Power Development tunnel also failed.

A quarry owner/manager and shotfirer were charged under the *Dangerous Goods Act* on three counts relating to the storage of explosives at the quarry.

LEASE INSPECTION AND REHABILITATION

Lease applications are inspected to determine the location of the lease and suitable lease conditions. Rehabilitation bonds are established in conjunction with the Department of Environment and Planning. Progress with rehabilitation is monitored by inspection.

Rehabilitation continued on major mine sites and at a number of quarries, sand pits and gravel pits. Work was completed reinstating the Golconda site near Beaconsfield. Openings to surface were sealed and further tree planting was undertaken at the old Oakleigh Creek mine utilising bond money. Following closure of operations in November, King Island Scheelite presented a draft Environmental Rehabilitation Plan for the consideration of the Section and the Department of Environment and Planning.

OCCUPATIONAL HEALTH SURVEYS

Atmospheric sampling and occupational health surveys continued at mines, quarries and works to assess existing and potential hazards to employees. For the first time these were undertaken underground as well as at surface work sites.

A total of 348 samples, testing for 1039 atmospheric contaminants, and 109 noise samples were taken by the Section's industrial chemists and technical officers. Dust analyses in connection with these samples were carried out at the Department's laboratories at Rosny Park.

The workplaces where these samples were taken were associated with the following operations:

- Pasminco Metals–EZ, Risdon
- K & D Brick, New Town
- Benders Quarry, Lune River
- Boral Quarry, Flowery Gully
- Pioneer Silicon Industries, Electrona
- The Mount Lyell Mining and Railway Co. Ltd, Queenstown
- The Cornwall Coal Company, Fingal and St Marys
- Tasmanian Electro Metallurgical Co. Pty Ltd, Bell Bay

Where testing indicated sub-standard conditions, measures were prescribed to improve employee protection.

The Amorphous Silica Working Party continued to meet under the chairmanship of the Section's Rosny Park-based industrial chemist. Success was attained when Worksafe Australia's Expert Working Group on Exposure Standards accepted the Working Party's submission for a recommended occupational exposure standard for thermally-generated amorphous silica fume. Publication of this recommended standard for public scrutiny will take place shortly.

MECHANICAL AND ELECTRICAL INSPECTIONS

All major mines, quarries and works were inspected by the mechanical and electrical engineers to ensure compliance with the regulations and relevant standards. Accidents and incidents involving mechanical and electrical equipment were investigated.

Radio remote control equipment suitable for cranes, locomotives and mine machinery was approved for use underground in non-coal applications. Specifications were drawn up for a light utility vehicle for use underground in gas-free coal mine areas. Approval of diesel engines for use underground and certification of crane and winder drivers continued to be undertaken to suit industry's needs.

Assistance was given to the Dangerous Goods Inspectorate on matters including fuel tanks and tankers, LPG systems, hazardous zoning and explosives handling.

SAFETY SEMINAR AND AWARDS

A successful Occupational Health and Safety Seminar was again staged, this time on 18 September 1990 at the Sheraton Hobart Hotel. Co-sponsor was again the Tasmanian Chamber of Mines. The themes of the seminar were 'The 1990s: A Changing Working Environment' and 'The Use of Chemicals in a Changing Working Environment'. A large gathering of employees' safety representatives, supervisors and managers from mining, mineral processing and other heavy industries attended.

At this seminar the awards were made to the winners of the Department of Resources and Energy/Chamber of Mines Safety Competition for 1989–90. The names of the winners were announced in last year's Report of the Division of Mines and Mineral Resources.

The awards and winners of the competition for 1990–91 were:

- Major contribution to mining industry safety — **Pasminco Rosebery**
- Safest underground mine — **Pasminco Rosebery**
- Safest smaller surface operation — **Tasmania Mines, Hampshire**
- Safest larger surface operation — **Savage River Mines pelletising plant, Port Latta**

ACCIDENT STATISTICS

The 1990–91 accident statistics are presented in Table 3. Figures for underground operations at the HEC Anthony Power Development Scheme are included. Because this is the first time that these figures have been included, they are not taken into account in the text which follows.

Reflecting the continued striving of management, employees and the Inspectorate to improve safety within the mining industry, the accident statistics continued their downward trend. Each accident statistic figure for this year shows improvement over the comparable figure for last year. In some cases this improvement is only marginal, but in the cases of the number of lost time accidents and the number of days lost, which were 84% and 83% respectively of last year's figures, the improvement is quite appreciable. This year's 64 replaces last year's 67 as being the lowest figure for frequency rate on record.

Accidents of one to three days lost accounted for 37% of total accidents; those of four to ten days a further 39%; and those over ten days a further 24%.

The number of accidents sustained underground was 168, or 22.4% of the total.

One fatal accident was recorded. This occurred underground.

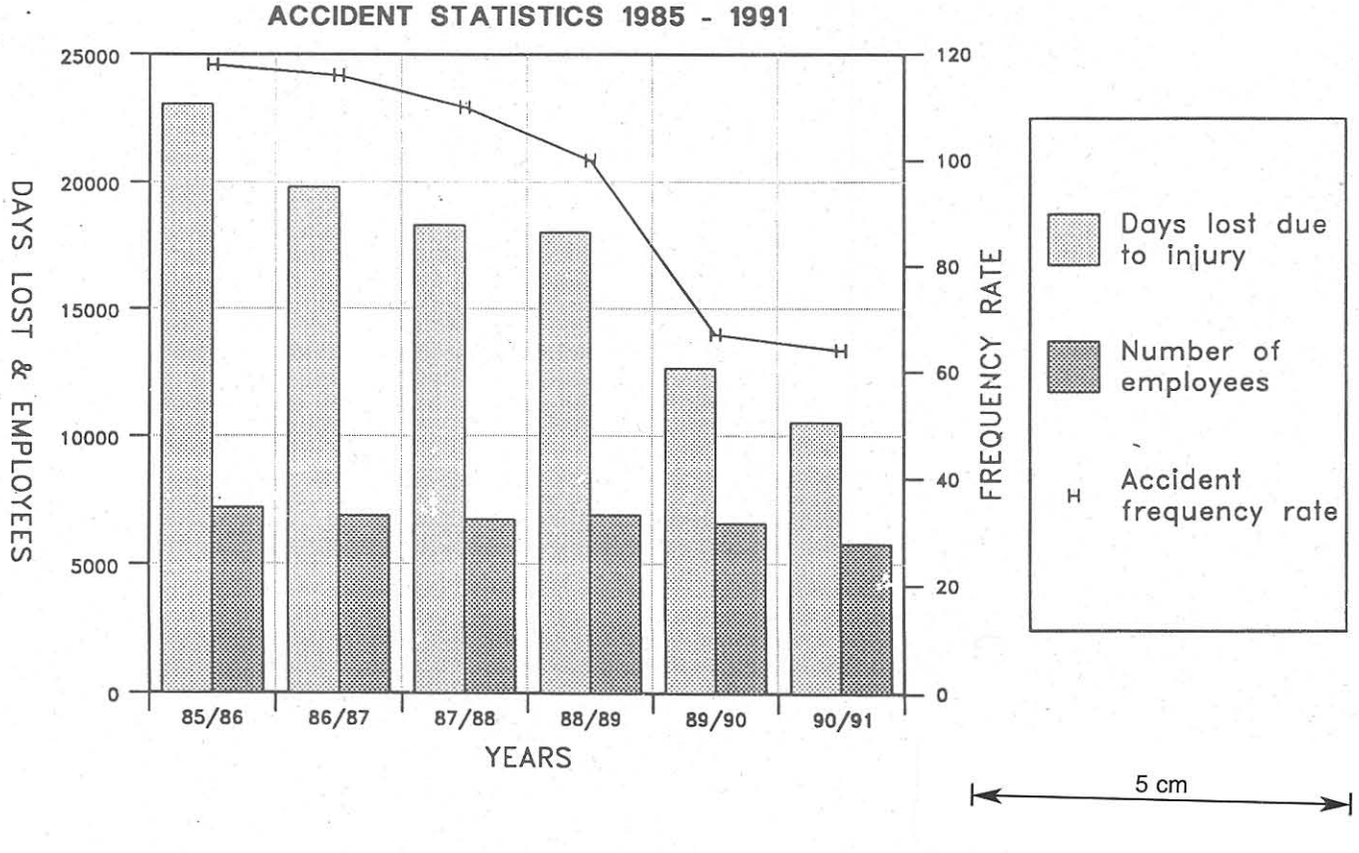
FATAL ACCIDENT

- S. Williams, a contract equipment operator, was killed in an underground turning bay at Mount Lyell when struck by a slab of rock which dislodged from the back.

NON-FATAL LOST TIME ACCIDENTS

The following is a brief description of the more serious non-fatal accidents which occurred.

Falls: a miner suffered a broken leg when he fell down a rock pass; an employee slipped and fell on an icy road surface and suffered a fractured elbow; a geological assistant cracked a vertebra when he fell from the mast of a fork-lift truck; an underground employee fell to the ground from the platform of a service vehicle and badly lacerated his head.



Falling objects: a brick-size rock fell from the back of an underground heading damaging the nerves in a driller's shoulder; an underground operator suffered a fractured leg when he was struck by a rock falling from a drawpoint.

Machinery: an apprentice fitter caught his hand in an operating lathe and suffered a hand fracture; a machinist lathe operator dislocated his arm when it caught in the item being machined.

Other equipment: a mill operator suffered a badly crushed foot as a result of being caught in a moving conveyor belt; an underground operator lost partial sight in an eye as a result of being sprayed with cement whilst disconnecting an air hose from a grout pump; two drillers on two separate occasions suffered finger fractures and lacerations when their hands caught between drill rods and drill cradles; a miner suffered multiple injuries when he was struck underground by the bucket of an LHD machine; a fork-lift truck driver suffered a broken ankle when his machine rolled backwards and struck him whilst he was changing the LP Gas cylinder; a miner suffered severe face injuries when he was struck by a flying blank whilst dismantling a fitting on a compressed-air line.

Burns: an operator received severe burns to a wrist and arm as a result of a blow-out from a preheater pokehole.

Electricity: a contract cleaner suffered burns to both thumbs when he received an electric shock whilst cleaning a pot-line overhead crane; a contract electrician received burns to the face and hands when he made contact with a live bus wire whilst installing a new module on a switchboard.

SIGNIFICANT INCIDENTS

- An explosion occurred at the lip of the bucket of an LHD machine whilst the machine was gathering rocks in a popping cuddy. The driver was badly shaken but not hurt. Post-firing inspection procedures were reinforced as a result of the incident.
- A DJB truck caught fire whilst being refuelled at an underground fuelling station. Nobody was hurt and the fire-fighting installation at the station functioned as designed. Ignition of fuel spilling onto the engine, which was idling at the time, was determined as the cause of the incident. Fuel-line nozzles have subsequently been replaced by ones which cannot be latched open, fire precautions at refuelling bays have been strengthened, and new refuelling procedures have been drawn up.

Drilling Section

Drilling was carried out utilising four crews. A total of 6705 metres was accomplished, categorised as follows:

- stratigraphic drilling — 2468 metres
- groundwater drilling — 2577 metres
- site investigation — 1141 metres
- mineral investigation — 519 metres

The stratigraphic drilling was widespread, holes being drilled in the vicinity of Zeehan, on Bruny Island, at Maydena, at Ellinthorp and near Mathinna.

The groundwater drilling chiefly took the form of a regional water-level monitoring program. A number of water bores were also drilled.

Site investigation drilling was required at the Rosetta landslide area and occupied a drill crew for most of the year. Road and bridge investigation drilling was undertaken for the Department of Roads and Transport, but on a scale much reduced from previous years.

One mineral investigation hole was drilled at Risbys Basin near Maydena.

A list of the drilling undertaken is provided in Table 16.

MINING INDUSTRY — MAJOR OPERATIONS

MINES

Aberfoyle Resources Limited (Hellyer Division)

Operations at Hellyer resulted in 1 157 122 tonnes of ore being mined and 1 170 000 tonnes of ore being treated. The ore mined contained 14.2% zinc, 6.4% lead and 146 g/t silver.

Most of the ore produced was obtained from eleven open stopes and one pillar. Cemented rock fill was extensively utilised in the Keel Zone of the mine.

Concentrator performance continued to improve during the year. The optimisation program designed to increase concentrator throughput to 1 250 000 tonnes per annum was completed.

Concentrate production for the year ended 30 June 1991 was:

- Zinc concentrate — 193 003 tonnes @ 49.9% Zn and 3.8% Pb;
- Bulk concentrate — 70 264 tonnes @ 32.4% Zn, 18.1% Pb and 266 g/t Ag;
- Lead concentrate — 51 305 tonnes @ 58.0% Pb, 6.0% Zn and 549 g/t Ag;
- Copper/Silver concentrate — 7957 tonnes @ 15.5% Cu and 5245 g/t Ag.

Two deep exploratory diamond-drill holes were put down, one one kilometre west and the other one kilometre east of the mine. Both intersected the Hellyer ore position but both intersections were barren.

A total of 19 703 metres of infill drilling was undertaken on the surface and from underground sites on the 20 m × 20 m grid. Approximately 95% of the orebody has now been drilled on this grid.

The ore reserves at 30 June 1991 were stated to be 13.5 million tonnes at 12.3% Zn, 6.4% Pb, 0.3% Cu, 150 g/t Ag and 2.2 g/t Au.

The workforce was increased from 239 to 251 employees during the year.

Aberfoyle Resources Limited (Que River Division)

Ore produced during the year amounted to 156 839 tonnes, of which 134 000 tonnes were trucked to the Pasminco concentrator at Rosebery. The grade of the ore trucked averaged 11.5% Zn, 5.8% Pb, 0.5% Cu, 2.2 g/t Au and 142 g/t Ag.

Following a month long shut down, which ended on 20 January 1991, production at the mine resumed on a much diminished scale, with the workforce reduced to only 14 employees. Ore was produced from underground remnants and two small open cuts.

No ore reserves were officially declared. An estimate of mineable ore remaining in November 1990 was provided by the mine as being 100 000 tonnes at 16% combined zinc and lead.

Coincident with the start of the reduced-scale operation, Que River's ore sales contract with Pasminco Mining–Rosebery terminated. No ore was sold during the period February to June.

Environmental rehabilitation continued in the form of tree planting and improving the appearance of the wetlands.

Beaconsfield Operations Pty Limited, Beaconsfield

Activities were again mainly concentrated at the Hart Shaft. The water table was lowered early in the year to 160 metres below the collar and was held at that level throughout the rest of the year. New guides were installed down to the water level and the shaft services were extended down to the cistern chamber at the 150 metre level.

A crosscut was then developed from the cistern chamber a distance of 150 metres to the Main Shaft. A successful holing was effected but work was abandoned because the Main Shaft was found choked with surface rubble.

Following abandonment of the crosscut, a diamond drill hole was bored from the cistern chamber towards the Grubb Shaft to explore for a hangingwall sulphide reef reported in old records. No intersection of any significance was effected.

Two new Everflow 11 Stage 530 kW submersible pumps were purchased, each capable of pumping 200 litres per second at 200 metres vertical head. One of these is now in service at the Hart Shaft, replacing four of the smaller pumps operating there earlier.

Some work was also undertaken at the North Tasmania inclined shaft, where the upper portion was reclaimed. A sampling program and geological assessment were carried out.

Cornwall Coal Company NL, Fingal

Production from the four mines of the group totalled 511 919 tonnes of raw coal. Saleable coal amounting to 312 156 tonnes was produced by the washery from the treatment of 514 715 tonnes of raw coal.

Duncan Colliery: Development to the southeast continued for a further one kilometre in disturbed ground but, near year end, was halted at seven kilometres from the pit top by heavily faulted and uneconomic conditions. Pillar extraction has commenced. Coal production for the year amounted to 204 941 tonnes.

Blackwood No. 1: Pillar extraction has continued satisfactorily. A panel at No. 17 cut through is currently under extraction. Coal production for the year amounted to 153 922 tonnes.

Blackwood No. 2: Development has advanced to one kilometre from the pit top and has passed the old workings. Two stone drifts being driven to the west at 800 metres across a 25 metre downthrow fault are nearing completion. Coal production for the year was 133 662 tonnes.

Open Cut: Operations took place on an intermittent basis, and only 19 394 tonnes of coal was produced over the year. Revegetation of the overburden is well advanced.

Customer demand necessitated the spiral product of the washery, comprising minus 3 mm, 25% ash coal, being placed on stockpile. Approximately 45 000 tonnes of this material now lies at Fingal.

King Island Scheelite, King Island

Because of low scheelite prices and difficult marketing conditions, operations at King Island Scheelite were closed down at the end of November 1990. The workforce of 100 persons, including contractors, was retrenched.

Following failure to sell the mine as a going concern, the mining and processing plant and equipment, together with the mine buildings, were offered for sale at public auction in April 1991. Expressions of interest in purchasing the company-owned town of Grassy were called for in January. At year end, the company was engaged in negotiations in this regard.

A draft environmental rehabilitation plan was prepared by consultants on behalf of the company and presented to the appropriate Government agencies for their consideration.

Merrywood Coal Company, Royal George

Merrywood Coal Company, a division of Avoca Transport Company Pty Ltd, operated over the whole year at Royal George. Mining was undertaken by open cutting. Treatment comprised crushing and screening to produce a coal of 95% plus 3 mm in size.

Because of a long period of dry weather, rehabilitation of the overburden dumps commenced later than planned. By year end, 1.6 ha had been spray seeded and another 4 ha hand seeded.

A total of 13 persons was employed at the mine throughout the year.

The Mount Lyell Mining and Railway Co. Ltd, Queenstown

Mine production totalled 1 391 786 tonnes of ore at an average grade of 1.57% Cu. Prince Lyell No. 1 Shaft hoisted 1 153 012 tonnes of this ore, plus 4462 tonnes of waste. The rest of the ore produced was trucked up the Decline.

This achievement was appreciably below budget. Problems were experienced at the underground crusher, and crusher downtime caused a tonnage shortfall. Head grade was adversely affected, chiefly by high dilution of the Royal Tharsis ore produced.

The bulk of the ore produced was derived from the Prince Lyell 50 Series. Production from the Prince Lyell 40 Series and 'A' Lens ceased early in the year. Open stoping in the Royal Tharsis orebody above the 18 metre Level produced 204 000 tonnes of ore during the year.

Mine development for the year amounted to 3125 metres of driving and 682 metres of rising. Development of the Prince Lyell 50 Series continued. The 60 Series Decline advanced 223 metres and driving of the 270 Sub Level commenced. Stripping of the 90 Sub to 17 Level portion of the Southern Exhaust Airway was started and completed.

A 19 shifts per week continuous work roster was in place throughout the year at the concentrator in anticipation of a 1 750 000 tonnes throughput. The actual tonnage of ore treated was 1 391 000 tonnes. Concentrator production amounted to 76 750 tonnes of copper concentrate and 58 707 tonnes of pyrite. Contained in the copper concentrate were 19 970 tonnes of copper, 446 348 grams of gold and 2 557 109 grams of silver.

Capital expenditure totalled $3.9 million. Capital development ($1.4 million) and the purchase of new mine equipment ($2.2 million) accounted for nearly all of this.

Exploration on the Mount Lyell lease is being undertaken under the management of RGC Exploration. Current programs of work include diamond drilling, downhole SIROTEM, downhole IP and resistivity surveys. Gold, zinc and lead are the principal metals being explored for.

Ore reserves as at 30 June 1991 are reported as being 2 230 978 tonnes of proven ore at a grade of 1.75% Cu, 0.62 g/t Au and 3.01 g/t Ag, plus 4 598 754 tonnes of probable ore at a grade of 1.73% Cu, 0.67 g/t Au and 3.19 g/t Ag.

Throughout the year, the strength of the workforce remained fairly constant at around 449 employees.

Pasminco Mining – Rosebery

Ore production from the Rosebery Mine was 7% below target at 511 123 tonnes. The shortfall was chiefly due to two occurrences of stope collapse and shaft problems. Production time was lost through the man cage being out of service as a result of tail-rope defect, and rock hoisting was interrupted for six days by winder failure.

All the ore produced was derived from underground sources. The average zinc grade of production was 10.4%.

A total of 660 395 tonnes of ore was milled at the Rosebery concentrator. The sources of the ore were:

- Rosebery Mine — 507 126 tonnes
- Que River Mine — 135 386 tonnes
- small mines — 17 882 tonnes

Tonnages and grades of concentrates produced were:

- zinc concentrate — 115 694 tonnes @ 53.5% Zn
- lead concentrate — 28 224 tonnes @ 59.6% Pb and 943 g/t Ag
- copper concentrate — 14 211 tonnes @ 16.6% Cu, 21.8% Pb, 1994 g/t Ag and 51.7 g/t Au

Deliveries of ore from Que River ceased in January 1991. Following this, processing time at the Rosebery concentrator was reduced from seven days per week to five days per week. A new high-grade copper circuit was commissioned in February to produce a more marketable copper concentrate and to improve efficiency.

Exploratory diamond drilling continued on the Rosebery leases. Surface drilling, amounting to 19 117 metres, was undertaken from a number of sites. A total of 17 025 metres was drilled for exploration purposes from underground sites. Encouraging intersections were made at the northern side of the mine below previously delineated orebody limits.

Ore reserves at 30 June 1991 were reported as being:

- proved — 2.0 million tonnes @ 3.4% Pb, 10.5% Zn, 0.58% Cu, 111 g/t Ag and 2.6 g/t Au
- probable — 3.5 million tonnes @ 3.7% Pb, 11.8% Zn, 0.45% Cu, 132 g/t Ag and 2.3 g/t Au

The workforce comprised 340 employees at year end compared with 463 at the beginning. The drop in number mainly occurred in March 1991.

Renison Limited, Renison Bell

Tin prices continued their downward path throughout the second half of 1990 and at the beginning of 1991 the price was at its lowest level in decades. This caused Renison to propose scaling down and rationalising its activities so that it might continue operating. Intensive negotiations ensued with the workers' unions and the operation of the mine was disrupted. Following three weeks of shutdown, the mine re-opened on 2 April 1991 geared to a new ore production and treatment level of 525 000 tonnes per annum. This new operating strategy has been given the name of 'Renison 91 Survival Plan'.

Over the 219 days which Renison operated in 1990–91, mine production amounted to 559 374 tonnes of ore at a grade of 1.26% Sn. The concentrator treated 548 141 tonnes of ore and produced 5120 tonnes of tin in saleable concentrate.

Several modifications were made in the concentrator treatment circuits. Cycloning of the cassiterite flotation concentrate commenced, with the result of leaching producing a higher grade final concentrate. Shaking table replacement by Kelsey centrifugal jigs was also commenced. Complete decommissioning of the coarse rougher retreat tables was undertaken without any loss of tin recovery.

Further diamond drilling was undertaken on the mine lease. Exploration drilling for extension of the orebodies in depth totalled 9870 metres and for extension laterally totalled 4155 metres. Ore reserve drilling amounted to 2382 metres.

Ore reserves at 1 January 1991 were reported as being:

- proved ore — 2.2 million tonnes at 1.4% Sn
- probable ore — 3.6 million tonnes at 1.4% Sn

At year end, 231 persons were employed at Renison.

RGC (Tas.) Ltd and Little River Resources Pty Ltd — Henty Project

No surface or underground development was undertaken during the year. In August the exploration decline was allowed to flood. Surface facilities have been maintained in case of future use.

An Environmental Management Plan has been submitted for the purpose of obtaining a Licence to Operate Scheduled Premises from the Department of Environment and Planning, and a 21-year duration mining lease. Feasibility studies concerned with accessing deep ore by way of a 530 metre deep shaft are being carried out.

Surface diamond drilling continued and 15 580 metres was achieved during the year. This included drilling for geotechnical information to assist in shaft design.

At year end, six RGC employees and 15 contractors were engaged on the project.

Savage River Mines

On 28 September 1990, two days before the due closure date, an acquisition agreement was settled under which Pickands Mather and Co. International acquired 100% equity in Savage River Mines.

Following successful negotiations with potential customers, the State and Commonwealth governments, employees and unions, Savage River Mines down-scaled its operation without interruption to production. From 1 October 1990, the target for production of saleable products dropped from 2.3 million to 1.3 million tonnes per annum.

Commensurate with this reduction in scale, two of the five furnaces at Port Latta were permanently taken off line and the pelletisation process was geared down to producing 1.2 million tonnes of pellets per annum. The total workforce was reduced in stages from 486 at the beginning of the year to 308 employees at year end.

During the year, 1 522 000 tonnes of magnetite concentrate and 1 489 000 tonnes of pellets were produced. Additionally, 1 302 000 tonnes of pellets were shipped and 66 000 tonnes of concentrate and chips were sold.

Ore was produced from the bottom of the North Pit and from Lifts 6 to 9 in the South Lens pit. Waste was stripped from the northern and eastern sides of the North Pit as well as the western side of South Lens. Rehabilitation was undertaken of the failed western wall at the northern end of Central Pit.

No exploration was undertaken during the year.

Spectrum Resources — Anchor Mine, Lottah

Despite the very low price of tin, the Anchor Mine operated throughout the year. Ore milled totalled 75 360 tonnes at a head grade of 0.52% Sn, resulting in 437 tonnes of concentrate being produced at a grade of approximately 61% Sn.

All of the ore milled was obtained from underground, where 1043 metres of development were carried out resulting in 77 800 tonnes of ore being broken.

Modifications continued to be undertaken in the concentrator. These included isolation of the Barmac crusher, erection of a new grizzly and bin, elevation of the screen and jig, and installation of another four shaking tables. The cost of this work was $185 000.

A further $75 000 was expended on diamond drilling to prove ore reserves.

Tasmania Coal Company — Huntsmans Colliery, Mt Nicholas

Early in the year, the Tasmanian Coal Company commenced open-cut mining at a site at the foot of Huntsmans Cap, Mount Nicholas, near St Marys. A 1000-tonne parcel was mined from the M2 seam and was sold in lots to a number of coal consumers around the State. At year end, overburden was being removed so that a second parcel from the same seam might be mined.

The Tasmania Coal Company NL is a joint venture between Plumpton Services Pty Ltd and Clough Engineering Limited, both of mainland Australia. The company plans to mine and sell coal obtained initially from the M2 seam by open cutting and later from the M1 and M2 seams by underground mining. Establishment of a secure market for production of around 200 000 tonnes of coal per annum would result in the company erecting a washery at the mine site.

Tasmania Mines, Kara

Material mined from the open cut totalled 201 582 tonnes. This comprised 74 886 tonnes of ore suitable for current milling, 48 458 tonnes of low-grade ore, and waste. The low-grade ore was stockpiled for possible future milling.

Material treated totalled 237 436 tonnes and comprised 81 026 tonnes of ore, 146 602 tonnes of contaminated magnetite tailings, and 9808 tonnes of non-magnetic tailings. The average headgrade of this material was 0.261% WO_3.

As a result of treatment, concentrator output for the year was:

- high-grade scheelite concentrate — 102.8 tonnes @ 74.0% WO_3
- low-grade scheelite concentrate — 607.8 tonnes @ 43.2% WO_3
- magnetite concentrate — 188 381 tonnes

A new slimes dam was constructed along the western flank of the Kara No. 1 deposit utilising overburden from the Main Pit. Magnetite-concentrate stockpile and loading areas were constructed, enabling approximately 75 000 tonnes of concentrate to be stored at the mine site.

Capital expenditure on mill modifications and the purchase of a grader for road maintenance amounted to $142 000.

The number of full-time Tasmania Mines employees was increased from 12 to 16 in February when milling reverted to two shifts per day from one shift per day. In

addition, four contractors and a casual employee are engaged on various activities at the mine other than mining.

Mining is carried out under contract by a 6–7 person strong workforce.

WORKS

Comalco Aluminium (Bell Bay) Ltd, Bell Bay

Production comprised 117 000 tonnes of aluminium in the form of blocks, ingots, bars, billets and granules from 225 000 tonnes of alumina. Main areas of activity at the works are manufacturing of carbon products, smelting of alumina, metal alloying and casting.

Raw materials used include alumina from Gladstone in Queensland, and coke, oil and aluminium fluoride from interstate and overseas. Some 237 megawatts of power from the State grid were used on a continuous basis.

Upgrading of plant and processes continued. Capital expenditure for year was $18.7 million.

Goliath Portland Cement Co. Ltd, Railton

During the year Goliath announced that it would proceed with an expansion scheme. By the end of calendar year 1992, the production capacity of the plant is to be raised from 2000 tonnes to 3000 tonnes of cement products per day.

During the year, approximately 250 000 cubic metres of overburden were stripped at the open cut, so providing for the extraction next year of the required 800 000 tonnes of limestone. Clinker production totalled 522 000 tonnes, resulting in the stock level being increased by 100 000 tonnes. This additional stock will allow for the continuation of supply of clinker during a planned stoppage of three months in 1992 when modifications to the plant are to be carried out.

Capital expenditure for the year amounted to $12.3 million. This included the establishment fee for the principal contractor engaged to undertake the expansion-scheme construction work. It also included the cost of relocating maintenance and stores facilities in a new workshop area, the installation of Big Blaster units on the preheater of the clinker production plant, and an upgrading at the IBM AS400 computer.

Demolition and removal was completed at the wet process plant.

The strength of the permanent workforce remained unchanged throughout the year at 213 employees.

MK Silica, Heybridge

In November 1990 the then owners of MK Silica announced their intention to offer the Heybridge plant for sale as a going concern. Failure to find a purchaser by the end of February 1991 would result in operations being wound up and the plant being auctioned off.

Subsequently, ownership of the Heybridge plant and the Corinna silica leases passed into the hands of a Tasmanian company. This did not prevent operations at both Heybridge and Corinna from ceasing in May.

The new owners have indicated that they propose to resume operations before the end of 1991.

Pasminco Metals – EZ, Risdon

Production of zinc and alloys totalled 205 463 tonnes from sulphide concentrates from Rosebery in Tasmania, and Elura and Broken Hill in New South Wales. This is a record for the plant and reflects the benefits which are being derived from the $150 million modernisation program.

As part of this program, calcine storage silos were erected and commissioned. The neutral leach plant was completed early in the year and began a period of commissioning which was still underway at year end. Construction of effluent control facilities continued, with the upgrading of the mercury removal plant and construction of a lime neutralisation plant being completed.

Pioneer Silicon Industries, Electrona

Lump silica from leases throughout Tasmania is treated in the 14 megawatt reducing-arc electric furnace to produce silicon metal. Production of crushed, graded and screened metal was 10 080 tonnes from 24 000 tonnes of raw silica.

Falling prices for silicon metal caused the company to announce that closure of operations will take effect on 26 August 1991.

Tasmanian Electro-Metallurgical Company, Bell Bay

Temco is the only ferro-alloy plant in Australia and has been operating since 1962. Originally intended to supply the Australian steel industry, the operation now competes in the international arena with more than 65% of its product being exported to the United States, the Middle East, South East Asia and Europe.

Manganese ore from Groote Eylandt is treated with iron ore from South Australia, quartz from South Australia and Tasmania, and coal from New South Wales to produce ferro manganese, silico manganese, ferro silicon and sinter in four furnaces. Production for the year amounted to 157 500 tonnes of alloys and 276 700 tonnes of sinter.

Capital expenditure amounted to $7.6 million and was for several small projects, including construction of a new dam, a product storage pad, and a spillage collection system.

Tioxide Australia Pty Ltd, Heybridge

Depressed market conditions prevailed throughout the year. Titanium dioxide pigment production was approximately two-thirds of that of the previous year.

Capital expenditure, at $3.5 million, was directed towards environmental control and plant modernisation and automation.

The workforce strength was reduced from 401 to 236 employees during the year. This was due to a significant downsizing of the operation and was achieved by means of early retirements and voluntary retrenchments.

DANGEROUS GOODS INSPECTORATE

INTRODUCTION

National well-being and international trade depend on the movement of goods, of which more than fifty per cent can be classified in the General Index of the International Maritime Dangerous Goods (IMDG) Code as being dangerous. The majority of goods classified in the General Index of the IMDG are produced by the petro-chemical industry, and in line with the increase in demand for petro-chemical related products nationally, their proliferation within the State can be anticipated.

Safety does not happen — it has to be created. The primary objective of the Dangerous Goods Inspectorate (DGI) is to ensure that the level of risk associated with the manufacture, importation, exportation, storage, handling and transport of dangerous goods is contained through the implementation of legislative controls. The greatest risk of a dangerous goods incident occurring undoubtedly exists during handling at terminal facilities or other multi-modal interfaces in the total distribution network. The fact that such sites are seldom the scene of a major incident can be attributed to the legislative safety standards built into these facilities.

The State has not been without its share of dangerous goods incidents. The risks associated with these incidents have sometimes been dramatised by the media to the point where it has been necessary for the Inspectorate to divert scarce resources away from dealing with the incident to correcting the public misconceptions that have arisen through ill-considered media activity. The Inspectorate is concerned that such activity could influence public perception of the risk associated with dangerous goods as being greater than is actually the case, to the point where ill-founded public fear could be translated into unnecessarily onerous legislation.

DANGEROUS GOODS ACT 1976

The *Dangerous Goods Act 1976* and Regulations 1990 provide for practical legislative controls germane to the manufacture, importation, exportation, handling, packaging, placarding, storage, warehousing and transport of Class 1 to 9 Dangerous Goods (except Class 7) to safeguard the public and environment.

In accordance with the provisions of Section 19 of the Act, the Regulations adopt, by reference, the IMDG Code, the Australian Transport of Dangerous Goods by Road and Rail (ADG) Code, the Australian Transport of Explosives by Road and Rail (AE) Code, the Australian Liquid Petroleum Gas Association (ALPGA) Code, the Australian Gas Association (AGA) Code, and approximately fifty Standards Association of Australia (SAA) Standards.

There were no amendments to the *Dangerous Goods Act, 1976*, pertaining to dangerous goods. An amendment to Section 5 of the Act appeared in the *Administrative Arrangements (Miscellaneous Amendments) Act 1990* relating to the provisions governing the appointment of the Chief Inspector of Explosives.

The *Dangerous Goods Regulations 1990* were gazetted on 29 August 1990, the main changes being:–

- new stringent requirements for the storage of explosives, including a permit system for their purchase
- new shot-firer training and examination requirements
- new shot-firer permit system, including re-validation requirements
- adoption of the new Australian Code for the Transport of Explosives
- adoption of the Australian Minerals and Energy Council working party recommendations on uniform LPG legislation

The *Dangerous Goods Regulations 1990* were amended in 1991, in order to implement the Government policy on fireworks. The *Dangerous Goods Amendment Regulations 1991* were gazetted on 13 March 1991 and introduced a Fireworks Permit system which restricted the use of fireworks to community groups consisting of a minimum of ten adults.

Concurrent with the above amendments the *Dangerous Goods (Fees) Regulations 1990* were amended to incorporate the fees associated with the *Dangerous Goods Amendment Regulations 1991*.

During 1991–92 the *Dangerous Goods Regulations 1990* will be further amended in order to introduce HAZCHEM placarding for dangerous goods premises, in line with the guidelines published by the National Occupational Health and Safety Commission. The purpose of placarding is to identify to emergency responders industrial or commercial sites and premises storing dangerous goods.

The Inspectorate actively supported the Agricultural and Veterinary Chemicals Association of Australia (AVCA) self-regulatory program through the Trade Practices Commission review process. Inevitably, self-regulation programs raise the philosophical question as to whether safety standards should be mandatory or voluntary? The answer is, to some extent, contingent on the accreditation process and subsequent surveillance. To this end the Inspectorate is committed to ensuring that voluntary standards or self-regulation are consistent with mandatory standards and regulations.

MAINTENANCE AND DRAFTING OF LEGISLATIVE CONTROLS

The principles contained in international and national codes and standards are, in some cases, either embodied or adopted in full in the State Dangerous Goods Regulations to achieve:–

(i) harmonisation with international codes and standards formulated by internationally recognised expert panels and committees on dangerous goods.

(ii) harmonisation with national codes and standards in the interest of uniform State and Territory legislation.

The acknowledged, and most cost effective method of maintaining the Dangerous Goods Regulations, is through participation in national watchdog committees charged with overseeing the review and drafting of national codes and standards. Therefore, the Inspectorate is represented on the following standing committees:–

- Australasian Conference of Chief Inspectors of Explosives
- National Advisory Committee on the Transport of Dangerous Goods
- Advisory Committee on the Transport of Dangerous Goods; Competent Authorities Sub-Committee
- Advisory Committee on the Transport of Dangerous Goods; Drafting Sub-committee
- Advisory Committee on the Transport of Dangerous Goods; Explosives Sub-committee
- Standards Association of Australia; CE/5 Committee on Explosives
- Standards Association of Australia; CH/9 Committee on Chemicals
- Standards Association of Australia; ME/15 Working Committee on LP Gas
- Standards Association of Australia; ME/17 Working Committee on Flammable and Combustible Liquids
- Australian Liquid Petroleum Gas Association; Working Committee
- Tasmanian Hazardous Substances Management Committee and Associated Working Groups
- Southern Regional Disaster Planning Group

During the year the Standing National Advisory Committee on the Transport of Dangerous Goods (ACTDG) published the first edition of the Australian Code for the Transport of Explosives (Australian Explosives Code).

This Code was drafted by the ACTDG Explosives Sub-committee and will complement the existing *Australian Code for the Transport of Dangerous Goods.* Tasmania was the first State to adopt the Australian Explosives Code into State legislation.

The Standing National Advisory Committee on the Transport of Dangerous Goods, Drafting Sub-committee on the Transport of Dangerous Goods is in the final stages of drafting the 5th Edition to the *Australian Code for the Transport of Dangerous Goods by Road and Rail,* which will be published during 1992.

During the year the Standards Association of Australia ME/17 Working Committee on Flammable and Combustible Liquids published a revised draft of Australian Standard AS1940-1988 — *Storage and Handling of Flammable and Combustible Liquids* for comment. The intent is to publish the revised standard in its final format by the end of 1991 or early 1992.

EDUCATIONAL SERVICE TO INDUSTRY

The Inspectorate provides a training and consultancy service to industry in all areas of its activities. This service provides the Inspectorate with the opportunity to liaise with industry on the legislative controls governing dangerous goods.

The Inspectorate has been instrumental in developing, organising, presenting or actively participating in the following training initiatives:–

- The development of an 'approved' training course for the Tasmanian Road Transport Industry Training Council in relation to the training of drivers responsible for the transport of dangerous goods.
- Developing, organising and presenting 'approved' shot-firers course and examination system within the State in accordance with the requirements of the Dangerous Goods Regulations 1991.
- Participating in the Agricultural and Veterinary Chemicals Association of Australia training courses in Tasmania, in conjunction with Tasmanian Adult and Further Education (TAFE) programs.
- The Australian Petroleum Agents and Distributors Association annual conference.
- Through representation on The Chartered Institute of Transport (CIT), Education Sub-committee, the Inspectorate assisted in the organisation and participated in a major CIT Tasmania Branch Transport Seminar.
- The Inspectorate has been pro-active in encouraging industry to run training seminars for staff in relation to the legislative controls associated with dangerous goods. During the year the Inspectorate participated and presented papers at numerous in-house seminars for industrial bodies such as the:
  - Gas Corporation of Tasmania
  - Commonwealth Industrial Gases
  - Hydro-Electric Commission
  - Tasfuel

DANGEROUS GOODS INSPECTORATE ACTIVITIES

The Inspectorate carried out 166 safety enforcement inspections in relation to the monitoring of bulk imports and exports of Class 1, 2.1, 3.1, 3.2 and 5.1 dangerous goods through the ports of Stanley, Burnie, Devonport, Bell Bay and Hobart.

The relevant increase in this activity was 73% when compared with the 1989–90 figure of 96. Full statistical details are contained in Tables 14 and 15.

The Inspectorate carried out 1495 non-statutory random safety inspections in relation to licensed storage and retail sale outlets of dangerous goods. The relevant downturn in this activity was 48% when compared to the 1989–90 inspection figure of 2884.

The downturn in random inspections can be directly attributed to having to divert resources in order to implement the statutory requirements of the *Dangerous Goods Regulations 1990* and *Dangerous Goods Amendment Regulations 1991*.

There were 240 planning proposals received which initiated 508 statutory inspections associated with planning approvals for the licensing of new premises and the alteration of existing licensed dangerous goods premises. The relevant increase in this activity was 13% when compared with the 1989–90 figure of 449.

Technical and legislative enquiries were recorded by the Inspectorate for the first time and amounted to 2893. A conservative estimate indicates that, on average, these enquiries took 0.2 hours each and would have utilised the services of one Inspector for 16 weeks.

Full statistical information in relation to licences, permits and approvals issued for the import, manufacture, storage, use and sale of dangerous goods is contained in Table 13.

The explosives magazine at Dilston has had a busy year, handling 6625 issues and 7089 deposits, representing a total throughput of 13,714 cases. This result indicated a relative throughput decrease of 18% on the 1989–90 figure of 16,629. Full statistical records of the total amount of explosives and explosive-grade ammonium nitrate imported into the State during the year are contained in Table 15.

Shot-firer training and examinations under the new regulations has increased the activity in this area, and 132 'shot-firer permits' were issued to successful candidates. There was a relevant increase in this area of activity by 175% when compared with the 48 'shot-firers permits' issued in 1989–90.

Requests for assistance on the disposal of any hazardous material which cannot be properly disposed of at the premises at which they are kept were dealt with by the Inspectorate. To this end the Inspectorate advises on the packaging and storage of hazardous material within the jurisdiction of the source of origin prior to disposal. However all movement of hazardous waste is referred to the Department of Environment and Planning.

The Inspectorate has no mandate to deal with the ultimate disposal, destruction or clean up of hazardous waste and acts in an advisory capacity only.

FIREWORKS SEASON

The *Dangerous Goods Amendment Regulations 1991* effectively terminated the traditional backyard fireworks displays and introduced, in the interests of safety, the concept of controlled community displays. The new regulations permit community firework displays at any time of the year. This will enable communities, and in particular ethnic communities, to celebrate a special occasion or specific event such as the Chinese New Year.

To hold a display it is necessary for a minimum of ten adults in the community to form a group and obtain, from the Inspectorate, an 'Application for Permit to Purchase Fireworks and Conduct a Fireworks Display'. The community group member elected to be the applicant, will, on the issue of the 'Fireworks Permit', be responsible for the purchase and safe keeping of the fireworks including the safe conduct of the fireworks display.

Since the official launch of the regulations on 24 April 1991, one importer has imported 740 cases of fireworks and 6 licences have been issued for the retail sale of fireworks. There were 59 'Fireworks Permits' issued during May and June 1991 for the purchase and display of fireworks, and one application was refused due to being unable to meet the specified safety distances. Two of the permits issued were for Type III fireworks which were imported as 'display packs' with full instructions, from Australian manufacturers.

Tasmania Police reported that they had received five complaints from the public in relation to the illegal use of fireworks carried over from the 1990 fireworks season. This figure represents a dramatic improvement on the 1989–90 figure of 629, representing a relative decrease in the level of complaints by 99.2%. There were no prosecutions and no injuries were recorded.

The Inspectorate investigated four complaints lodged by members of the public relating to the illegal sale of fireworks by retailers disposing of surplus stock left over from the 1990 season. Although the stock was initially confiscated, the retailers agreed to donate the fireworks to charity displays and no prosecutions resulted. However next year this will no longer be an option.

The problems associated with misuse and, in particular, the increasing trend in the manufacture of improvised fireworks launching devices by irresponsible elements

in our society in order to direct fireworks at motor vehicles and dwellings, has virtually been eliminated.

From an administrative point of view the implementation of the legislative requirements proved to be particularly labour intensive. However a suitable system was developed to streamline the process. On the plus side, the legislative requirements are now easier to enforce by the Inspectorate and Police.

INCIDENTS

There were 49 incidents involving dangerous goods investigated, three more than last year. Four typical incidents have been summarised below:

Explosives

DATE: **9 November 1990**

LOCATION: Devonport

DANGEROUS GOODS INVOLVED:
Black powder — Class 1.1D

While conducting a routine safety inspection of two explosives magazines at a licensed premises, an Inspector found that both magazines had been forced open. The licensee was unaware that the incident had occurred and that approximately 1.5 kg of black powder had been strewn about the magazine floor.

The premises concerned have since had their licence to keep explosives revoked.

Domestic Use of Dangerous Goods

DATE: **13 July 1990**

LOCATION: St Marys

DANGEROUS GOODS INVOLVED:
LPG — Class 2.1 flammable gas

A house owner was carrying out do-it-yourself repairs on an LPG fridge supplied by a 9 kg gas cylinder located inside the dwelling. During the repair operation a leak developed at the gas regulator.

The owner allegedly turned the gas cylinder off and commenced to remove the regulator in order to repair the leak. Soon after there was an explosion which resulted in the house being completely destroyed by fire. The owner received facial burns requiring hospital admission.

Storage of Dangerous Goods

DATE: **3 November 1990**

LOCATION: Fern Tree

DANGEROUS GOODS INVOLVED:
Chlorine — Class 2.3/5.1

An employee at a chlorination plant was connecting up a full 920 kg tank of chlorine when a leak developed at the gas supply valve. The emergency services were alerted and the immediate area evacuated, including a nearby school.

An expert from the manufacturer was quickly in attendance and isolated the chlorine leak. While this solved the immediate problem created by the chlorine gas leak, the defect had to be rectified in order to resolve the tank/plant interface problem.

Authorisation was granted by the Chief Inspector for the transport of the tank, and the section of the chlorinator now attached to it, to a safe area, over an agreed route, under Fire Service surveillance and Police escort, for further investigation.

Having contained the risk to the public by this action, the defect was subsequently repaired and the plant put back on stream without further incident.

Transport of Dangerous Goods

DATE: **29 August 1990**

LOCATION: Campbell Town

DANGEROUS GOODS INVOLVED:
Sulphuric acid — Class 8

A freight train derailment south of Campbell Town resulted in the loss of approximately 11 500–12 000 litres of sulphuric acid from a ruptured rail tanker. The spilt acid was contained by an earthen bund around the ruptured tanker, and neutralised with 'lime'.

The incident was attended by a Tasrail emergency response team, Tasmania Fire Service, Police, Ambulance and officers from the Department of Environment and Planning. The Dangerous Goods Inspectorate attended in an advisory capacity.

CONCLUSION

While the above incidents serve to illustrate another aspect of the Inspectorate's activities, the main regulatory activity of the Inspectorate is centred around legislative enforcement, preventive inspections and training programs. Inspection and training programs in particular enable the Inspectorate to maintain a high profile in the field and, at the same time, creates the opportunity for providing advice and guidance to industry and the public before problems arise.

Legislative enforcement has many facets which must be exercised to ensure a viable and credible Inspectorate. For example, the 'infringement notice' system eliminates, to a large extent, the need to become involved in expensive and time-consuming court actions. Prosecutions are only initiated where there has been no response or a blatant disregard of an infringement notice.

The philosophy of effective enforcement of regulations that have been developed in the best interests of safety is rigorously pursued.

GEOLOGICAL SURVEY BRANCH

REGIONAL GEOLOGICAL MAPPING

The Section consists of a Deputy Chief Geologist, three Senior Geologists and six geologists, two of whom are Project Leaders. Geological mapping requires a number of geologists working as a team to cover all the specialities (structure, stratigraphy, petrology, etc.) needed to adequately investigate the geology. Mapping is normally systematic and multipurpose for publication in the Geological Atlas 1:50 000 Series, although component investigations of surveys at anytime can be grouped according to any particular theme or interest of society (mineral resources, soils for forestry/agriculture, etc.).

With the present Government policy to partially recover costs one of the Section geologists is engaged in Launceston geodata mapping. The remaining geologists during the 1990–91 financial year continued a considerably reduced mapping program due to severe budget constraints.

MAPPING

The reduced budget allowed mapping to continue only on the Zeehan and Alberton 1:50 000 map sheets.

Zeehan Map Project

The completion of the second year of a three year program to revise, for publication at a 1:50 000 scale, the geology of the 30 year old Zeehan 1:63 360 map sheet, which is of central importance to West Coast mineral exploration, has shown major anomalies in the earlier interpretations of the geological structures and stratigraphic relationships between some of the rock units of this region. The area is well known for extensive lead-zinc and tin mineralisation, with subsidiary amounts of gold, iron, nickel, asbestos and platinum group elements. With new information gained during mapping a number of different exploration models can be suggested, especially those involving confined fault/fold systems (duplex) of probable Devonian age. In the central region of the Zeehan map sheet Permo-Carboniferous rocks have been involved in considerable shortening during a previously unknown deformational event. Drilling has not only helped in determining fault characteristics at many localities but has also proved extensions of mineralisation zones.

Alberton Map Project

Some 95% of this sheet has been mapped for publication at 1:50 000 scale. A northerly-trending belt of Silurian–Early Devonian Mathinna Beds occupies the central part of the region. The Mathinna Beds, which are host to gold-bearing quartz veins, have been intruded and metamorphosed by Devonian granites. Flat-lying Permian Parmeener Supergroup sequences rest unconformably on the older rocks at some localities.

Evaluations with the help of drilling are underway to assess which granite types are most likely associated with Sn/W mineralisation, and which large-scale deformations control the distribution and development of the gold-bearing quartz veins of the region.

Apart from the importance of this work to future mineral exploration, the rock-unit distribution maps are also used in the plantation planning programs of the widespread forestry operations in the region.

DISCONTINUED MAPPING

Because of the reduced amount of money available for field running expenses a number of partially completed 1:50 000 Geological Atlas mapping projects were discontinued and the completed field work of these maps was compiled. The discontinued 1:50 000 Series mapping projects are listed below.

Point Hibbs Map Project

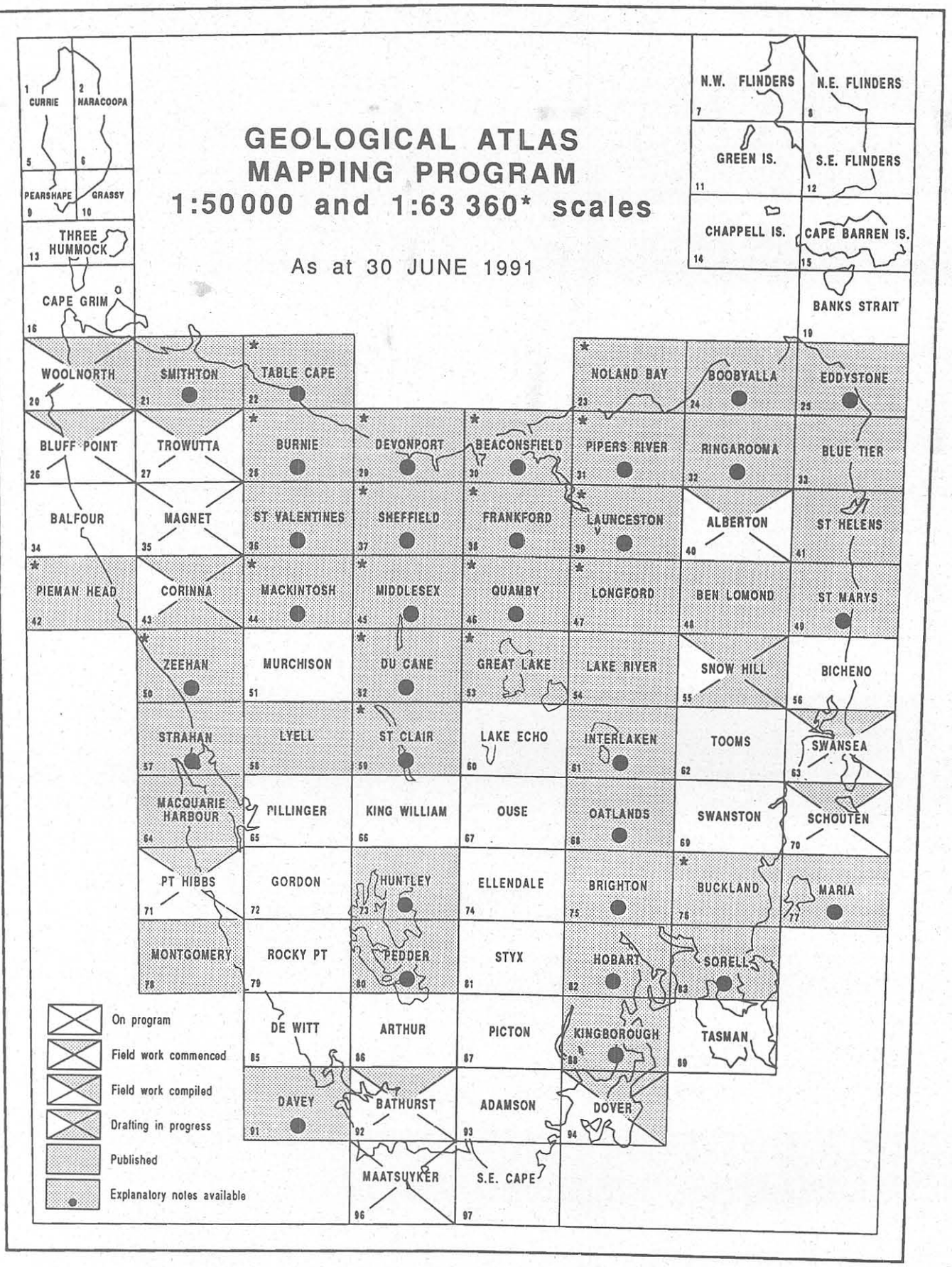
A large part of the heavily-forested northern section of the Point Hibbs Quadrangle (some 40% of the sheet) had been mapped, and a network of tracks and helicopter pads established. The area was found to contain a southern extension of rock units of the Dundas Trough and the Mt Read Volcanic belt of central western Tasmania. Work in the area has increased the understanding of the large-scale structural features of the Macquarie Harbour–Elliott Bay region and the three-dimensional distribution of highly prospective rock units. This is of importance for any future exploration for platinum group elements and base metals. Information on the large-scale thrusts and wrench faults discovered also has implications for the structure of other highly prospective parts of western Tasmania.

Swansea Map Project

The mapped area included coal measure sequences of Triassic age faulted into Jurassic dolerite and exposed on an exhumed Tertiary landscape.

Styx Map Project

The Styx Quadrangle has folded Precambrian and Cambrian rocks at the western margin and flat-lying Parmeener Supergroup and younger rocks occupying the rest of the area. A total of 65% of the folded rock units, which include quartzite and dolomite sequences, ultramafic emplacements and basalt lavas, had been mapped. Investigations indicated the timing of tectonometamorphic events, thrusting episodes and ultramafic emplacements. The information will allow



Maps for quadrangles marked with an asterix (*) were published at a scale of 1:63 360. All other maps were published at 1:50 000 scale.

5 cm

more accurate predictions in the general exploration for silica flour, dolomite, base metals/gold, platinum group elements, etc.

Trowutta Map Project

The Trowutta Quadrangle covers the densely vegetated middle Arthur River and Rapid River area south of Smithton. The central part of this previously poorly-known region is underlain by Precambrian sedimentary sequences of the Rocky Cape Group. In the western part of the quadrangle the Rocky Cape Group is unconformably overlain by Eocambrian-Cambrian rocks of the Smithton Basin. To the east of the quadrangle occurs the belt of metamorphic rocks of the Arthur Lineament.

Areas of the western and central Trowutta Quadrangle have been mapped, which amount to some 45% of the whole map sheet, and access tracks had been prepared in the south. Mapping showed that the Smithton Basin can be considered prospective for volcanogenic base metal sulphides and gold mineralisation, and that there may also be a potential for Renison-type tin-tungsten or sulphide mineralisation in a lower dolomite sequence. A balanced structural profile has been constructed from the west to near the western margin of the Arthur Lineament, and provides a part of the essential background to the proposed Deep Seismic Reflection Traverse (under the National Geoscience Mapping Accord, BMR, January 1990). Compilations of the areas mapped are available to also help determine land stability, groundwater and the distribution of soils and construction materials.

Only preliminary work had been done on the highly prospective Arthur Lineament, which is associated with alluvial gold, magnesite, copper and magnetite-pyrite.

COMPLETE 1:50 000 MAP COMPILATION AND EXPLANATORY NOTES

The 1:50 000 sheets of Corinna and Snow Hill are in press, whilst Woolnorth and Dover have been compiled for publication.

Explanatory Notes for the Montgomery and Macquarie Harbour Quadrangles have been completed for publication, and notes for the St Helens, Ben Lomond/Snow Hill, Lyell and Woolnorth 1:50 000 map sheets are being prepared.

The Palaeontologist continues determining time constraints on rock units through studies of late Palaeozoic brachiopods, with Bulletin 69 on *Hellyerian and Tamarian (Late Carboniferous–Early Permian) invertebrate faunas from Tasmania* in press. Three further bulletins are to be written.

GENERAL

Other section services completed during the year included organising and successfully running the Eighth International Symposium on Gondwana. The Conference, which was held in Hobart, attracted representatives of sixteen countries.

ECONOMIC GEOLOGY

In the current year, the section's strength remains at about the same level as 1990 with eleven permanent officers. Two geologists remain on secondment in environmental monitoring and in the Minister's office, leaving six geologists to carry out the responsibilities of the section. Essential support is provided by an executive officer and two technical officers.

Two factors have meant a change in emphasis for the section's traditional programs. The requirement for an increased component of cost recovery has led to the abandonment of some of the longer term, strategic, commodity studies in favour of shorter term consultant and contract work. The increasing call for land use planning information has resulted in more effort being assigned to mineral resource assessments.

REGULATION

A decrease in exploration investment within the State has resulted in a decline in the number of new exploration licences issued during the year (22), as well as a decline in the area of Tasmania held under licence. Exploration programs, reports (136) and renewal applications were assessed and approved for 75 exploration licences and 22 retention licences.

Exploration tenders (5) were received and processed for 61 areas advertised under the Exploration Tender Area (ETA) system and two new exploration licences were awarded — a dramatic drop from the levels of previous years.

MT READ VOLCANICS PROJECT

This specially-funded project, designed to stimulate mineral exploration, has been running since 1985. There are currently nine temporary employees who are taking part in the delivery of services and information to client companies; this staff comprises three geologists, one analyst, two database clerks, one technical officer and two field assistants.

Mineral Resource Mapping

The geological mapping teams continued in South-West Tasmania over the summer and have now completed coverage of the Mt Read Belt from Elliott Bay to the D'Aguilar Range.

Mapping was carried out from helicopter-positioned, tented camps at Wanderer River and Innes Peak and 4-wheel drive bikes were used for ground access on existing tracks.

Part of the area mapped lies within the recently-expanded World Heritage Area, and observations on the Quaternary geology and landforms will assist in understanding the landscape evolution of this region.

Printing of Map 10 has been delayed because of staff shortages at the drafting stage but is now expected in September 1991. The current (1990–91) season's maps are due to be produced in early 1992.

Explanatory Notes for Maps 7 and 8 were produced as MRVP Geological Report 4, and have created considerable interest describing the sub-basalt occurrence of the Que–Hellyer host rocks north of the Hellyer Mine. Notes for Map 4 (including the Henty gold prospect) have been compiled ready for printing.

Isotope and Alteration Studies

A major consulting report on the ore genesis of the Henty Gold Deposit is being produced, marking the end of this major study.

Several smaller consulting reports have also been produced on various aspects of ore genesis for client companies at Rosebery, Chester, Pinnacles and Weld River.

The Lakeside (gold-tin-copper) Deposit report was published during the year.

Preliminary petrographic, fluid inclusion and oxygen isotope work has been carried out on gold-quartz lodes at Branxholm, Forester, Golden Ridge and Denison in NE Tasmania.

Databases

The object of this project is to provide industry with computerised databases relevant to mineral exploration and mining in the State.

TASXPLOR, the database of unpublished reports covering mineral exploration by companies, now contains 3861 entries and is continually being updated. Microfiche of all open file reports are available for purchase.

DORIS, a drill hole database, includes information on all drilling carried out in Tasmania. The details of 5960 drill holes were added this year, bringing the total number of entered holes to 14 380.

All drill logs have now been microfiched and those on open file are available for purchase.

DOMINFO, a database of Division publications, has not been implemented due to other priorities. However more than half of the data sheets are complete and it is planned to have the database operational in the coming year.

An ore reserves database, TASRESERVES, has been produced and contains the published grade-tonnage information on the State's most significant mineral deposits.

MINERAL RESOURCE ASSESSMENTS

Up to half of the Section's geologists have been involved in mineral resource assessments of parts of Tasmania for the rapidly expanding requirement of land use planning.

Seven reports were produced and submitted to the Forests Industry Council to provide information on the potential impact of restrictive land use decisions on the mining and mineral exploration industries.

Other assessments were provided through the Working Group for Forest Conservation on the likely significance to the mineral resource industries of the proposed Recommended Areas for Protection (RAPs).

Advice is continually provided to Government and State Departments on the mineral resource implications of additional World Heritage Areas or National Parks. Section members are currently contributing mineral resource and geological information to the Henty Zoning Plan — a pilot land use study being conducted by the Department of Environment and Planning.

COMMODITY STUDIES

Gold

The database of Tasmanian gold deposits (on MIRLOCH) has 1863 deposits entered. Two reports were produced on the Alberton and Mathinna areas. A mineral resources report was completed on alluvial gold in Tasmania.

Studies continued on the gold distribution in Mt Lyell ores and copper concentrates, and a report has been produced on the occurrence of gold in the concentrates.

Reports are in preparation on studies undertaken on the Lake Chisholm gold prospect and on reconnaissance surveys for the NETGOLD project. Geochemical and petrological studies are in progress on the two diamond drill holes completed in the Lisle goldfield. These holes intersected weakly mineralised, altered and veined granodiorite.

PETROLOGY

A total of 321 samples was received for investigation from the HEC, Tasmania Police, and various other Government Departments, mining and exploration companies, miscellaneous businesses and the general public. Samples studied included clays, mineral concentrates, gems, rocks, soils, sands, ore samples, asbestos, industrial materials, metallurgical products and dusts.

Departmental studies included the description of samples from the Melba Flats borehole, and the processing and graphing of geophysical data from the same area. Glaucophane-bearing amphibolites were analysed and interpreted from the Corinna district.

Research continued into silica fume as a contribution to the National Working Group. This work included low to high temperature XRD studies of the silica fume and evaluation and testing of various analytical methods.

Curatorial work has included the preparation of displays, the supervision of the rock store, and upgrading of databases. The MIRLOCH database now has 2267 entries covering coal, metallic and industrial minerals. The TASROK database contains details on 1791 samples, and work continues on the CHEMDAT database for rock analyses.

The main rock stores were relocated to the new Mornington core store.

Petrology Laboratories

The lapidary laboratories prepared 325 polished thin sections, 1264 standard thin sections and 79 miscellaneous sections, giving a total throughput of 1668 samples. The technical officer processed 657 samples by X-ray diffraction, including 311 quantitative dust analyses, 94 quantitative clay analyses, and 252 routine identifications. Fifty-one stable isotope analyses, 271 physical property tests, and 145 optical asbestos identifications were also conducted.

GENERAL

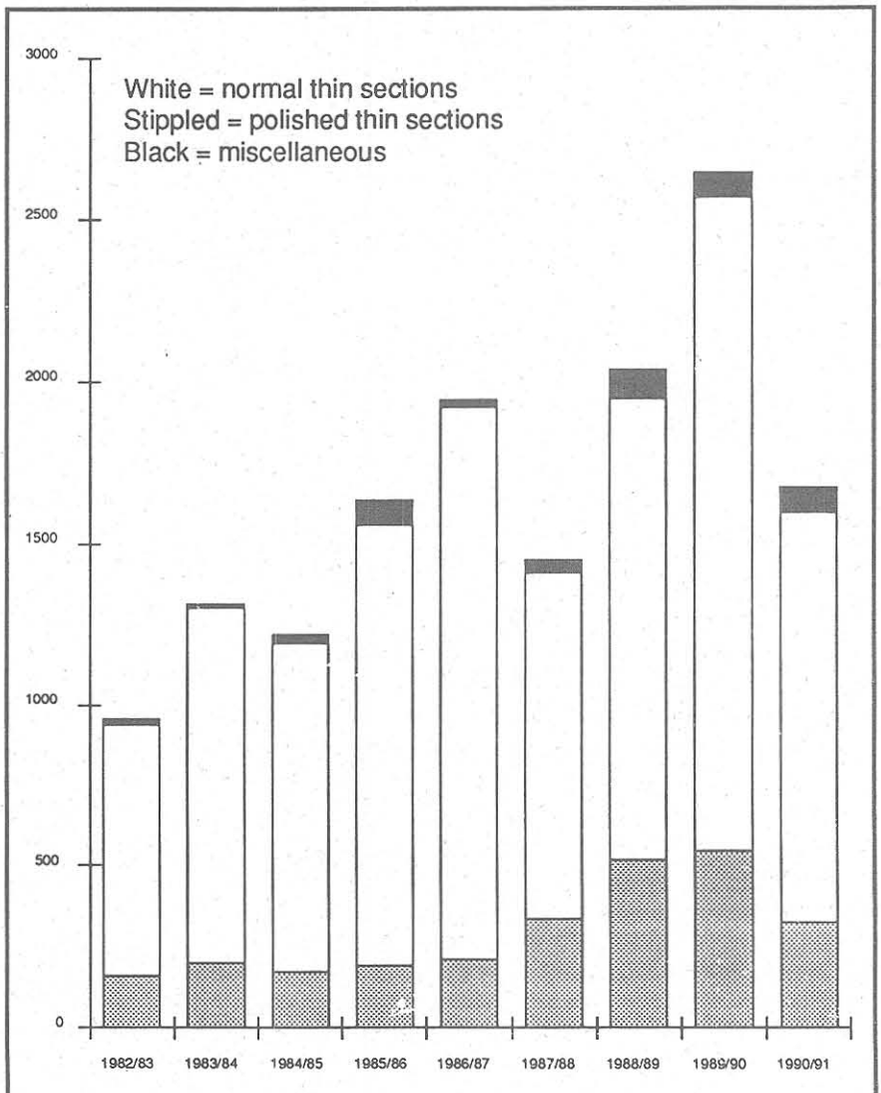
The following publications were produced during the year:

- three general reports
- one MRVP geological map notes
- two MRVP ore genesis reports
- one mineral resource report
- a number of consultant reports

A paper was presented at the Gondwana Symposium. A paper describing the geological setting of Mt Read mineral deposits was written for the international journal *Economic Geology*. Three promotional articles on Tasmanian mining and mineral exploration were produced for the Bulletin of the Australasian Institute of Mining and Metallurgy, the *Australian General Mining Year Book* and the *Australian Miner*.

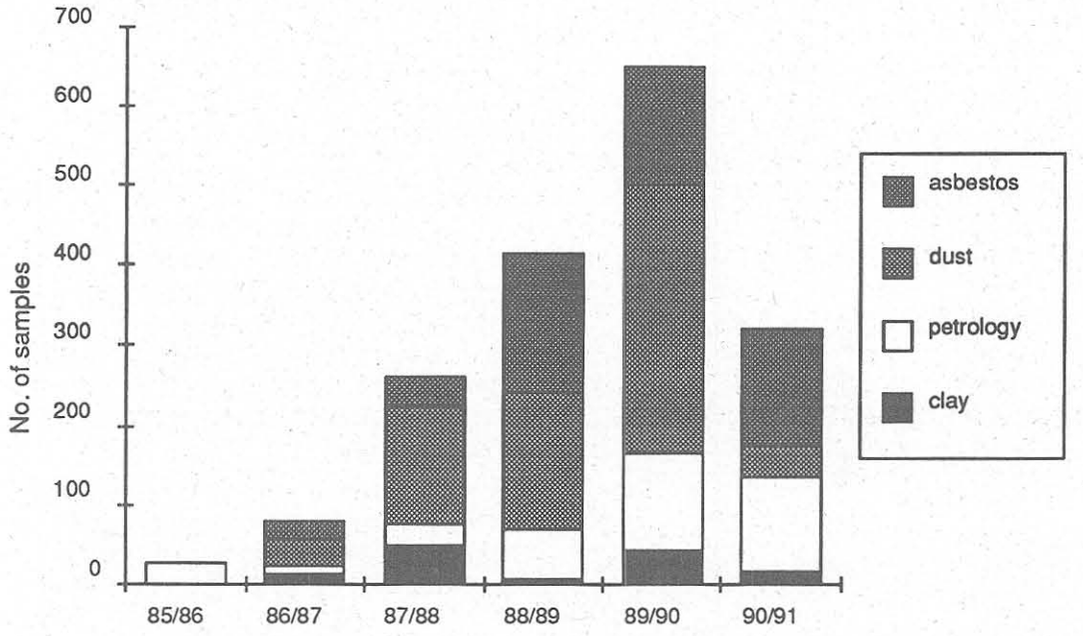
An excursion on volcanic facies in the Mt Read Volcanics run by the Centre for Ore Deposit and Exploration Studies, University of Tasmania, was attended by four geologists from the Section.

The King Island Scheelite mining operation was visited in the course of the year and a representative selection of drill core was removed for storage and future testing at Mornington because of the closure of the mine.



Number of samples processed by the lapidary laboratories for external and internal clients

5 cm



SAMPLES PROCESSED BY PETROLOGY LABORATORIES FOR EXTERNAL CLIENTS

ENGINEERING GEOLOGY AND GROUNDWATER

The permanent staff of the section has remained stable throughout the year, with one acting deputy chief geologist, two acting senior geologists, one project geologist (who at times has acted as a senior geologist) and a surveyor. A temporary geologist was appointed for four months to undertake a special project and another geologist has been temporarily transferred from another section to undertake a similar project. Two positions for geologists remain unfilled, and this seriously limits the scope of projects which can be undertaken at any one time.

A major function of the section over the last year has been the investigation of a landslide affecting Hone Road and surrounding streets at Rosetta, and this has required the deferment of the completion of other major projects on which work had commenced. Joint projects between local government and the Division involving urban engineering geological mapping were a significant feature of the section's work. Advisory work concerning land stability, foundation conditions, groundwater prospects and refuse disposal sites was also an important aspect of the year's work. The surveyor and support staff have contributed significantly to the work of the section.

URBAN ENGINEERING GEOLOGICAL MAPPING

Three projects jointly funded by local government and the Department are at various stages of development. These projects aim to produce information on soils and rocks with varying properties for planning and development purposes.

- Hobart — the preliminary compilations of the maps and report associated with this project are having extra information added to them, and final compilations are expected by the end of 1991.
- Ulverstone — a study of about 40 km^2 of the area between Ulverstone and Turners Beach was undertaken over a period of four months by a specially appointed project officer. The maps are ready for drafting and sample testing is almost completed, which will allow the report to be compiled.
- Launceston — a project geologist from the Regional Mapping Section has commenced this two-year project, with compilation of file data and detailed mapping to improve the rock distribution map. It is planned to more accurately define the landslide risk zones and outline broad areas of expansive soil as part of this project.

LAND STABILITY

As indicated above a major part of the effort of the section has been directed towards investigating a landslide at Rosetta in Hobart's northern suburbs. This has involved detailed geological mapping, slope analysis, an extensive drilling program, detailed and regular surveys of traverses across the area, a study of groundwater conditions, and a detailed gravity survey.

Field work continued on the survey to outline areas with land stability problems along the North West Coast in the first part of the year.

Advice has been given on the stability of numerous lots which were planned to be developed for housing. This sometimes requires subsurface investigations and detailed stability analyses, while in other areas a surface inspection is sufficient. Although the North West Coast

and the Tamar Region are the main areas where this advice is requested, an increasing number of requests are coming from the Hobart area and other South East districts.

Referred property transfers numbered in the thousands again during the year and part of the information supplied concerns land stability and whether the properties are within proclaimed landslide areas.

Regular surveys to monitor landslide movements at a number of locations throughout the State have continued.

Telecom requested advice on stability and erosion problems along traverses where it is proposed to lay optic fibre cables. Two routes, between Devonport and Smithton, and Launceston and Devonport, have been inspected.

There has been input into a committee dealing with the effect of forestry operations on steep country.

GROUNDWATER

Advice on groundwater prospects has been given for numerous locations throughout the State. The dry summer and autumn period created demand for contract bores in many areas and information in the water bore database, together with field inspection, allowed useful advice to be given as a result of many requests.

About thirty bores have been installed around the State (mainly in agricultural areas) to monitor water level fluctuation and quality variations. About half have had permanent monitoring devices installed on them and the remainder are awaiting the purchase of further equipment.

Monitoring has continued in the East Devonport–Port Sorell–Sassafras area where there is extensive use of groundwater. A report of an investigation of groundwater resources in this region has been completed and is ready for publication.

Compilation of the Sheffield groundwater study has been suspended temporarily due to pressure of other work. The field work has been completed and compilation commenced.

Preparation of maps for the North East Tasmania groundwater study has continued. The Scottsdale Basin geological map has been printed and the other two geological maps associated with the project are ready for publication.

WASTE DISPOSAL SITES

Advice on the possible contamination of groundwater from waste disposal continues to be a significant aspect of the section's work. Several local councils are investigating new sites for refuse disposal, and subsurface investigations to examine underlying materials and groundwater conditions have been undertaken on a number of sites.

Sites for fish waste and septic tank waste disposal have also been examined.

FOUNDATION INVESTIGATIONS

A seismic survey at a proposed dam site at Distillery Creek, to the east of Launceston, was undertaken. The dam, if built, would supply water to the Launceston area.

Investigations were undertaken on a pipeline route in the Tea Tree area, and foundation conditions at two proposed reservoir sites in the Hobart region were examined. These involved geological surveying and seismic and resistivity surveys.

One geologist spent several weeks on contract to the Hydro-Electric Commission on a major construction project on the West Coast.

SURVEYING

Many boreholes have been surveyed throughout the year and a number of lease boundaries have been identified. Surveys of gravity stations at Tarraleah and the Hone Road landslide area were major projects. A detailed survey of a tailings dam at Rossarden was undertaken.

CONSTRUCTION MATERIALS

A literature search to determine the sand resources in the Hobart region was undertaken, while reserves of useful material were estimated for a quarry at Forcett. The need to reserve construction materials for future use was examined on many proposed rural subdivisions.

EDUCATIONAL ACTIVITIES

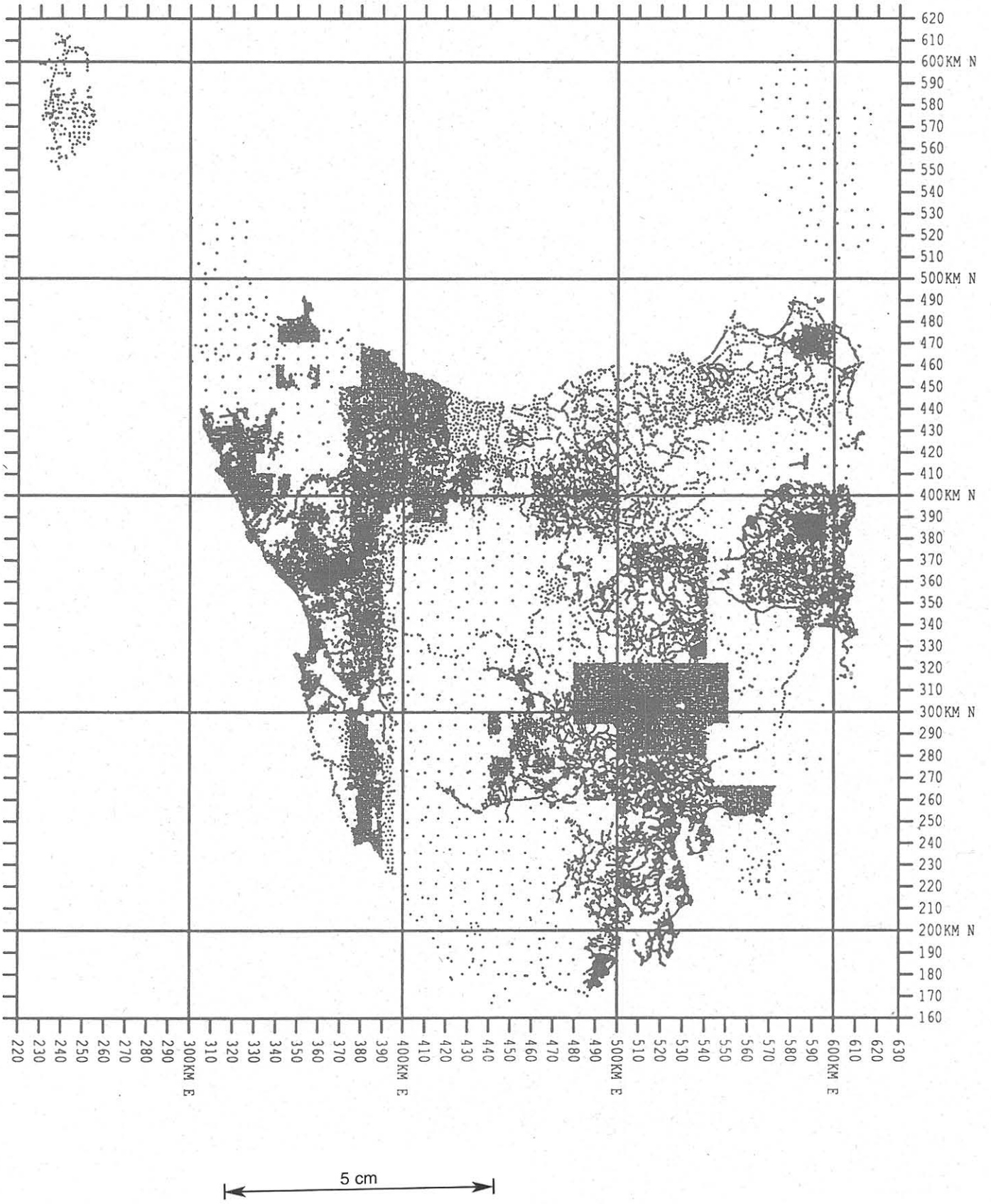
Involvement with the course "Geology for Engineers" at the University of Tasmania continued, with several lectures being given and excursions taken. A number of work experience students spent a considerable time with the section, while a geologist who recently migrated from Iran spent two days per week for 10 weeks in the Department, a large part of which was with the section. This latter arrangement was part of a Crossover Course, a course arranged jointly by Commonwealth and State agencies to introduce recent migrants to the work situations in this country.

As part of Environment Day and a Division Open Day, the seismic method was displayed to indicate the small land disturbance associated with the use of these surveys.

There was input from the section to Department of Primary Industry courses on Whole Farm Planning, a

DISTRIBUTION OF TASMANIAN GRAVITY STATIONS

30 JUNE 1991



seminar organised for Local Government on landslides, and a project funded by the National Soil Conservation Program on roadside care and erosion control.

GEOPHYSICS

General

The Geophysical Section provides geophysical and computing advice and services for both divisional and other users, acquires and/or processes basic regional data, and reviews the geophysical activities of the exploration industry. During this financial year the section has been actively engaged in providing a range of geophysical services to the commercial sector. The section is staffed by the Supervising Geophysicist and a Technical Officer (Electronics).

Gravity–Magnetics

The Divisional gravity program was curtailed by financial constraints and only 1241 stations were occupied. With the exception of 120 stations in the Rosetta area, all data were acquired for other organisations. The 1988 Moho model (MANTLE 88) is presently undergoing revision and will be extended to include offshore areas using available marine data.

Reprocessing of aeromagnetic data from the Queenstown area was undertaken for CODES and integration of the State coverage has commenced. Flight path plots have been made for all company aeromagnetic data lodged with the Division. Several anomalies in the Alberton–Mangana area have been modelled prior to drilling for the Regional Mapping Section.

Computing

The Perkin-Elmer mini-computer continued to provide a high level of reliability (unscheduled down-time less than 0.2%), and despite the increase in the numbers of personal computers and workstations, remained in high demand. Although geophysical data processing was dominant, database searching remained a major component. The largest computing project undertaken was the correction of the Elliott Bay area digital elevation model and the subsequent production of the topographic base map for a 1:25 000 geological map using computer-generated contours.

The Division has installed an IBM RS/6000 computer for administration and database use, and this has been configured as a network file server. The Ethernet has been extended using a multi-port repeater and now has the potential to service the entire Rosny Park complex. By combining both Ethernet and serial communications in a personal computer, file transfer between the ARC/INFO software and the A0 plotter attached to the Perkin-Elmer has become a routine operation.

Electronics

The Electronics Technician spent approximately 30% of the year working on network software and hardware for linking the IBM RS/6000 computer to the other systems in the Division. The other major project has been the design and construction of an interface between a digital cassette recorder and a personal computer, and the writing of software to allow the replay of borehole logger data using this.

New Unidata logger installations have been completed for landslide monitoring at Rosetta (displacement, rainfall and water level) and in northern Tasmania for regional groundwater monitoring. Another Technical Officer has been partially trained in servicing the Unidata loggers.

In addition to routine Divisional repairs, instrument repairs have been effected for a number of outside clients.

GEOCHEMISTRY

Research associated with the Huminex System is the major activity of the section. Revisions of the soil application of the procedure are being undertaken to produce a more instrument-friendly style of analysis. An extensive trial of the water application of the system yielded variable results and indicated that further studies are required to make this an effective exploration system.

Monitoring of disposal sites by use of the total organic carbon content of their drainage waters is continuing, and it is likely that other procedures will be added to this environmental activity.

As a result of the closure of the Launceston laboratories, substantial rearrangement of the geochemical laboratories was undertaken to provide accommodation for those general laboratory services transferred to Hobart.

PETROLEUM EXPLORATION AND MARINE GEOLOGY

General

The section is responsible for technical and policy aspects of petroleum exploration in Tasmanian offshore and onshore areas, and in addition to providing technical and other advice concerning administration of the relevant Acts relating to petroleum exploration, performs reviews and conducts research projects relating to the geological evolution and prospectivity of

Table 2

OFFSHORE PETROLEUM EXPLORATION PERMITS

Title	Holder	Blocks	Expires
T/14P	Amoco Aust. Petroleum Co. and others	25	24.8.92
T/15P	Weaver Oil & Gas Corp. Aust and Dorchester International Inc. ...	136	26.5.92
T/18P	Amoco Aust. Petroleum Co. and others	59	24.8.92
T/23P	Shell Company of Australia	38	22.12.95
T/24P	Maxus Energy Corporation	72	02.1.96

the offshore and onshore sedimentary basins. The section continued to be staffed by the Petroleum Geologist, receiving specialist input from other Departmental officers as required.

The Petroleum Geologist took part in preparation of the Department of Resources and Energy Corporate Plan and continued participation in the Natural Gas Working Group until that group completed its work in early 1991.

A paper produced in collaboration with the National Centre for Petroleum Geology and Geophysics (University of Adelaide) on reservoir sedimentology and diagenesis in the Bass Basin was presented at the 1991 APEA Conference and published in the *APEA Journal*. A paper on the tectonic development of the Durroon Basin (north-east Tasmania), produced in collaboration with Bridge Oil Limited, was presented at the 1991 ASEG-GSA Conference (February 1991, Sydney) and published in *Exploration Geophysics*.

Collaborative work continued with the University of Western Australia into sedimentary and tectonic features of Tasmania's potentially petroleum-bearing Lower Palaeozoic and Precambrian rock successions and their relationship with similar successions in Victoria. Two papers resulting from this work are currently in press.

The Petroleum Geologist continued as national secretary of the Geological Society of Australia Inc. and has recently been appointed to the Australian committee of the UNESCO International Geological Correlation Program.

OFFSHORE

Amoco and their joint venture partners were granted a Retention Lease over the Yolla oil and gas discovery (T/RL1). The Yolla field is being considered as a possible source of natural gas for Tasmania, although further drilling is necessary to prove sufficient reserves to ensure adequate supply.

Current offshore exploration permits are shown in Table 2; the number of exploration permits decreased over the level of the previous year with the surrender of T/22P in the Bass Basin. Two areas in the Bass Basin (T91-1, T91-2) were made available for work program bidding as part of the First 1991 Offshore Release.

A seismic survey by Bridge Oil Limited in T/15P (Durroon Basin) acquired some 1115 line kilometres of new data. Maxus Energy Corporation acquired 810 line kilometres of new seismic data in the Sorell Basin (T/24P) as part of their work program.

ONSHORE

Conga Oil Limited (EL 1/88) continued their search for Ordovician-sourced hydrocarbons beneath the Tasmania Basin. Results of this work were presented at the 1991 APEA Conference held in Melbourne in April.

GEOLOGICAL SUPPORT SERVICES

CARTOGRAPHIC DRAFTING

The following progress was made on colour map production.

1:50 000 Geological Atlas Series

Snow Hill — drafted
Corinna — drafted
Woolnorth — drafting commenced

1:25 000 Mt Read Volcanics Project Geological Maps

Elliott Bay–Mt Osmund Area — drafted

Northeast Groundwater

Scottsdale Basin Geology (1:60 000) — drafted and printed
Winnaleah Geology (1:100 000) — drafted
Lilydale Geology (1:100 000) — drafted

The majority of the drafting for geological bulletins, reports and other support services has continued to be handled by our two Computer-Aided Drafting work stations, with approximately 170 maps and diagrams being produced.

Work has continued with the development of the Department's Geographic Information System, with specialised training being undertaken. The capture of data in digital form for the State 1:500 000 geological map was completed. At present 16 sheets at 1:50 000 and 1:63 360 scale of the Geological Atlas series have been captured. These will form the basis of the new 1:250 000 Launceston sheet.

Future development of the GIS as a cartographic tool will depend on resources being made available.

LIBRARY

Collection

Despite financial constraints, the library stock continued to grow. Additions to the library stock are summarised below:

	Purchased	*Donated*
Monographs	12	137
Pamphlets	-	14
Non-book items	2	73
Serial Titles	3	5
Company Exploration Reports	-	284

As a result of the library having access to online databases and the closure of the metallurgical laboratories, six journal subscriptions were cancelled.

Reference and Information

During the year 546 items were borrowed by staff. There were 1682 reference queries handled by the library staff. Of these 946 were classed as short reference queries, while 733 required more detailed literature searches. In addition, 286 computer searches were conducted for both staff of the Division and outside users. Of these computer searches, 26 were commercial searches of TASXPLOR. This represents a 41% decrease on the number of TASXPLOR searches conducted in 1989–90. The library had 645 outside users during the year and 694 Open File reports on both mineral and petroleum explorations were consulted by non-divisional personnel.

The reports relating to the Exploration Tender Area service continue to be available through the library in hard copy and on microfiche.

Technical Services

The software used in the library computer (INMAGIC) was upgraded to Version 7.2 during the year.

All new monographs and journals issues which deal with a discrete subject are added to the database.

This system is also being used to generate accessions lists, which are being produced regularly.

PUBLICATIONS

The range of publications produced this year reflects the increase in use of the Publications Section by other branches of the Department, a trend which has been increasing since the introduction of the Desktop Publishing systems nearly three years ago. The availability of economically-priced services now offered by the Document Reproduction Centre of the Government Printer has also seen an increase in the number of publications produced with limited print runs, while financial restrictions have forced the postponement of some printing, particularly of the more traditional geological publications.

Annual Reports

Changes in the structure of the State Service resulted in changes to the traditional production of the Annual Report. A report combining the activities of the Department of Resources and Energy, the Division of Mines and Mineral Resources, and the Rivers and Water Supply Commission (Water Resources Division) was produced in limited numbers for presenting to Parliament. The Division of Mines and Mineral Resources and the Water Resources Division sections of this report were expanded slightly and printed separately for distribution to the respective Division's staff and clients.

A limited run of a more detailed report of the activities of the Dangerous Goods Inspectorate was also produced.

Other Publications

Major publications produced during the year were:

- Geological Survey 1:50 000 series Explanatory Report — Pedder
- Mt Read Volcanics Project Geological Report 4 — *Geology of the Cradle Mountain Link Road–Mt Tor area*
- Mt Read Volcanics Project Geological Report 5 — *The origin of gold-tin-copper mineralisation at the Lakeside Deposit, western Tasmania*
- Mineral Resources of Tasmania 11 — *Alluvial gold*
- Mineral Exploration Code of Practice
- Review of the Tasmanian Mining Act, 1929 — Research paper
- Notes for the Tasmanian Shot-firer (three editions produced)
- Literature review to evaluate the health effects of occupational exposure to thermally generated amorphous silica fume

A limited reprint of Geological Survey Bulletins 32 and 39 (*Osmiridium in Tasmania* and *The Osmiridium Deposits*

of the Adamsfield District), combined in one volume, was also produced.

Numerous leaflets, forms and other miscellaneous items were produced as required. Twenty-one reports and five consultancy reports were issued during the year.

Publications in progress at the end of the year included explanatory notes for the St Helens and Lake River 1:50 000 geological maps; a further geological report in the Mt Read Volcanics series; and Bulletins on coal resources, groundwater in the Devonport–Port Sorell area, geology and glaciation of the King Valley, and Late Carboniferous–Lower Permian invertebrate faunas.

Reports Issued During 1990–91

1990/19 *Equilibrium thermodynamics of the Lyell Highway eclogites*, by B. D. Goscombe
[3 August 1990]

1990/20 *Investigation of a landslide, Hone Road – Officer Street, Rosetta*, by B. D. Weldon
[10 August 1990]

1990/21 *Sand resources in the Hobart area*, by D. J. Sloane & B. D. Weldon
[13 September 1990]

1990/22 *SWAMP — Subterranean Water Automatic Monitoring Program*, by R. J. Sedgman
[28 September 1990]

1990/23 *Unidata installations at Hone Road and Officer Street, Rosetta (Stage 1)*, by R. J. Sedgman
[8 October 1990]

1990/24 *Field manual for the Toshiba laptop computer with Version 2.02 software (Revision 1)*, by R. J. Sedgman & B. D. Weldon
[18 October 1990]

1990/25 *A gas seep at Marion Bay*, by P. W. Baillie
[10 October 1990]

1990/26 *Shallow subsurface investigations of a proposed subdivision at Newstead*, by B. D. Weldon
[11 October 1990]

1990/27 *Earth Science Inventory — World Heritage area*, by N. J. Turner
[30 October 1990]

1990/28 *PHYSPROP — a database for physical property data from samples registered in TASROK*, by R. G. Richardson
[22 October 1990]

1990/29 *Interim report on a landslide at Hone Road, Rosetta* by B. D. Weldon
[21 May 1990]

1990/30 *Using the Slidecat database*, by E. L. Martin
[30 November 1990]

1991/01 *Regional Geological Mapping Section — Submissions for funds for mapping projects 1991/92*, by E. Williams
[6 February 1991]

1991/02 *Summary of the regional geology of the Macquarie Harbour, Pt Hibbs, and Montgomery 1:50 000 map sheets*, by A. V. Brown, R. H. Findlay & M. P. McClenaghan
[14 February 1991]

1991/03 *Deformation of the Zeehan Tillite and re-evaluation of the Tabberabberan Orogeny in Tasmania*, by B. D. Goscombe
[14 February 1991]

1991/04 *Land stability assessment of an urban block in Alexander Street, Leith*, by R. C. Donaldson
[25 February 1991]

1991/06 *Drilling for groundwater at Safety Cove, Port Arthur*, by B. E. Cox
[26 March 1991]

1991/07 *The mineralogy of gold in Mt Lyell copper concentrates*, by D. McP. Duncan & R. S. Bottrill
[22 May 1991]

1991/08 *Some Tasmanian coal statistics*, by C. A. Bacon
[6 June 1991]

1991/09 *Structural analysis of amphibolite zone, Serpentine Hill DDH No. 1*, by B. D. Goscombe
[13 June 1991]

1991/10 *Report on the Melba Flats Exempt Area, SR 1987, No 216 of 11 km*^{2}, by A. V. Brown
[30 June 1991]

CHEMICAL LABORATORY

The Metallurgical Laboratory in Launceston was closed in October 1990 and the metallurgical pilot plant leased to EMF Consultants. The chemical analytical equipment, such as sample preparation, atomic absorption spectrophotometer, and X-ray fluorescence spectrometer, were transferred to the Rosny Park chemical laboratory, together with four of the Launceston staff. The closure, transfer and setting up of the chemical equipment took three months, with some samples being analysed from 1 January 1991 at Rosny Park. The installation of the sample preparation equipment at Mornington was 90% complete at financial year end.

The thrust of the chemical laboratory's function at Rosny will be to provide analytical services to Geological Survey, with any excess analytical determination capacity being offered to the public at a determined cost.

Some of the clients using these services (in addition to the Geological Survey) are as follows:

- Mineral Holdings
- Spaulding Drillers
- Pasminco
- University of Tasmania
- C. Brown & Associates
- V. Threader & Associates
- Rallinga Mines
- South Pole Metals
- ACL Bearings
- Soil Tech Research

For the year the following number and type of samples were registered.

Water samples	378
Industrial Liquors	64
Alloys	81
Rocks	205
Minerals & Products	1010
Total	1738

The following is a breakdown of the type of analytical determination carried out this year.

XRF	14 474
Atomic Absorption and Miscellaneous	6 323
Fire Assay	44
Total	20 841

Value of Work Invoiced

Outside Clients	$34,661.85
Division of Mines	$49,869.25
Total	$84,531.10

Of the 20,841 determinations completed for the year, 15,125 were completed in Launceston between July and October 1990.

STATISTICAL TABLES

Table 3

EMPLOYMENT AND ACCIDENT STATISTICS 1990–91 (IN ACCORDANCE WITH AUSTRALIAN STANDARD AS 1885)

Employer	*Manhours Exposure*	*No. of Injuries*	*Days Lost*	*No. of Employees*	*Frequency Rate*	*Incidence Rate (%)*	*Mean Duration*
Aberfoyle–Hellyer	541 172	26	408	267	48	10	15.7
Aberfoyle–Que River	67 151	7	86	40	104	18	12.3
Anchor Mine	40 452	6	186	19	148	32	31.0
Beaconsfield	23 307	1	36	13	43	8	36.0
King Island Scheelite	81 277	6	70	40	74	15	11.7
Mount Lyell	981 540	70	742	449	71	16	10.6
Pasminco Rosebery	804 907	25	842	411	31	6	33.7
Renison	673 126	35	355	318	52	11	10.1
Savage River	508 149	45	348	231	89	19	7.7
Tasmania Mines	51 519	0	0	22	0	0	NONE
Tonganah Clay	26 570	4	96	16	151	25	24.0
All Mines	3 799 170	225	3 169	1 825	59	12	14.1
Comalco	1 892 998	214	2 492	1 081	113	20	11.6
Goliath Cement	469 439	18	427	227	38	8	23.7
Mole Creek	43 326	1	205	22	23	5	205.0
Pasminco–EZ Risdon	3 025 272	88	2 204	1 381	29	6	25.0
Pioneer Silicon Ind.	125 717	21	432	67	167	31	20.6
Port Latta	218 670	5	43	89	23	6	8.6
Temco	898 298	80	709	448	89	18	8.9
Tioxide Aust.	602 288	18	149	314	30	6	8.3
Ceramics	163 190	31	271	84	190	37	8.7
All Works	7 439 198	476	6 932	3 713	64	13	14.6
Collieries	234 734	35	342	146	149	24	9.8
Quarries	206 448	14	71	106	68	13	5.1
TOTALS	11 679 550	750	10 514	5 790	64	13	14.0
HEC Anthony	241 729	28	272	150	116	19	9.7

DEFINITIONS

FREQUENCY RATE

This is the number of lost-time injuries in the year, related to a million work-hour unit, as follows:

Lost Time Frequency Rate = Number of lost-time injuries × 1 000 000 / Work-hours exposure

INCIDENCE RATE

This is the number of lost-time injuries × 100 / Number of Employees

MEAN DURATION RATE

This is the time lost per lost-time injury, as follows:

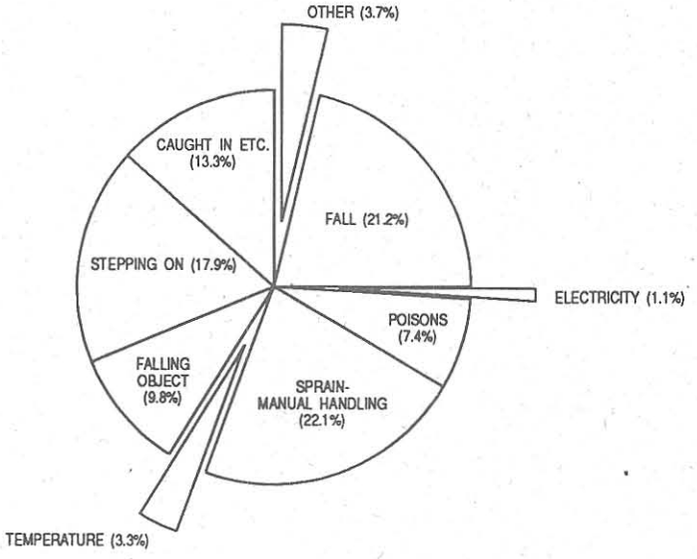
Mean Duration = Days Lost (shifts) / Number of lost-time injuries

SEVERITY RATE

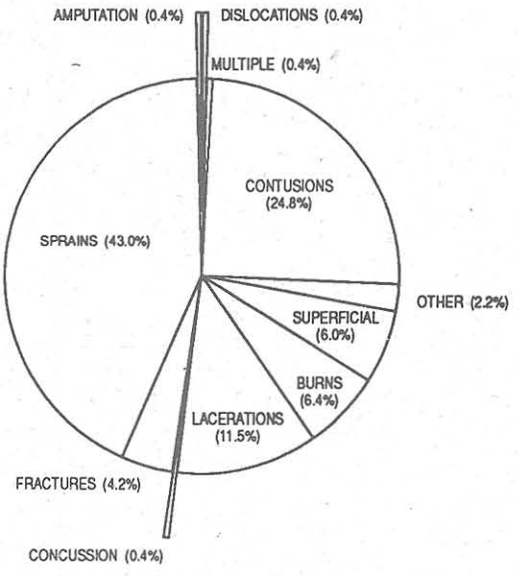
Severity Rate = Days (shifts) lost × 1 000 000 / Work-hours Exposure

MINE INJURY CLASSIFICATION, 1990-91

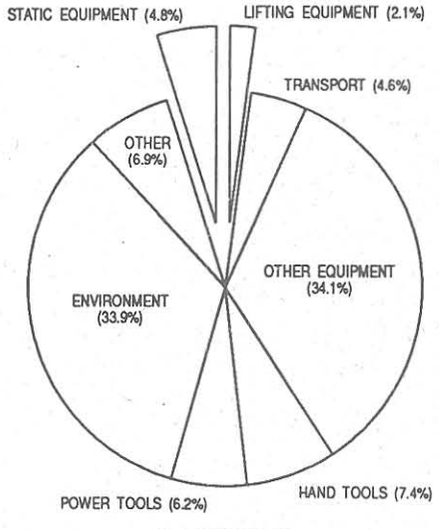
(Australian Standard AS1885)



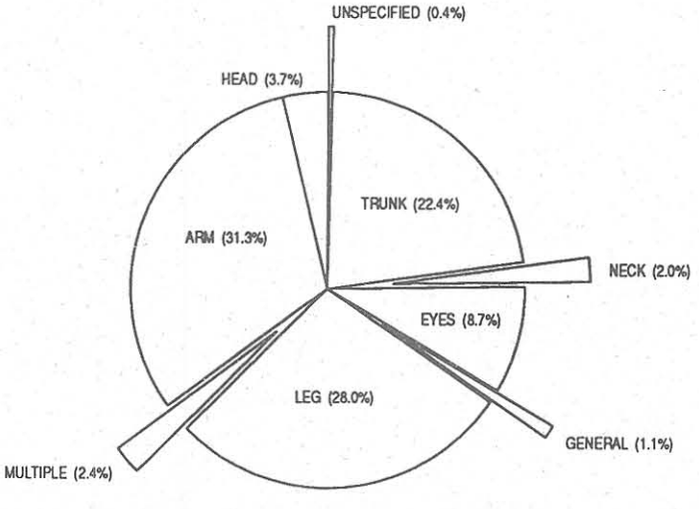
TYPE OF ACCIDENT



NATURE OF INJURY



AGENCY



PART OF BODY INJURED

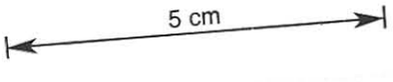


Table 4

CERTIFICATES OF COMPETENCY

The following Certificates of Competency were issued by the Board of Examiners in accordance with the *Mines Inspection Act 1968*.

MINE MANAGERS CERTIFICATES

Certificate Number	*Name*	*Date*	*Mine*
Metalliferous			
329/90	Geoffrey Leonard Newling	10.7.90	Hellyer
330/90	Anthony William Lennox	10.7.90	Hellyer
331/90	Paul Benson	17.7.90	Renison
332/90	Hamish John Lindsey Bohannan	10.7.90	Hellyer
333/90	Richard John Taylor	23.7.90	Mt Lyell
334/90	Peter George Lloyd	6.11.90	Rosebery
335/90	Scott Andrew Sullivan	6.11.90	Renison
336/91	Gareth William Thomas	18.4.91	Renison
337/91	Grant Anthony Douglas	18.4.91	Mt Lyell
Restricted			
R12/91	Owen Peter Manson Griffiths	8.1.91	HEC

The unrestricted certificates were issued following written and oral examinations in legal knowledge.

In addition, 115 crane drivers, 9 winder drivers and 2 stationary engine drivers Certificates of Competency were issued.

Table 5

MINERAL PRODUCTION FOR THE YEAR 1990–91 FROM TASMANIAN SOURCES

	Spectrum Resources	*Cornwall Coal Co.*	*Pasminco Metals (1)*	*King Is. Scheelite*	*Mt Lyell*	*Hellyer*	*Renison Ltd*	*Savage Riv. Mines*	*Pioneer Silicon Ind.*	*Tasmania Mines*	*Small Producers*
Cadmium .....(tonnes)	...	...	143	...	...	...	...	...	...	...	...
Copper .....(tonnes)	...	...	3 142	...	19 970	1 135	...	...	...	...	36.42
Gold ..... (kg)	...	...	1 109	...	446	...	...	...	...	...	76.72
Iron ore pellets .....(tonnes)	...	...	...	...	...	...	...	1 488 668	...	...	...
Lead .....(tonnes)	...	...	22 475	...	...	38 736	...	...	...	...	502.56
Magnetite .....(tonnes)	...	...	...	...	...	...	...	72 446	...	102 179	...
Molybdenum .....(tonnes)	...	...	...	3.43	...	...	...	...	...	...	...
Silicon .....(tonnes)	...	...	...	...	...	...	...	...	10 083	...	...
Silver ..... (kg)	...	...	59 970	...	2 557	85 426	...	...	...	...	225.97
Sulphuric acid ..... (mono tonnes)	...	...	147 014	...	...	...	...	...	...	...	...
Tin .....(tonnes)	264	...	...	...	...	...	5 120	...	...	...	2.13
Tungsten .....(tonnes)	...	...	...	569	...	...	...	...	...	301.07	...
Zinc .....(tonnes)	...	...	64 544	...	...	110 998	...	...	...	...	1 262
Coal .....(tonnes)	...	511 919	...	...	...	...	...	...	...	...	48 669
Peat ..... (m^3)	...	...	...	...	...	...	...	...	...	...	3 486

(1) Includes production from Que River Mines

Table 6

VALUE OF THE MINERAL INDUSTRY

Year ended / *Commodity*	*Unit*	*30 June 1990* *Total Quantity*		*30 June 1991* *Total Quantity*	
METALLIC MINERALS					
Cadmium	(tonne)	137.7		143.32	
Cobalt oxide	(tonne)	1.01		0	
Copper	(tonne)	20 045		24 283	
Gold	(kilogram)	1 627		1 773	
Iron ore pellets	(tonne)	2 260 774		1 488 668	
Iron (magnetite)	(tonne)	178 349		174 625	
Lead	(tonne)	67 020		64 880	
Molybdenum	(tonne)	12		3.43	
Pyrite	(tonne)	34 927		27 839	
Silica for silicon alloy	(tonne)	149 746		172 277	
Silicon (metallic or as alloy)	(tonne)	9 749		10 083	
Silver	(kilogram)	154 369		165 121	
Tin	(tonne)	7 903		5 386	
Tungsten as tungstic oxide	(tonne)	1 531		870	
Zinc	(tonne)	150 413		176 804	
Value of metallic minerals		**$556 010 357**		**$474 776 360**	
NON-METALLIC AND FUEL MINERALS					
Clay–					
Brick	(tonne)	65 313		32 905	
Other	(tonne)	64 042		49 610	
Kaolin	(tonne)	31 865		57 411	
Dolomite	(tonne)	35 618		34 240	
Limestone–					
Agricultural	(tonne)	116 448		99 947	
Cement	(tonne)	731 915		746 098	
Chemical and metallurgical	(tonne)	65 037		58 085	
Other	(tonne)	49 765		47 321	
Sulphuric acid	(mono tonne)	91 115		147 014	
Coal (run of mine)	(tonne)	569 173		560 589	
Coal (washed)	(tonne)	-		339 006	
Peat	(m^3)	1 367		3 486	
Value of non-metallic and fuel minerals		**$38 629 103**		**$39 225 269**	
CONSTRUCTION MATERIALS					
Building stone–					
Freestone	(tonne)	346		272	
Granite	(tonne)	85		865	
Other	(tonne)	255		74	
Crushed and broken stone–					
Basalt	(tonne)	1 078 022		870 320	
Dolerite	(tonne)	1 173 225		947 936	
Limestone	(tonne)	55 428		51 752	
Sandstone	(tonne)	961		1 060	
Other	(tonne)	117 077		194 624	
Gravel	(tonne)	90 753		34 868	
Sand	(tonne)	498 238		426 439	
Other road materials	(tonne)	936 798		936 144	
Value of construction materials		**$25 658 351**		**$23 404 761**	
TOTAL VALUE WITH AUSTRALIAN METAL PRICES		**$620 297 811**		**$537 406 390**	
METALLURGICAL PRODUCTION FROM OTHER THAN TASMANIAN ORES					
Aluminium	)				
Aluminium sulphate	)				
Cadmium	)				
Cobalt oxide	)				
Ferro-manganese	)				
Ferro-silicon	)	**$739 044 342**		**$622 903 124**	
Silico-manganese	)				
Sinter	)				
Superphosphate	)				
Titanium dioxide	)				
Zinc	)				
VALUE OF MINING AND METALLURGICAL PRODUCTION		**$1 359 342 153**		**$1 160 309 514**	
REPORTED AVERAGE NUMBER OF EMPLOYEES[1]		6 897		6 242	

(1) Not all operators report full details

Table 7

MINERAL PRODUCTION FROM TASMANIAN SOURCES SINCE 1880
QUANTITY OF PRODUCTION AS AT 30 JUNE 1991

Commodity	*Unit*	*Quantity in Current Year*	*Total Quantity*
METALLIC MINERALS			
Antimony	(tonne)	-	3
Bismuth	(kilogram)	-	110 080
Cadmium	(tonne)	143	4 708
Chromite	(tonne)	-	2 687
Cobalt oxide	(tonne)	0	165.3
Copper (blister) to 1918 (now shown under Silver and Copper)	(tonne)	-	169 273
Copper matte	(tonne)	-	6 326
Copper ore to 1918 (now shown under Copper)	(tonne)	-	42 439
Copper (from 1919)	(tonne)	24 283	1 049 644
Crocoite	(kilogram)	-	1 350
Gold	(kilogram)	1 773	122 169
Ilmenite	(tonne)	-	558
Iron ore pellets	(tonne)	1 488 668	48 944 450
Iron oxide (including hematite, limonite and magnetite)	(tonne)	174 625	927 539
Lead (from 1919)	(tonne)	64 880	939 979
Manganese	(tonne)	-	1
Manganese dioxide (from 1957)	(tonne)	-	13 521
Mercury	(kilogram)	-	7 697
Molybdenum	(tonne)	3	162
Monazite	(tonne)	-	34
Nickel	(tonne)	-	237
Osmiridium	(kilogram)	-	960
Pyrite (to 1971)	(tonne)	-	2 124 070
Pyrite (from 1972)	(tonne)	27 839	1 629 131
Rutile	(tonne)	-	1
Rutile (concentrates)	(tonne)	-	40 027
Scheelite (concentrates)	(tonne)	-	57 261
Silica for silicon alloy production	(tonne)	172 277	1 026 959
Silicon	(tonne)	10 083	35 384
Silver-lead ore to 1918 (now shown under Silver and Lead)	(tonne)	-	1 101 295
Silver (from 1919)	(kilogram)	165 120	3 306 351
Tin	(tonne)	5 386	295.201
Tungsten (as tungstic oxide)	(tonne)	870	34 844
Zinc	(tonne)	176 804	2 565 166
Zinc sulphate (from 1957)	(tonne)	-	4 306
Zircon (concentrates)	(tonne)	-	39 001
NON-METALLIC MINERALS			
Asbestos	(tonne)	-	4 044
Barite	(tonne)	-	2 240
Clay (from 1958)	(tonne)	82 516	4 247 817
Dolomite	(tonne)	34 240	344 005
Graphite	(tonne)	-	41
Kaolin	(tonne)	57 411	457 545
Limestone–			
Agricultural and other	(tonne)	142 817	2 473 771
Carbide	(tonne)	-	1 081 509
Cement	(tonne)	746 098	17 810 312
Chemical and metallurgical	(tonne)	62 536	6 163 985
Ochre	(tonne)	-	2 949
Pebbles (from 1957)	(tonne)	-	31 757
Sulphuric acid	(mono tonne)	147 014	5 320 421
Sand (moulding)	(tonne)	578	1 442
Silica	(tonne)	-	701 248
Talc	(tonne)	-	338

Table 7

MINERAL PRODUCTION FROM TASMANIAN SOURCES SINCE 1880 QUANTITY OF PRODUCTION AS AT 30 JUNE 1991 (continued)

Commodity	*Unit*	*Quantity in Current Year*	*Total Quantity*
FUEL MINERALS			
Coal (run of mine)	(tonne)	560 589	17 330 615
Shale	(tonne)	-	42 239
Peat	(m^3)	3 486	27 413
CONSTRUCTION MATERIALS			
Building stone–			
Freestone	(tonne)	272	29 556
Granite	(tonne)	865	132 786
Other stone	(tonne)	74	38 168
Crushed and broken stone (from 1958)–			
Basalt	(tonne)	870 320	16 717 911
Dolerite	(tonne)	947 936	28 750 623
Limestone	(tonne)	51 752	1 069 994
Sandstone	(tonne)	1 060	278 780
Other	(tonne)	194 624	10 965 933
Gravel (from 1958)	(tonne)	34 868	48 232 509
Sand (from 1958)	(tonne)	426 439	8 582 709
Other road-making material	(tonne)	936 144	10 555 876

Table 8

IMPORTED ORES, 1990–91

Company	*Product (tonnes)*				
	Alumina	*Lead-zinc concentrate*	*Ilmenite*	*Manganese ore*	*Phosphate rock*
Comalco (Bell Bay)	287 840	...	...	...	...
Pasminco Metals EZ	...	283 816	...	...	39 346
Tioxide Australia	...	...	46 871	...	...
TEMCO	...	...	...	257 575	...

Table 9

NUMBER AND AREA OF LEASES AND LICENCES APPLIED FOR DURING THE YEAR TO 30 JUNE 1991

Product	*Number*	*Area (ha)*	*Sluiceheads*
All minerals	6	2 230	-
Basalt	1	53	-
Coal	3	1 824	-
Easements	1	1	-
Gold	9	742	-
Gold and all minerals	1	6	-
Gravel	11	125	-
Gravel and clay	1	4	-
Limestone	1	567	-
Limestone and gravel	1	72	-
Ochre and magnesite	4	375	-
Sand	7	225	-
Sand and gravel	2	7	-
Silica	3	66	-
Silica and all minerals	3	186	-
Stone	34	868	-
Tin	2	128	-
Tin and all minerals	1	50	-
Water	-	-	-
	91	7 529	0

Table 10

NUMBER AND AREA OF NEW LEASES AND LICENCES GRANTED DURING THE YEAR TO 30 JUNE 1991

Product	*Number*	*Area (ha)*	*Sluiceheads*
All minerals	1	1 457	-
Coal	2	400	-
Gold	1	427	-
Granite	1	3	-
Gravel	16	264	-
Gravel and all minerals	1	4	-
Lime sand and stone	1	9	-
Limestone	1	567	-
Limestone and gravel	1	72	-
Sand	6	207	-
Sand and gravel	1	6	-
Sand, gravel and silica	1	9	-
Shale	1	4	-
Silica	1	25	-
Stone	16	184	-
Stone and gravel	1	96	-
Tin	1	16	-
	53	3 750	-

Table 11

TOTAL NUMBER OF LEASES AND LICENCES IN FORCE ON 30 JUNE 1991

Principal product	*Number*	*Area (ha)*	*Sluiceheads*
All minerals	65	13 709	-
Clay	11	252	-
Coal	14	7 899	-
Copper	5	1 276	-
Dolomite	2	131	-
Easements	59	533	209
Gold	55	3 530	-
Granite	4	10	-
Gravel	144	3 464	-
Gravel and stone	10	667	-
Iron	1	1 959	-
Kaolin	2	373	-
Lead and zinc	6	477	-
Limestone	13	1 650	-
Magnesite, silica and talc	1	29	-
Ochre and magnesite	6	575	-
Peat	5	772	-
Sand	70	2 640	-
Sand and gravel	29	3 062	-
Sand and stone	14	1 298	-
Savage River Easements	12	2 248	-
Shale	2	5	-
Silica	22	1 862	-
Silver and lead	2	24	-
Slate	4	185	-
Specimens	2	16	-
Stone	221	9 937	-
Tin	73	9 027	-
Wolfram	2	20	-
Zinc	1	100	-
	857	67 730	209

Table 12

TOTAL NUMBER OF ALL TYPES OF PROSPECTING RIGHTS HELD AS AT 30 JUNE 1991

Mining Tenement		*Number*	*Area*
Exploration Licences —	All minerals	96	5 858 km^2
	Non metallic	12	561 km^2
	Oil	2	61 218 km^2
Retention Licences —	All minerals	12	59 km^2
	Non Metallic	12	406 km^2
Prospectors Licences		22	483 ha
Miners Rights		10	2.5 ha
Owners Rights		2	1 040 ha
Permits to explore for Petroleum under *Petroleum (Submerged Lands) Act 1967*		5	321 blocks
Retention Licence under *Petroleum (Submerged Lands) Act 1967*		1	9 blocks

Table 13

LICENCES, PERMITS AND APPROVALS ISSUED FOR THE IMPORT, MANUFACTURE, STORAGE, USE AND SALE OF DANGEROUS GOODS, 1990–91

	1990–91	*1989–90*
Licences to keep flammable liquids and dangerous goods	2533	2 478
Licences to sell explosives and safety cartridges	147	167
Private magazine licences	95	95
Import explosives licences	31	33
Convey explosives licences	18	17
Manufacture explosives licences	1	1
To sell fireworks licences	6	283
Fireworks permits	59	Nil
Applications for shotfirers permits	132	48
Applications for plan approvals	240	354
Landing permits (fireworks and explosives)	73	71
Transfers and information retrieval requests	105	113
Manufacture dangerous goods licences	6	7
Import dangerous goods licences	16	17
Gas suppliers licences	43	2
Exemptions	-	-

Table 14

IMPORTS OF FLAMMABLE LIQUIDS, 1990–91

Product (tonnes)	*Bell Bay*	*Burnie*	*Devonport*	*Hobart*	*Total (tonnes)*
Aviation Gasoline	1 400	-	-	-	1 400
LP Gas	8 198	-	12 799	10 741	31 738
Unleaded Petrol	12 933	13 394	19 927	39 526	85 780
Super Petrol	45 058	30 565	43 904	113 913	233 400
Kerosene — Aviation - Jet	11 519	-	-	14 347	25 866
Kerosene — Lighting & Power	-	-	-	-	-
Bitumen Feed Stock	-	-	-	28 880	28 880
AGO and Distillate	41 320	47 371	40 234	74 929	203 854
Heating and Fuel Oil	5 704	11 410	8 369	6 772	32 255
TOTAL (TONNES)	126 132	102 740	125 233	289 108	643 213
NUMBER OF TANKERS	27	10	23	37	97

Table 15

IMPORTS OF EXPLOSIVES, 1990–91

Product (cartons)	*Wynyard*	*Stanley*	*Burnie*	*Devonport*	*Currie, King Island*	*Queenstown*	*Total*
Blasting Explosives 1.1D		920	33 581	240	105		34 846
Blasting Powder 1.1D							-
Detonating Cord 1.1D							-
Propellant Powder 1.1C							-
Detonators 1.1B		455	2 590		71		3 116
Detonators 1.4B	3						3
Gunpowder 1.4G							-
ISANOL 1.5D							192
Total cartons	3	1 375	36 171	240	176	192	38 157
Ammonium nitrate (kg)			299 800				299 800
Number of Shipments	1	15	35	3	12	4	50 ship 20 aircraft

There were no imports for Bell Bay, Hobart, Smithton for 1990–91
All imports into Wynyard, Devonport, Currie and Queenstown were by aircraft.
There were 7 EEP's issued for Stanley — 560 cartons 1.1D Blasting Explosives

Table 16

DRILLING DETAILS 1990-91

Location	*Purpose*	*Drill*	*No. of Holes*	*Total depth (m)*
DIAMOND DRILLING				
Mount Cattley	Stratigraphic investigation	Longyear 44 No. 1	1	232.0
Risbys Basin	Limestone investigation	Longyear 44 No. 1	1	519.0
Zeehan	Stratigraphic investigation	Longyear 44 No. 1	3	471.7
Fingal	Stratigraphic investigation	Longyear 44 No. 1	1	136.0
Melba Flats	Stratigraphic investigation	Longyear 44 No. 2	1	427.1
Ellinthorp	Stratigraphic investigation	Longyear 44 No. 2	1	455.2
Landfall	Road investigation	Longyear 44 No. 2	2	21.2
Maydena	Stratigraphic investigation	Gemco 210D	9	314.0
Kettering	Road investigation	Warman 1000	3	35.9
	Sub-total		22	2612.1
DIAMOND/AUGER DRILLING				
Bruny Island	Stratigraphic investigation	Gemco A	35)	(124.5
Bruny Island	Stratigraphic investigation	Gemco 210D	)	(240.0
Mathinna	Stratigraphic investigation	Longyear 44 No. 2	1	175.3
Kettering	Road investigation	Gemco A	1	4.0
Bass Highway	Road investigation	Gemco 210D	1	10.3
Cam River	Road investigation	Gemco 210D	8	201.8
Welcome River	Road investigation	Gemco 210D	7	106.5
Ulverstone	Landslip investigation	Gemco 210D	1	88.0
Hone Road	Landslip investigation	Gemco 210D	24	588.5
Illawarra	Road investigation	Gemco 210D	3	59.8
Hagley	Road investigation	Gemco 210D	2	25.7
	Sub-total		83	1624.4
ROTARY/DOWN-HOLE HAMMER DRILLING				
Osmaston	Groundwater monitoring	Warman 1000	1	80.0
Caveside	Groundwater monitoring	Warman 1000	3	66.6
Hagley	Groundwater monitoring	Warman 1000	2	141.0
Conara	Groundwater monitoring	Warman 1000	2	48.0
Ross	Groundwater monitoring	Warman 1000	1	80.0
Tunnack	Groundwater monitoring	Warman 1000	1	80.0
Mowbray	Groundwater monitoring	Warman 1000	1	80.0
Tea Tree	Groundwater monitoring	Warman 1000	1	48.0
Boomer Island	Water bore	Warman 1000	4	75.0
Port Arthur	Groundwater monitoring	Warman 1000	2	84.0
Dodges Ferry	Groundwater monitoring and bore	Warman 1000	3	138.0
Sorell	Groundwater monitoring	Warman 1000	1	36.0
Huonville	Groundwater monitoring	Warman 1000	2	89.0
Snug	Groundwater monitoring	Warman 1000	1	72.0
New Norfolk	Groundwater monitoring	Warman 1000	1	36.0
Bothwell	Groundwater monitoring	Warman 1000	1	54.0
Buckland	Groundwater monitoring	Warman 1000	1	60.0
Boomer Creek	Groundwater monitoring	Warman 1000	1	60.0
Bicheno	Groundwater monitoring	Warman 1000	1	80.0
St Marys	Groundwater monitoring	Warman 1000	1	80.0
Ringarooma	Groundwater monitoring and bore	Warman 1000	9	558.0
Winnaleah	Water bore	Warman 1000	1	72.0
St Helens School	Water bore	Warman 1000	1	31.0
Branxholm	Groundwater monitoring and bore	Warman 1000	3	90.0
Legerwood	Water bore	Warman 1000	5	230.0
	Sub-total		50	2468.6
	TOTAL		155	6705.1

REPORT OF THE WATER RESOURCES DIVISION 1990–91

The Department of Resources and Energy was formed on 17 July 1989 and incorporated the former Department of Mines and the Rivers and Water Supply Commission. Each has formed a division of the new department, with the Commission forming the Water Resources Division.

The proclamation of the *State Authorities Financial Management Act* and the *Financial Management and Audit Act* imposed additional reporting responsibilities on the Rivers and Water Supply Commission. These require the Commission to report independently to Parliament.

As the Commission also forms the Water Resources Division of the Department, the activities of the Division will be found in the report of the Rivers and Water Supply Commission which is presented to Parliament separately. The activities reported on are as follows:–

1. Municipal Water, Sewerage and Drainage Works
2. Fluoridation
3. Surface Water Resources Assessment
4. Financial Assistance to Municipalities
5. Irrigation
6. North Esk Regional Water Scheme
7. Prosser River Water Scheme
8. West Tamar Water Scheme
9. Togari Water Scheme
10. Farm Water Supplies and Water Rights
11. River Improvement and Drainage Works
12. Australian Water Resources Council
13. International Commission on Irrigation and Drainage.

REPORT OF THE CORPORATE SERVICES DIVISION 1990–91

The Division's responsibilities include human resource and financial management, development and advice, and support services, including the accounting, records management, word processing and general administration functions.

The Division was formed on 1 January 1991 through the merging of the previously separate administration functions of the Division of Mines and Mineral Resources and the Water Resources Division.

The first physical co-location of functions was effected with the transfer of the Water Resources Division Accounts Branch to the Rosny Park building.

Proposals for the organisational structure of the combined Accounts Section are being developed, together with the remainder of the Corporate Services functions.

The following initiatives have been implemented in the Corporate Services area:

- Conversion of the Division of Mines and Mineral Resources records management system to a Thesaurus/Keyword approach to file definition and an in-house computing system.
- Transfer of the Division of Mines and Mineral Resources accounting procedures to a corporate data base.
- Development of the Water Resources Division Commissional Water Rights processing on a data base system.

STAFFING

Departmental staffing at 30 June 1991 totalled 207 with the following Divisional and geographical distribution:

	South	*NE*	*NW*	*Total*
Executive	3	-	-	3
Mines & Mineral Resources	98	4	4	106
Water Resources	24	26	5	55
Energy Resources	1	-	-	1
Corporate Services	41	1	-	42
Total	167	31	9	207

These figures include 12 temporary employees in the Division of Mines and Mineral Resources working on the Mt Read Volcanics Project and 21 employees of the various Rivers and Water Supply Commission trading schemes. Regardless of the source of funds, all Departmental employment is governed by the State Service Act and various State Industrial Commission awards and agreements.

STAFF DEVELOPMENT

Four staff members attended management practices courses during the year, seven undertook further training in their specialist areas and six continued assisted study courses at various institutions. Attendance at conferences and seminars (26) was increased over last year by the attendance of geologists at the Gondwana 8 Symposium held in Hobart during June. There were 27 attendances at various development courses, ranging from written communication skills, legal procedures and a wide range of computing topics. The latter underlines the growing development in the information technology area.

EQUAL EMPLOYMENT OPPORTUNITY

An Equal Employment Opportunity policy statement was issued to all staff members on 10 April 1991. This set out the Department's commitment to EEO principles and asked for staff involvement in identifying initiatives. At the end of the reporting period a draft management plan was almost complete. The plan identifies a number of areas where procedures have already been implemented and are continuing. It also covers action to be taken in making all members of the Department aware of their rights, privileges and responsibilities as State Service employees.

A presentation was given to the Agency Consultative Committee by representatives of the Commissioner for Public Employment and the Health Services Department. The former covered the legislative and State Service policy aspects and the latter concentrated on the practicalities of introducing and implementing EEO principles in a line Department.

INDUSTRIAL RELATIONS

The Agency Consultative Committee met several times during the year and was a useful forum for resolving problems associated with restructuring and relocation. The policy of early consultations with unions was continued and their co-operation is appreciated.

OCCUPATIONAL HEALTH AND SAFETY

Twenty-three claims for work-related injuries were lodged during the year. The majority of injuries were relatively minor, consisting of sprains, cuts and abrasions, etc.

THEFT AND DAMAGE TO PROPERTY

There were some minor instances of theft and damage to property during the year with costs totalling $10 000, of which $7500 was covered by insurance.

DAMAGE TO MOTOR VEHICLES

Despite the considerable distances travelled by Departmental staff, under widely varying weather and terrain conditions, vehicle damage was comparatively light. There were 11 accident reports during the year costing approximately $5000.

Accident reports are kept under review with the aim of remedial driver training where necessary.

Financial activities of the Department of Resources and Energy

CONTENTS

REPORT ON FINANCIAL ACTIVITIES

The accompanying financial statements of the Department of Resources and Energy have been prepared in compliance with the provisions of the Financial Management and Audit Act 1990 and are in agreement with the relevant accounts and records so as to present fairly the financial transactions for the 12 months ending 30 June 1991 and the financial position as at 30 June 1991.

At the date of signing I am not aware of any circumstances which would render the particulars included in the financial statements misleading or inaccurate.

G. A. KENNEDY

SECRETARY

23 September 1991

AUDIT REPORT
DEPARTMENT OF RESOURCES AND ENERGY

Scope

In accordance with the provisions of the Financial Management and Audit Act 1990, I have audited the financial statements, notes and supplementary information for the year ended 30 June 1991. The Secretary of the Department of Resources and Energy, as Head of Agency, is responsible under the provisions of Section 27 (1) of that Act for the preparation and presentation of the statements and the information contained therein.

The audit has been planned and performed in accordance with Australian Auditing Standards to provide a reasonable level of assurance as to whether the financial statements are free of material mis-statement. My procedures included examination, on a test basis, of evidence supporting the amounts and other disclosures in the financial statements, and the evaluation of accounting policies and significant accounting estimates. These procedures have been undertaken, having regard to applicable legislation and Australian Accounting Concepts and Standards, to form an opinion in accordance with Section 40(a) of the Financial Management and Audit Act 1990 as to whether the financial statements in all material respects present fairly the financial transactions during the period specified in the statements and the financial position at the end of that period.

As the need to provide audited financial statements first applied in respect of the year ended 30 June 1991, the comparative figures for the year ended 30 June 1990 have not been audited.

The audit opinion expressed in this report has been formed on the above basis.

Qualification

Although the Department's financial statements comply with the disclosure requirements of the legislation applicable to their preparation, they are prepared within the confines of a cash basis of accounting and, therefore, do not include a statement of the financial position of the Department as at the end of the financial year, even though some non-cash assets and liabilities are disclosed.

Qualified Audit Opinion

Because of the reasons referred to in the qualification paragraph, I am not in a position to, and do not, express an opinion on the financial position of the Department as at 30 June 1991.

In my opinion, however, the financial statements of the Department present fairly the financial transactions during the year ended on that date in accordance with applicable Australian Accounting Concepts and Standards and the Financial Management and Audit Act 1990.

This opinion relates solely to the financial statements contained on pages 62 to 87.

A. J. McHugh
AUDITOR-GENERAL
22 November 1991
HOBART

PROGRAM 1

MINES

1. HIGHLIGHTS

The Division completed the year within budget. However additional funds were provided for modification of the phasing of construction of the new core library.

- The Launceston laboratories were transferred from Launceston to Hobart, which will create savings for the Department.
- $50 000 was provided for Tasmanian Government Research Scholarships to assist in post-graduate research in applied geology, geochemistry and mineral processing.
- $400 000 was provide for the Mt Read Volcanics Project, which is a continuation of the Government's committment which began in 1985/86 to encourage maximum private sector mineral exploration by provision of innovative regional geological, geophysical and geochemical information.
- $54 000 was provided as part of a grant indexed over six years to the National Centre for Ore Deposits and Exploration Studies.
- A final payment of funds provided over three years of $18 000 was made to the University of Tasmania to assist in operation of their seismic network.

2. ECONOMIC FACTORS

Most revenue items associated with the mining activities of the Division of Mines and Mineral Resources, such as royalties and rents, are dependent on the levels of profits and activity within the mining and mineral exploration industries.

As levels of profits and activity are largely controlled by international factors, such as metal prices, commodity stocks and supplies, and currency fluctuations, revenue forecasts are extremely difficult to make with any degree of certainty.

Up until June 1990 the royalty regime has been entirely profit based, and the estimation of royalty payments has therefore been extremely difficult.

The new royalty arrangements, which came into force in July 1990, have both an *ad valorem* and a profit component. A more stable revenue base is thereby assured in relation to sales, while enabling the State to participate more in periods of high profitability. The new royalty arrangements also facilitate revenue estimation.

3. PRICING AND CHARGING

Divisional policy is to regularly review all fees and charges and to set them at levels which reflect the costs associated with the delivery of service.

Consultation charges for services by the Geological Survey and the Laboratories are set within the upper quartile of industry charges.

Progressive increases over a number of years in the rates of fees and charges have been designed to move to full cost recovery of direct services provided. This process is now largely complete.

4. CAPITAL PROJECTS

The Division has had only one capital project recently — the construction of a new diamond-drill core store. This is to meet the statutory requirement of maintaining a drill core archive of mineral exploration in the State. The building was completed in mid-1990 at a total cost of $615 000. $210 000 has been expended on the purchase and installation of core-tray racking, with a further allocation of $12 000 for 1991/92.

Initially designed in two stages to meet cash flow restrictions, the project was modified with Stage 2 immediately following Stage 1 to achieve design and construction savings. The associated costs were:–

Stage 1 (contract price)	$387 216
Original Stage 2 (pre-tender estimate)	$267 500
Amended Stage 2	$227 356

5. PERFORMANCE INDICATORS

The Division has a monthly financial reporting system which measures performance against budget estimates.

6. RISK MANAGEMENT POLICIES

No specific Risk Management policies are in place. A series of checks and balances are currently in place for receiving monies, issuing orders, and paying invoices. The matter of a policy will be addressed in 1991–92.

7. ASSET MANAGEMENT POLICIES

An inventory control system is currently in place within the Division.

PROGRAM 2

RIVERS AND WATER SUPPLY

1. HIGHLIGHTS

The Division completed the year within budget, with operating expenses totalling $1 870 000. Other expenditure included:–

- $1 402 000 on subsidies to municipalities for the construction and/or operation of schemes for the supply of water or the provision of sewerage and drainage facilities.
- $649 952 paid to municipalities from the "Country Town Water Supply Improvement Program" Trust Account T697. Monies were credited to the account from the State and Commonwealth Governments.
- $2 693 000 being for the reimbursement of principal and interest charges incurred by the Commission on loans raised for the construction of the South East Irrigation Scheme ($1 605 000), Winnaleah Irrigation Scheme ($860 000), and the proposed Meander Valley Irrigation Scheme ($228 000).
- $12 000 for the costs of stream gauging instruments, back record processing, and archiving.
- $9000 for the costs of investigations of water conservation schemes and floodplain mapping.
- $16 000 for the Government contribution to capital costs, shared by landowners, of land drainage and flood prevention works on the Furneaux Drainage Scheme and the North Esk River.

2. ECONOMIC FACTORS

There were no significant factors which affected the Division's operations in 1990–91.

3. PRICING AND CHARGING

In addition to partial recovery of management costs associated with Commissional Water Rights and operation and maintenance of non-Rivers and Water Supply Commission stream-gauging stations, cost recovery on trading schemes was introduced which recovered an amount of $523 000.

4. CAPITAL PROJECTS

Information on major capital projects in relation to the Commission's trading schemes is contained in the Rivers and Water Supply Commission's Annual Report for the year 1990–91.

5. PERFORMANCE INDICATORS

The Division has a monthly financial reporting system which measures performance against budget estimates.

6. RISK MANAGEMENT POLICIES

No specific Risk Management policies are in place. A series of checks and balances are currently in place for receiving monies, issuing orders, and paying invoices. The matter of a policy will be addressed in 1991–92.

7. ASSET MANAGEMENT POLICIES

An inventory control system is currently in place within the Division.

PROGRAM 3

EXECUTIVE

1. HIGHLIGHTS

- The Division completed the year within budget.
- Progress on the relocation of the Water Resources Division with the Mines and Mineral Resources Division is well underway.
- The development of the Departmental Corporate Plan is well underway.

2. ECONOMIC FACTORS

There were no significant factors which affected the Division's operations in 1990–91.

3. PRICING AND CHARGING

Divisional policy is to regularly review all fees and charges and to set them at levels which reflect the costs associated with the delivery of service.

4. CAPITAL PROJECTS

The Division has no capital projects.

5. PERFORMANCE INDICATORS

The Division has a monthly financial reporting system which measures performance against budget estimates.

6. RISK MANAGEMENT POLICIES

No specific Risk Management policies are in place. A series of checks and balances are currently in place for receiving monies, issuing orders, and paying invoices. The matter of a policy will be addressed in 1991–92.

7. ASSET MANAGEMENT POLICIES

An inventory control system is currently in place within the Division.

RESOURCES AND ENERGY

Table A

Division 20

SUMMARY OF EXPENDITURE AND RECEIPTS

YEAR ENDED 30 JUNE 1991

EXPENDITURE

1989/90 Actual $		Estimate $	1990/91 Actual $	Variation $
7 654 194	Program 1: Mines	6 762 000	6 719 749	-42 251
7 198 000	Program 2: Rivers and Water Supply	7 788 000	6 691 079	-1 096 921
-	Program 3: Executive	420 000	353 318	-66 682
14 852 194	**Total Expenditure**	14 970 000	13 764 146	-1 205 854

RECEIPTS

613	Y207	Sale of Government Properties	-	4 913	4 913
845 742	Y208	Rent and Fees from Mineral Lands	997 000	734 013	-262 987
334 116	Y209	Royalties on Iron Ore Pellets	250 000	300 322	50 322
174 623	Y210	Storage of Explosives and Flammable Liquids	177 000	248 037	71 037
6 060 036	Y212	Mineral Royalties	6 510 000	5 049 959	-1 460 041
461 621	Y337	Resources and Energy	1 479 000	1 096 941	-382 059
71 989	L800	Sale of Government Assets	-	9 523	9 523
7 948 740	**Total Receipts**		9 413 000	7 443 708	-1 969 292

RESOURCES AND ENERGY

Table B

Division 20
Program 1 — Mines

CONSOLIDATED FUND — EXPENDITURE

YEAR ENDED 30 JUNE 1991

1989/90 Actual $		Estimate $	1990/91 Actual $	Variation $
	Program: 1 Mines			
	Recurrent Services			
5 598 994	A100 Operating Expenses	5 845 000	5 768 342	-76 658
4 000	C007 Consultants	-	-	-
61 000	C050 Equipment and Stores	-	-	-
83 000	C135 Drilling and Boring: Incidental Expenses	-	-	-
78 000	C136 Laboratories	-	-	-
50 000	C603 Tasmanian Government Research Scholarships	50 000	50 000	-
456 000	C772 Mt Read Volcanics Project	400 000	400 000	-
50 000	C828 National Centre for Ore Deposits and Exploration Studies: Grant	54 000	54 000	-
17 200	C830 Seismic Net Maintenance	18 000	18 000	-
6 398 194	**Total Recurrent Services**	6 367 000	6 290 342	-76 658
	Works and Services			
656 000	F100 Building Construction and Associated Expenses	175 000	209 999	34 999
600 000	H100 Other Works and Purposes	220 000	219 408	-592
1 256 000	**Total Works and Services**	395 000	429 407	34 407
7 654 194	**Total Expenditure for Program**	6 762 000	6 719 749	-42 251

RESOURCES AND ENERGY

Table B

Division 20
Program 1 — Mines

CONSOLIDATED FUND — EXPENDITURE
A100 and H100

YEAR ENDED 30 JUNE 1991

1989/90 Actual $			Estimate $	1990/91 Actual $	Variation $
	A100				
4 418 509	A001	Salaries and related payments	4 518 600	4 389 316	-129 284
372 360	A011	Materials and supplies	363 800	325 949	-37 851
107 897	A012	Communication	83 300	127 603	44 303
126 533	A013	Property services	135 000	164 514	29 514
314 588	A014	Travel	296 000	220 855	-75 145
152 242	A015	Transport	169 800	170 848	1 048
4 076	A016	Office machines and equipment	5 500	5 543	43
27 473	A017	Printing and publications	29 500	33 319	3 819
124 262	A018	Electronic data processing	123 500	156 654	33 154
107 850	A019	Recruitment and other personnel expenses	96 500	131 751	35 251
69 204	A020	Miscellaneous	23 500	41 990	18 490
5 824 994	**Total A100**		5 845 000	5 768 342	-76 658
	H100				
375 602	H001	Plant and equipment	71 400	138 522	67 122
18 177	H003	Furniture and fittings	15 895	18 083	2 188
34 304	H004	Computer equipment	67 455	62 803	-4 652
35 981	H005	Vehicles and seacraft	-	-	-
135 936	H022	For the purposes of the *Mineral Resources Act 1951*	65 250	-	-65 250
600 000	**Total H100**		220 000	219 408	-592

RESOURCES AND ENERGY

Table C

Division 20
Program 1 — Mines

CONSOLIDATED FUND — RECEIPTS

YEAR ENDED 30 JUNE 1991

RECURRENT — State

1989/90 Actual $		Estimate $	1990/91 Actual $	Variation $
613	Y207 *Sale of Government Properties*	–	4 913	4 913
	Y208 *Rent and Fees from Mineral Lands*			
391 306	Lease Rentals	400 000	336 133	-63 867
4 605	Submerged Land Rentals	6 000	14 255	8 255
29 758	Submerged Lands Other Fees	2 000	14 990	12 990
400	Application Rents	1 000	3 457	2 457
74 357	Mining Fees	100 000	50 775	-49 225
1 405	Miners Rights	1 000	775	-225
6 580	Prospectors Licences	6 000	2300	-3 700
148 892	Exploration Licences	250 000	156 367	-93 633
2 937	Transfer Fees	3 000	4 440	1 440
(1 280)	Application Fees	2 000	16 225	14 225
59 555	Search Fees under Mining Act	70 000	54 148	-15 852
1 279	Mine Managers' Certificates	1 000	1 850	850
23 358	Sale of Maps & Publications	35 000	23 364	-11 636
102 590	Assay Fees	120 000	54 935	-65 065
845 742		997 000	734 013	-262 987
334 116	Y209 *Royalties on Iron Ore Pellets*	250 000	300 322	50 322
	Y210 *Storage of Explosives & Flammable Liquids*			
55 785	Licence to keep flammable liquids and LPG	55 000	94 763	39 763
825	Licence to export and import	1 000	1 500	500
425	Licence to convey explosives	500	1 600	1 100
3 320	Licence to sell explosives	3 000	7 450	4 450
50	Licence to manufacture explosives	-	750	750
11 334	Licence to sell fireworks	12 000	3 750	-8 250
637	Shot firers permits	500	4 555	4 055
18 000	Inspection fees	21 000	24 626	3 626
7 255	Applic. for approval for construction or alteration to premises	7 000	12 390	5 390
1 415	Other fees or permits	2 000	2 675	675
69 789	Storage of explosives	68 000	67 944	-56
2 635	Licence for private magazines	3 000	5 660	2 660
305	Licence to manufacture dang. goods	500	1 600	1 100
425	Licence to import dangerous goods	500	850	350
100	Gas suppliers licence	-	2 700	2 700
2 323	Landing fees	3 000	4 265	1 265
-	In-house training	-	10 959	10 959
174 623		177 000	248 037	71 037

RESOURCES AND ENERGY

Table C

Division 20
Program 1 — Mines

CONSOLIDATED FUND — RECEIPTS

YEAR ENDED 30 JUNE 1991

RECURRENT — State

1989/90 Actual $		Estimate $	1990/91 Actual $	Variation $
	Y212 Mineral Royalties			
6 126 047	Metallics	6 010 000	4 108 018	-1 901 982
376 000	Less refunds		286 708	-286 708
5 750 047	**Sub Total**	6 010 000	3 821 310	-2 188 690
309 989	Other	500 000	1 228 649	728 649
6 060 036		6 510 000	5 049 959	-1 460 041*
	Y337 Resources & Energy			
225 186	Drilling debtors	250 000	56 211	-193 789
154 954	Geological services	460 000	374 633	-85 367
5 474	Mt Read fees	10 000	4 598	-5 402
–	Mines Inspection fee	100 000	-	-100 000
385 614		820 000	435 442	-384 558
7 800 744	**Total Recurrent Receipts**	8 754 000	6 772 686	-1 981 314

CAPITAL — State

71 989	*L800 Sale of Government assets*	–	9 523	9 523
71 989	**Total Capital Receipts**	–	9 523	9 523
7 872 733	**TOTAL RECEIPTS**	8 754 000	6 782 209	-1 971 791

* By Ministerial approval, payment of royalties in respect of two small companies was waived in 1990–91 and one payment was deferred until 1991–92.

RESOURCES AND ENERGY

Table D

Division 20
Program 1 – Mines

SPECIAL DEPOSITS AND TRUST FUND

T466 DEPOSIT ACCOUNT

STATEMENT OF RECEIPTS AND EXPENDITURE FOR YEAR ENDED 30 JUNE 1991

FUNCTION AND PURPOSE OF ACCOUNT

Amounts are received from individuals and companies as security against failure to perform or rehabilitate leases and licences under the Mining Act. Amounts are returned when leases or licences are cancelled or replaced by a bank guarantee. In the event of failure to rehabilitate the lease or licence area the deposit is forfeited and transferred to T757 Forfeited Performance Deposit Account.

1989/90 Actual $		$	1990/91 Actual $
239 525	Opening Balance		184 525
	Receipts		
77 050	Deposits received		81 500
316 575	Funds available		266 025
	Less Expenditure		
120 050	Deposits refunded	19 450	
12 000	Deposits forfeited	5 100	
132 050	Total expenditure		24 550
184 525	**Closing Balance**		241 475*

An additional $4.5M in bank guarantees is held as security against failure of individuals and companies to perform or rehabilitate leases and licences.

* This represents deposits held by the Department as at 30 June 1991 received for the purpose as detailed above.

RESOURCES AND ENERGY

Table D

Division 20
Program 1 – Mines

SPECIAL DEPOSITS AND TRUST FUND

T281 SMALL TIN MINERS ASSISTANCE SCHEME

STATEMENT OF RECEIPTS AND EXPENDITURE FOR YEAR ENDED 30 JUNE 1991

FUNCTION AND PURPOSE OF ACCOUNT

An agreement was made in 1986–87 for a grant of $79 700 by the Commonwealth Government to the State Government for the payment of subsidies to small tin miners.

The subsidy payable to small tin operators is subject to the following conditions.

In the case of borrowing up to a maximum of $20 000 — 50% of interest payments on loans or leases on borrowing by eligible small tin mine operators since 24 October 1985 but shall not exceed an amount of $8000 in respect of any one small tin mine.

Applications were considered within a three year period commencing on 1 October 1986 and the State repaid $35 060 of uncommitted amounts as at 30 September 1989, as specified in Part 6 of the Agreement to the Commonwealth. The State is not entitled to any assistance under this scheme.

1989/90 Actual $		$	1990/91 Actual $
67 730	Opening Balance		30 603
-	Receipts		-
67 730	Funds available		30 603
	Less Expenditure		
2 067	Subsidy to small-scale tin miners (Refer T752)	1 976	
35 060	Repayment to Commonwealth Government	-	
37 127	Total expenditure		1 976
30 603	Closing Balance		28 627

RESOURCES AND ENERGY

Table D

Division 20
Program 1 – Mines

SPECIAL DEPOSITS AND TRUST FUND

T741 GORDON RIVER POWER DEVELOPMENT*

STATEMENT OF RECEIPTS AND EXPENDITURE FOR YEAR ENDED 30 JUNE 1991

FUNCTION AND PURPOSE OF ACCOUNT

The Mt Read Project commenced in 1985/86 when Cabinet approved the allocation of $2 million from the Gordon River Power Development compensation account. Since then amounts have been transferred from the Consolidated Fund each financial year to the Department's section of this Trust Fund. The Mount Read Volcanics Project represents a major Government initiative designed to encourage maximum private sector mineral exploration effort in probably the most productive and prospective rock unit in Australia by provision of innovative regional geological, geophysical and geochemical information.

1989/90 Actual $		$	1990/91 Actual $
10 782	**Opening Balance**		13 292
	Receipts		
456 000	Transfer from Consolidated Fund (C772)	400 000	400 000
466 782	Funds available		413 292
	Less Expenditure		
373 461	Salaries	329 115	
14 568	Travelling expenses	11 087	
1 169	Motor vehicle expenses	493	
16 670	Production of maps	660	
10 803	Photographic expenses	4 006	
6 139	Purchase of minor equipment	14 135	
-	Purchase of major equipment	-	
30 680	Expendables	4 374	
-	Hire of helicopter	38 905	
453 490	Total expenditure		402 775
13 292	**Closing Balance**		10 517*

* This balance represents only the Department's proportion of the overall balance (DR $317 708) of T741 in the Special Deposits and Trust Fund as at 30 June 1991.

RESOURCES AND ENERGY

Table D

Division 20
Program 1 – Mines

SPECIAL DEPOSITS AND TRUST FUND

T757 FORFEITED PERFORMANCE DEPOSITS ACCOUNT

STATEMENT OF RECEIPTS AND EXPENDITURE FOR YEAR ENDED 30 JUNE 1991

FUNCTION AND PURPOSE OF ACCOUNT

Funds are provided from the forfeiture of mining companies performance deposits. Payments are made for the cost of the physical examination of mining exploration sites and for the purposes of associated restoration costs.

1989/90 Actual $		$	1990/91 Actual $
12 561	**Opening Balance**		27 552
	Receipts		
40 500	Deposits forfeited	22 734	22 734
53 061	Funds available		50 286
	Less Expenditure		
25 509	Restoration costs		26 204
27 552	**Closing Balance**		24 082

RESOURCES AND ENERGY

Table D

Division 20
Program 1 – Mines

SPECIAL DEPOSITS AND TRUST FUND

T752 MINING TRUST FUND

STATEMENT OF RECEIPTS AND EXPENDITURE FOR YEAR ENDED 30 JUNE 1991

FUNCTION AND PURPOSE OF ACCOUNT

Provides assistance by means of loans to individuals and companies for the purpose of mining. Amounts are received from repayment of loans, interest and Commonwealth Government subsidies.

1989/90 Actual $		$	1990/91 Actual $
108 866	**Opening Balance**		107 194
	Receipts		
7 374	Repayment of loans	5 548	
8 886	Repayment of interest	6 298	
2 068	Commonwealth subsidy (Refer T281)	1 976	
	Total receipts		13 822
127 194	Funds available		121 016
	Less Expenditure		
20 000	Assistance to individuals and companies	56 055	
20 000	Total expenditure		56 055
107 194	**Closing Balance**		64 961

An amount of $11 266 was written off as unrecoverable by the authority of Executive Council Meeting No. 8 of 1991, Minute No. 147.

An amount of $56 055 was advanced following Ministerial Approval to fund investigations of the Melba Flats Exempt Area. This investment not only reinforced the areas potential for Platinum Group Element mineralisation but discovered unexpected prospectivity for zinc, lead and copper at depth. The cost will be recouped when the tender for exploration rights is launched.

EXPLANATION OF VARIATION

CONSOLIDATED FUND EXPENDITURE — PROGRAM 1 (MINES)

ITEM A100: OPERATING EXPENSES:

A saving of $76 658 was attained in A100 to help offset the reduction in revenue in relation to Y337 below, to allow the Department to come as close as possible to the global budget allocation.

ITEM F100: BUILDING CONSTRUCTION AND ASSOCIATED EXPENSES

Additional funds of $35 000 were required to allow for the adjustment to cash flow for the construction of the new core store.

CONSOLIDATED FUND REVENUE

ITEM Y208: RENT AND FEES FROM MINERAL LANDS

The level of revenue is dependent on industry activity and a reduction of $262 987 reflects a downturn in Exploration Licence applications, reduced interest in Mining Leases, as well as sales of maps and publications and searches on real estate movements. The transfer of the Launceston laboratories to Hobart resulted in a reduction in revenue from assay fees.

ITEM Y212: MINERAL ROYALTIES

Revenue from this item is entirely dependent upon the state of the mining industry. The international market demand for metals from Tasmania is currently in a depressed state which has resulted in revenue being less than estimated for 1990/91.

ITEM Y337: RESOURCES AND ENERGY

The non-implementation of a Mines Inspection fee and the reduction in Department of Roads and Transport contract work for the Drilling Section were the major causes of the variation of $384 558 for this item.

RESOURCES AND ENERGY

Table B

Division 20
Program 2 — Rivers and Water Supply

CONSOLIDATED FUND — EXPENDITURE

YEAR ENDED 30 JUNE 1991

1989/90 Actual $			Estimate $	1990/91 Actual $	Variation $
	Program: 2 Rivers and Water Supply				
	Recurrent Services				
1 664 000	A100	Operating Expenses	2 102 000	1 869 680	-232 320
270 000	C103	Interest on borrowings for minor works	300 000	286 379	-13 621
2 328 000	C546	Local authorities: subsidies under the Water Act 1957	2 435 000	1 757 968	-677 032
2 686 000	C549	Construction of irrigation schemes: loan charges subsidies	2 850 000	2 692 793	-157 207
-	C857	Federal Water Resources Assistance Program: State contribution	-	127 500	127 500
6 948 000	**Total Recurrent Services**		7 687 000	6 734 320	-952 680
	Works and Services				
250 000	H100	Other Works and Purposes	101 000	84 079	-16 921
250 000	**Total Works and Services**		101 000	84 079	-16 921
7 198 000	**Total Expenditure for Program**		7 788 000	6 818 399	-969 601

RESOURCES AND ENERGY

Table B

Division 20
Program 2 — Rivers and Water Supply

CONSOLIDATED FUND — EXPENDITURE
A100 and H100

YEAR ENDED 30 JUNE 1991

1989/90 Actual $			Estimate $	1990/91 Actual $	Variation $
	A100				
1 247 000	A001	Salaries and related payments	1 607 100	1 306 216	-300 884
32 000	A011	Materials and supplies	46 700	43 657	-3 043
35 000	A012	Communication	45 300	48 692	3 392
93 000	A013	Property services	103 100	102 338	-762
124 000	A014	Travel	144 300	120 205	-24 095
16 000	A015	Transport	12 900	18 652	5 752
25 000	A016	Office machines and equipment	33 500	13 601	-19 899
5 000	A017	Printing and publications	7 100	8 278	1 178
22 000	A018	Electronic data processing	39 200	115 011	75 811
9 000	A019	Recruitment and other personnel expenses	26 000	40 682	14 682
56 000	A020	Miscellaneous	36 800	52 348	15 548
1 664 000	**Total A100**		2 102 000	1 869 680	-232 320
	H100				
8 000	H003	Furniture and fittings	6 000	10 613	4 613
43 000	H004	Computer equipment	14 000	14 240	240
26 000	H005	Motor vehicles	26 000	22 513	-3 487
173 000	H016	Loans for the purposes of Section 18 of the *Water Act 1957*	55 000	36 713	-18 287
250 000	**Total H100**		101 000	84 079	-16 921

RESOURCES AND ENERGY

Table C

Division 20
Program 2 — Rivers and Water Supply

CONSOLIDATED FUND — RECEIPTS

YEAR ENDED 30 JUNE 1991

RECURRENT — State

1989/90 Actual $		Estimate $	1990/91 Actual $	Variation $
	Y337 Resources & Energy			
22 000	Commissional Water Rights	89 000	97 646	8 646
24 000	Operation of stream gauging stations	6 000	8 941	2 941
-	Cost recovery — Trading schemes	533 000	523 000	-10 000
30 000	Cost recovery — Fluoride Inspector	31 000	31 912	912
76 000		659 000	661 499	2 499
76 000	**Total Recurrent Receipts***	659 000	661 499	2 499

* Receipts totalling $78 249 were credited to item Y808 Interest on Investments — Rivers and Water Supply Commission in 1990/91.

CAPITAL — State

Receipts totalling $110 000 were credited to item L040 Water Resources Assessment in 1990/91.

RESOURCES AND ENERGY

Table D

Division 20
Program 2 – Rivers and Water Supply

SPECIAL DEPOSITS AND TRUST FUND

T697 COUNTRY TOWNS WATER SUPPLY IMPROVEMENT PROGRAM (COWSIP) ACCOUNT

STATEMENT OF RECEIPTS AND EXPENDITURE FOR YEAR ENDED 30 JUNE 1991

FUNCTION AND PURPOSE OF ACCOUNT

To receipt both Commonwealth and State COWSIP contributions and make appropriate payments to Municipalities for approved COWSIP projects and other special projects approved by the State.

1989/90 Actual $		$	1990/91 Actual $
586 205	**Opening Balance**		110 682
	Receipts		
258 000	Commonwealth*	425 500	
212 667	State†	605 113	
470 667	Total receipts		1 030 613
1 056 872	**Funds Available**		1 141 295
	Less Expenditure		
942 637	COWSIP Projects	649 952	
3 553	State Project (Strahan Sewerage)	4 460	
-	FWRAP	139 486	
946 190	Total expenditure		793 898
110 682	**Closing Balance**		347 397

*** Commonwealth Receipts**

	$
COWSIP contribution	298 000
FWRAP contribution	127 500
	425 500

† State Receipts

	$
COWSIP contribution	356 056
FWRAP contribution	127 500
	483 556
TDA Contribution to Energy Program	9 000
HEC and Construction contribution to co-location	112 557
	605 113

RESOURCES AND ENERGY

Table D

Division 20
Program 2 – Rivers and Water Supply

SPECIAL DEPOSITS AND TRUST FUND

T503 RIVERS AND WATER SUPPLY COMMISSION DEPOSITS ON CONTRACTS ACCOUNT

STATEMENT OF RECEIPTS AND EXPENDITURE FOR YEAR ENDED 30 JUNE 1991

FUNCTION AND PURPOSE OF ACCOUNT

Amounts are received from individuals and companies as security against Government contracts.

1989/90 Actual $		$	1990/91 Actual $
84 421	**Opening Balance**		9 307
	Receipts		
42 596	Deposits received	57 825	57 825
127 017	Funds available		67 132
	Less Expenditure		
117 710	Deposits refunded	62 603	
117 710	Total expenditure		62 603
9 307	**Closing Balance**		4 529

EXPLANATION OF VARIATION

CONSOLIDATED FUND EXPENDITURE — PROGRAM 2 (RIVERS AND WATER SUPPLY)

ITEM C546: LOCAL AUTHORITIES — SUBSIDIES UNDER THE WATER ACT 1957

The qualifying standards for determining water and sewerage subsidies in 1990–91 were increased by 6.9% in line with the movement of average weekly earnings at November annually, as published by the Australian Bureau of Statistics. In addition to the 6.9% increase, a levy of $10 has been added to the revenue standard. The loading on the revenue standard has had the effect of reducing subsidies for the majority of schemes. However, increased costs, extensions and new facilities increased some subsidy allocations.

The total amount of subsidies paid in 1989–90 was $2 328 000 and the amount paid in 1990–91 was $1 758 000, a decrease of $570 000.

The major decreases were as follows:–

Municipalities served by the Hobart Regional Water Scheme

Subsidy 1989–90	$165 745
Subsidy 1990–91	$89 367
Decrease	$76 378

Municipalities served by the North West Regional Water Scheme

Subsidy 1989–90	$305 325
Subsidy 1990–91	$116 719
Decrease	$188 606

Front End Finance

During 1990–91 the system of providing subsidy assistance for the capital cost of constructing sewerage works through Front End Finance was discontinued. Assistance with the construction of future schemes will be through Traditional Subsidy Assistance.

CONSOLIDATED FUND RECEIPTS

ITEM Y337: RESOURCES AND ENERGY

Cost recovery from the Rivers and Water Supply Commission's trading schemes was introduced during 1990–91. Levied under Section 17(3) of the Water Act 1957 by the Commission, on a general basis of 12% of the Schemes' revenue, a total of $523 000 was paid into this item in 1990–91.

RESOURCES AND ENERGY

Table B

Division 20
Program 3 — Executive

CONSOLIDATED FUND — EXPENDITURE

YEAR ENDED 30 JUNE 1991

1989/90 Actual $		Estimate $	1990/91 Actual $	Variation $
	Program: 3 Executive			
	Recurrent Services			
-	A100 Operating Expenses	420 000	353 318	-66 682
-	**Total Recurrent Services**	420 000	353 318	-66 682
-	**Total Expenditure for Program**	420 000	353 318	-66 682

RESOURCES AND ENERGY

Table B

Division 20
Program 3 — Executive

CONSOLIDATED FUND — EXPENDITURE
A100

YEAR ENDED 30 JUNE 1991

1989/90 Actual $			Estimate $	1990/91 Actual $	Variation $
	A100				
	A001	Salaries and related payments	271 200	246 382	-24 818
	A011	Materials and supplies	20 000	20 802	802
	A012	Communication	19 000	20 189	1 189
	A013	Property services	5 000	6 301	1 301
	A014	Travel	35 000	16 132	-18 868
	A015	Transport	13 000	6 843	-6 157
	A016	Office machines and equipment	16 200	10 982	-5 218
	A017	Printing and publications	-	-	-
	A018	Electronic data processing	-	-	-
	A019	Recruitment and other personnel expenses	6 000	7 410	1 410
	A020	Miscellaneous	34 600	18 277	-16 323
-	**Total A100**		420 000	353 318	-66 682

RESOURCES AND ENERGY

LOSS, DEFICIENCY, DESTRUCTION AND DAMAGE TO PUBLIC OR OTHER MONEY, OR PUBLIC OR OTHER PROPERTY

DAMAGE

PROGRAM 1

16.7.1990	GV 4280	$1 226	No recovery as Departmental driver was at fault.
8.11.1990	GV 4723	$602	No recovery as accident was drivers fault.
23.11.1990	GV 7298	$338	No recovery, single vehicle accident.
5.12.1990	GV 7354	$500	No recovery, single vehicle accident.
7.12.1990	GV 0576	$120	No recovery.
11.3.1991	GV 5826	$2 300	No recovery as Departmental driver was at fault.
27.5.1991	GV 7344	$938	No recovery as driver of other vehicle could not be located.
27.6.1991	GV 4723	$3 758	No payment made as yet, insurance companies are trying to resolve.
28.6.1991	CJ 5766	$2 050	No recovery as Departmental driver was at fault. Vehicle was sold in damaged condition.

PROGRAM 2 — Nil

PROGRAM 3 — Nil

LOSS

PROGRAM 1

October 1990	Chainsaw Stihl 024 AVS S/No. 415294789 stolen. Reported to police, not recovered.

PROGRAM 2 — Nil

PROGRAM 3 — Nil

RESOURCES AND ENERGY

REVENUE AND EXPENDITURE OUTSTANDING AS AT 30 JUNE 1991

REVENUE DUE BUT UNCOLLECTED*

	Program 1 Mines	Program 2 Rivers and Water Supply	Program 3 Executive	Total Agency
Consolidated Fund	$1 122 352‡	$700	Nil	$1 123 052

All amounts have a reasonable prospect of recovery.
* Revenue due but uncollected represents all monies owing to the Department at 30 June 1991.
‡ Includes royalty payments of $1 035 525 attributable to the period ending 30 June 1991 and collected in July and August 1991

SUMMARY OF EXPENDITURE CLAIMS OUTSTANDING§

	Program 1 Mines & Mineral Resources Division	Program 2 Water Resources Division	Program 3 Executive Division	Total Agency
A100	$13 300	$4 200	Nil	$17 500
C103	-	-	-	-
C546	-	-	-	-
C549	-	-	-	-
C603	-	-	-	-
C772	-	-	-	-
C828	-	-	-	-
C830	-	-	-	-
C857	-	-	-	-
F100	-	-	-	-
H100	-	-	-	-
T281	-	-	-	-
øT466	-	-	-	-
T503	-	-	-	-
T697	-	-	-	-
T741	620	-	-	620
T752	-	-	-	-
T757	-	-	-	-
	$13 920	$4 200	-	$18 120

ø Total Deposits on hand, being the balance of this Trust Account as at 30 June 1991, is shown on Page 11.
§ Expenditure claims outstanding are all invoices on hand at 30 June which remain unpaid.

RESOURCES AND ENERGY

REVENUE AND EXPENDITURE OUTSTANDING AS AT 30 JUNE 1991 (continued)

SUMMARY OF EXPENDITURE COMMITMENTS*

	Program 1 Mines	Program 2 Rivers and Water Supply	Program 3 Executive	Total Agency
A100	$10 600	$24 700	-	$35 300
C103	-	-	-	-
C546	-	-	-	-
C549	-	-	-	-
C603	-	-	-	-
C772	-	-	-	-
C828	-	-	-	-
C830	-	-	-	-
C857	-	-	-	-
F100	$12 000	-	-	$12 000
H100	-	$6 000	-	$6 000
T281	-	-	-	-
T466	-	-	-	-
T503	-	-	-	-
T697	-	$6 700	-	$6 700
T741	-	-	-	-
T752	-	-	-	-
T757	-	-	-	-
	$22 600	$37 400	-	$60 000

* Expenditure commitments are all outstanding orders at 30 June for which an invoice for goods or services has not been received.

NOTES TO FINANCIAL STATEMENTS

1. The financial statements of the Department have been prepared on a cash basis of accounting in accordance with the *Financial Management and Audit Act 1990*.

2. The statements have been presented in Program form as set out in the *Consolidated Fund Appropriation Act 1990/91*.

3. Supplementary financial information required under the Treasurer's Instructions has been provided. This includes summaries of revenues due and uncollected and expenditure claims and commitments outstanding in relation to the Consolidated Fund and accounts of the Special Deposits and Trust Fund.

4. The financial statements only include identifiable costs and do not reflect the total costs of the operations of the Department. In some instances costs such as rent of office accommodation, and rates and taxes, are not included.

5. In accordance with a transitional arrangement (as per Treasurer's Instruction No. 702(3)(1)), a statement of assets employed has not been prepared. A statement of assets employed will be prepared for the financial year ended 30 June 1992.